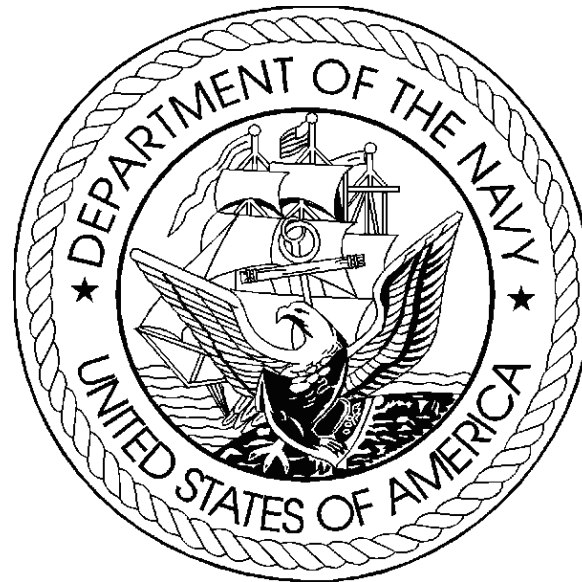


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**Department of Defense
Fiscal Year (FY) 2017 President's Budget Submission**

February 2016



Navy

Justification Book Volume 3 of 5

Research, Development, Test & Evaluation, Navy

Budget Activity 5

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The estimated cost for this report for the Department of the Navy (DON) is \$100,981.

The estimated total cost for supporting the DON budget justification material is approximately \$1,834,000 for the 2016 fiscal year. This includes \$75,200 in supplies and \$1,758,800 in labor.

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Department of Defense Appropriations Act, 2017

Research, Development, Test and Evaluation, Navy

For expenses necessary for basic and applied scientific research, development, test and evaluation, including maintenance, rehabilitation, lease, and operation of facilities and equipment, \$17,354,624,000, to remain available for obligation until September 30, 2017.

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Department of Defense
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 (Dollars in Thousands)

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Appropriation	FY 2015 (Base & OCO)	FY 2016 Base Enacted	FY 2016 OCO Enacted	FY 2016 Total Enacted	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Research, Development, Test & Eval, Navy	16,067,423	18,111,247	35,747	18,146,994	17,276,301	78,323	17,354,624
Total Research, Development, Test & Evaluation	16,067,423	18,111,247	35,747	18,146,994	17,276,301	78,323	17,354,624

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Department of Defense
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Summary Recap of Budget Activities	FY 2015 (Base & OCO)	FY 2016 Base Enacted	FY 2016 OCO Enacted	FY 2016 Total Enacted	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Basic Research	634,410	671,875		671,875	542,970		542,970
Applied Research	855,861	965,872		965,872	861,151		861,151
Advanced Technology Development	625,631	696,226		696,226	736,988		736,988
Advanced Component Development & Prototypes	4,357,168	5,022,272		5,022,272	4,662,867	41,897	4,704,764
System Development & Demonstration	5,119,875	6,274,796		6,274,796	6,025,655		6,025,655
Management Support	1,278,299	918,223		918,223	853,736		853,736
Operational Systems Development	3,196,179	3,561,983	35,747	3,597,730	3,592,934	36,426	3,629,360
Total Research, Development, Test & Evaluation	16,067,423	18,111,247	35,747	18,146,994	17,276,301	78,323	17,354,624
Summary Recap of FYDP Programs							
Strategic Forces	140,959	164,143		164,143	196,948		196,948
General Purpose Forces	1,292,908	1,326,178		1,326,178	1,447,043		1,447,043
Intelligence and Communications	754,576	719,253		719,253	713,042		713,042
Research and Development	12,620,194	14,380,627		14,380,627	13,638,282	41,897	13,680,179
Central Supply and Maintenance	60,896	28,506		28,506	52,526		52,526
Administration and Associated Activities	137	355		355			
Classified Programs	1,197,753	1,492,185	35,747	1,527,932	1,228,460	36,426	1,264,886
Total Research, Development, Test & Evaluation	16,067,423	18,111,247	35,747	18,146,994	17,276,301	78,323	17,354,624

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

Line No	Program Element Number	Item	Act	FY 2015 (Base & OCO)	FY 2016 Base Enacted	FY 2016 OCO Enacted	FY 2016 Total Enacted	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Se
1	0601103N	University Research Initiatives	01	129,331	146,196		146,196	101,714		101,714	U
2	0601152N	In-House Laboratory Independent Research	01	18,997	19,126		19,126	18,508		18,508	U
3	0601153N	Defense Research Sciences	01	486,082	506,553		506,553	422,748		422,748	U
		Basic Research		634,410	671,875		671,875	542,970		542,970	
4	0602114N	Power Projection Applied Research	02	94,944	87,223		87,223	41,371		41,371	U
5	0602123N	Force Protection Applied Research	02	159,556	178,616		178,616	158,745		158,745	U
6	0602131M	Marine Corps Landing Force Technology	02	44,629	51,643		51,643	51,590		51,590	U
7	0602235N	Common Picture Applied Research	02	44,874	42,538		42,538	41,185		41,185	U
8	0602236N	Warfighter Sustainment Applied Research	02	46,202	45,047		45,047	45,467		45,467	U
9	0602271N	Electromagnetic Systems Applied Research	02	102,750	114,644		114,644	118,941		118,941	U
10	0602435N	Ocean Warfighting Environment Applied Research	02	62,643	72,252		72,252	42,618		42,618	U
11	0602651M	Joint Non-Lethal Weapons Applied Research	02	5,728	6,114		6,114	6,327		6,327	U
12	0602747N	Undersea Warfare Applied Research	02	88,204	150,839		150,839	126,313		126,313	U
13	0602750N	Future Naval Capabilities Applied Research	02	171,992	179,538		179,538	165,103		165,103	U
14	0602782N	Mine and Expeditionary Warfare Applied Research	02	34,339	37,418		37,418	33,916		33,916	U
15	0602898N	Science and Technology Management - ONR Headquarters	02					29,575		29,575	U
		Applied Research		855,861	965,872		965,872	861,151		861,151	

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

Line No	Program Element Number	Item	Act	FY 2015 (Base & OCO)	FY 2016 Base Enacted	FY 2016 OCO Enacted	FY 2016 Total Enacted	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Se c
16	0603114N	Power Projection Advanced Technology	03	36,651	36,971		36,971	96,406		96,406	U
17	0603123N	Force Protection Advanced Technology	03	25,148	38,044		38,044	48,438		48,438	U
18	0603271N	Electromagnetic Systems Advanced Technology	03	62,860	34,856		34,856	26,421		26,421	U
19	0603640M	USMC Advanced Technology Demonstration (ATD)	03	125,696	131,490		131,490	140,416		140,416	U
20	0603651M	Joint Non-Lethal Weapons Technology Development	03	11,163	12,745		12,745	13,117		13,117	U
21	0603673N	Future Naval Capabilities Advanced Technology Development	03	257,806	265,562		265,562	249,092		249,092	U
22	0603680N	Manufacturing Technology Program	03		57,074		57,074	56,712		56,712	U
23	0603729N	Warfighter Protection Advanced Technology	03	39,374	36,299		36,299	4,789		4,789	U
24	0603747N	Undersea Warfare Advanced Technology	03	9,639	13,748		13,748	25,880		25,880	U
25	0603758N	Navy Warfighting Experiments and Demonstrations	03	55,363	65,946		65,946	60,550		60,550	U
26	0603782N	Mine and Expeditionary Warfare Advanced Technology	03	1,931	3,491		3,491	15,167		15,167	U
		Advanced Technology Development		625,631	696,226		696,226	736,988		736,988	
27	0603207N	Air/Ocean Tactical Applications	04	39,669	37,832		37,832	48,536		48,536	U
28	0603216N	Aviation Survivability	04	4,280	10,904		10,904	5,239		5,239	U
29	0603237N	Deployable Joint Command and Control	04	2,991	3,086		3,086				U
30	0603251N	Aircraft Systems	04	14,270	26,643		26,643	1,519		1,519	U
31	0603254N	ASW Systems Development	04	7,602	5,551		5,551	7,041		7,041	U

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32	0603261N	Tactical Airborne Reconnaissance	04	5,870	3,080		3,080	3,274		3,274	U
33	0603382N	Advanced Combat Systems Technology	04	1,582	1,631		1,631	57,034		57,034	U
34	0603502N	Surface and Shallow Water Mine Countermeasures	04	83,793	90,472		90,472	165,775		165,775	U
35	0603506N	Surface Ship Torpedo Defense	04	56,802	71,300		71,300	87,066		87,066	U
36	0603512N	Carrier Systems Development	04	5,954	8,348		8,348	7,605		7,605	U
37	0603525N	PILOT FISH	04	140,841	122,939		122,939	132,068		132,068	U
38	0603527N	RETRACT LARCH	04	29,725	28,803		28,803	14,546	3,907	18,453	U
39	0603536N	RETRACT JUNIPER	04	79,059	112,604		112,604	115,435		115,435	U
40	0603542N	Radiological Control	04	667	710		710	702		702	U
41	0603553N	Surface ASW	04	1,020	1,096		1,096	1,081		1,081	U
42	0603561N	Advanced Submarine System Development	04	65,913	85,834		85,834	100,565		100,565	U
43	0603562N	Submarine Tactical Warfare Systems	04	7,986	10,371		10,371	8,782		8,782	U
44	0603563N	Ship Concept Advanced Design	04	17,831	10,459		10,459	14,590		14,590	U
45	0603564N	Ship Preliminary Design & Feasibility Studies	04	8,007	3,332		3,332	15,805		15,805	U
46	0603570N	Advanced Nuclear Power Systems	04	499,961	482,040		482,040	453,313		453,313	U
47	0603573N	Advanced Surface Machinery Systems	04	20,357	24,143		24,143	36,655		36,655	U
48	0603576N	CHALK EAGLE	04	529,885	511,651		511,651	367,016		367,016	U
49	0603581N	Littoral Combat Ship (LCS)	04	80,199	91,416		91,416	51,630		51,630	U
50	0603582N	Combat System Integration	04	20,741	32,561		32,561	23,530		23,530	U
51	0603595N	Ohio Replacement	04	833,274	971,393		971,393	700,811		700,811	U

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Line No	Program Element Number	Item	Act	FY 2015 (Base & OCO)	FY 2016 Base Enacted	FY 2016 OCO Enacted	FY 2016 Total Enacted	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Se c
52	0603596N	LCS Mission Modules	04	172,602	203,143		203,143	160,058		160,058	U
53	0603597N	Automated Test and Analysis	04	7,816	23,000		23,000				U
54	0603599N	Frigate Development	04		30,000		30,000	84,900		84,900	U
55	0603609N	Conventional Munitions	04	7,603	7,678		7,678	8,342		8,342	U
56	0603611M	Marine Corps Assault Vehicles	04	101,175	212,173		212,173	158,682		158,682	U
57	0603635M	Marine Corps Ground Combat/Support System	04	1,241	378		378	1,303		1,303	U
58	0603654N	Joint Service Explosive Ordnance Development	04	22,274	15,329		15,329	46,911		46,911	U
59	0603658N	Cooperative Engagement	04	41,158	73,786		73,786				U
60	0603713N	Ocean Engineering Technology Development	04	6,127	4,520		4,520	4,556		4,556	U
61	0603721N	Environmental Protection	04	13,200	19,289		19,289	20,343		20,343	U
62	0603724N	Navy Energy Program	04	62,412	56,391		56,391	52,479		52,479	U
63	0603725N	Facilities Improvement	04	2,588	3,726		3,726	5,458		5,458	U
64	0603734N	CHALK CORAL	04	162,900	174,771		174,771	245,860		245,860	U
65	0603739N	Navy Logistic Productivity	04	3,355	3,866		3,866	3,089		3,089	U
66	0603746N	RETRACT MAPLE	04	346,830	359,856		359,856	323,526		323,526	U
67	0603748N	LINK PLUMERIA	04	260,179	237,376		237,376	318,497		318,497	U
68	0603751N	RETRACT ELM	04	32,889	37,700		37,700	52,834		52,834	U
69	0603764N	LINK EVERGREEN	04	44,894	47,312		47,312	48,116		48,116	U
70	0603787N	Special Processes	04	24,336	17,392		17,392	13,619		13,619	U
71	0603790N	NATO Research and Development	04	8,659	8,320		8,320	9,867		9,867	U

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Program Line Element No Number	Item	Act	FY 2015 (Base & OCO)	FY 2016 Base Enacted	FY 2016 OCO Enacted	FY 2016 Total Enacted	FY 2017 Base	FY 2017 OCO	FY 2017 Total	S e c
72 0603795N	Land Attack Technology	04	310	887		887	6,015		6,015	U
73 0603851M	Joint Non-Lethal Weapons Testing	04	32,955	29,444		29,444	27,904		27,904	U
74 0603860N	Joint Precision Approach and Landing Systems - Dem/Val	04	41,644	81,466		81,466	104,144		104,144	U
75 0603925N	Directed Energy and Electric Weapon Systems	04	54,154	41,730		41,730	32,700		32,700	U
76 0604112N	Gerald R. Ford Class Nuclear Aircraft Carrier (CVN 78 - 80)	04	46,308	98,105		98,105	70,528		70,528	U
77 0604122N	Remote Minehunting System (RMS)	04	20,534	17,589		17,589	3,001		3,001	U
78 0604272N	Tactical Air Directional Infrared Countermeasures (TADIRCM)	04	5,677	18,969		18,969	34,920	37,990	72,910	U
79 0604279N	ASE Self-Protection Optimization	04	5,121	7,874		7,874				U
80 0604292N	MH-XX	04	3,007	4,516		4,516	1,620		1,620	U
81 0604454N	LX (R)	04	32,522	75,486		75,486	6,354		6,354	U
82 0604536N	Advanced Undersea Prototyping	04					78,589		78,589	U
83 0604653N	Joint Counter Radio Controlled IED Electronic Warfare (JCREW)	04	14,987	3,790		3,790				U
84 0604659N	Precision Strike Weapons Development Program	04		9,595		9,595	9,910		9,910	U
85 0604707N	Space and Electronic Warfare (SEW) Architecture/Engineering Support	04	21,916	20,203		20,203	23,971		23,971	U
86 0604786N	Offensive Anti-Surface Warfare Weapon Development	04	181,719	285,849		285,849	252,409		252,409	U
87 0605812M	Joint Light Tactical Vehicle (JLTV) Engineering and Manufacturing Development Ph	04	8,970	32,149		32,149	23,197		23,197	U

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Line No	Program Element Number	Item	Act	FY 2015 (Base & OCO)	FY 2016 Base Enacted	FY 2016 OCO Enacted	FY 2016 Total Enacted	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Sec
88	0303354N	ASW Systems Development - MIP	04	6,495	9,835		9,835	9,110		9,110	U
89	0304270N	Electronic Warfare Development - MIP	04	332	580		580	437		437	U
		Advanced Component Development & Prototypes		4,357,168	5,022,272		5,022,272	4,662,867	41,897	4,704,764	
90	0603208N	Training System Aircraft	05	13,115	17,989		17,989	19,938		19,938	U
91	0604212N	Other Helo Development	05	34,436	11,101		11,101	6,268		6,268	U
92	0604214N	AV-8B Aircraft - Eng Dev	05	24,558	27,668		27,668	33,664		33,664	U
93	0604215N	Standards Development	05	52,842	53,049		53,049	1,300		1,300	U
94	0604216N	Multi-Mission Helicopter Upgrade Development	05	11,159	18,858		18,858	5,275		5,275	U
95	0604218N	Air/Ocean Equipment Engineering	05	2,126	4,515		4,515	3,875		3,875	U
96	0604221N	P-3 Modernization Program	05	698	1,514		1,514	1,909		1,909	U
97	0604230N	Warfare Support System	05	9,050	5,875		5,875	13,237		13,237	U
98	0604231N	Tactical Command System	05	52,287	73,533		73,533	36,323		36,323	U
99	0604234N	Advanced Hawkeye	05	171,189	217,645		217,645	363,792		363,792	U
100	0604245N	H-1 Upgrades	05	43,469	27,235		27,235	27,441		27,441	U
101	0604261N	Acoustic Search Sensors	05	24,395	31,235		31,235	34,525		34,525	U
102	0604262N	V-22A	05	50,188	76,483		76,483	174,423		174,423	U
103	0604264N	Air Crew Systems Development	05	14,503	12,665		12,665	13,577		13,577	U
104	0604269N	EA-18	05	18,653	46,921		46,921	116,761		116,761	U
105	0604270N	Electronic Warfare Development	05	27,250	20,113		20,113	48,766		48,766	U
106	0604273N	Executive Helo Development	05	356,567	507,093		507,093	338,357		338,357	U
107	0604274N	Next Generation Jammer (NGJ)	05	224,578	387,770		387,770	577,822		577,822	U

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108	0604280N	Joint Tactical Radio System - Navy (JTRS-Navy)	05	6,725	24,985		24,985	2,365		2,365	U
109	0604282N	Next Generation Jammer (NGJ) Increment II	05		13,000		13,000	52,065		52,065	U
110	0604307N	Surface Combatant Combat System Engineering	05	178,430	386,576		386,576	282,764		282,764	U
111	0604311N	LPD-17 Class Systems Integration	05	363	747		747	580		580	U
112	0604329N	Small Diameter Bomb (SDB)	05	53,950	57,144		57,144	97,622		97,622	U
113	0604366N	Standard Missile Improvements	05	50,241	115,644		115,644	120,561		120,561	U
114	0604373N	Airborne MCM	05	37,831	9,647		9,647	45,622		45,622	U
115	0604376M	Marine Air Ground Task Force (MAGTF) Electronic Warfare (EW) for Aviation	05	9,219	2,778		2,778				U
116	0604378N	Naval Integrated Fire Control - Counter Air Systems Engineering	05	14,903	23,695		23,695	25,750		25,750	U
117	0604404N	Unmanned Carrier Launched Airborne Surveillance and Strike (UCLASS) System	05	382,542	434,699		434,699				U
118	0604501N	Advanced Above Water Sensors	05	19,320	43,914		43,914	85,868		85,868	U
119	0604503N	SSN-688 and Trident Modernization	05	70,053	109,893		109,893	117,476		117,476	U
120	0604504N	Air Control	05	28,669	57,928		57,928	47,404		47,404	U
121	0604512N	Shipboard Aviation Systems	05	120,062	120,217		120,217	112,158		112,158	U
122	0604518N	Combat Information Center Conversion	05					6,283		6,283	U
123	0604522N	Air and Missile Defense Radar (AMDR) System	05	126,525	232,677		232,677	144,395		144,395	U
124	0604558N	New Design SSN	05	85,787	157,056		157,056	113,013		113,013	U

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125	0604562N	Submarine Tactical Warfare System	05	37,768	52,713		52,713	43,160		43,160	U
126	0604567N	Ship Contract Design/ Live Fire T&E	05	39,459	38,925		38,925	65,002		65,002	U
127	0604574N	Navy Tactical Computer Resources	05	3,884	4,096		4,096	3,098		3,098	U
128	0604580N	Virginia Payload Module (VPM)	05	106,223	167,719		167,719	97,920		97,920	U
129	0604601N	Mine Development	05	10,962	15,122		15,122	10,490		10,490	U
130	0604610N	Lightweight Torpedo Development	05	39,664	43,738		43,738	20,178		20,178	U
131	0604654N	Joint Service Explosive Ordnance Development	05	8,978	8,123		8,123	7,369		7,369	U
132	0604703N	Personnel, Training, Simulation, and Human Factors	05	5,925	7,686		7,686	4,995		4,995	U
133	0604727N	Joint Standoff Weapon Systems	05	4,389	405		405	412		412	U
134	0604755N	Ship Self Defense (Detect & Control)	05	64,704	145,336		145,336	134,619		134,619	U
135	0604756N	Ship Self Defense (Engage: Hard Kill)	05	94,534	86,811		86,811	114,475		114,475	U
136	0604757N	Ship Self Defense (Engage: Soft Kill/EW)	05	107,319	105,416		105,416	114,211		114,211	U
137	0604761N	Intelligence Engineering	05	200	2,053		2,053	11,029		11,029	U
138	0604771N	Medical Development	05	26,589	25,291		25,291	9,220		9,220	U
139	0604777N	Navigation/ID System	05	28,952	32,456		32,456	42,723		42,723	U
140	0604800M	Joint Strike Fighter (JSF) - EMD	05	487,940	537,901		537,901	531,426		531,426	U
141	0604800N	Joint Strike Fighter (JSF) - EMD	05	486,978	504,736		504,736	528,716		528,716	U
142	0604810M	Joint Strike Fighter Follow On Development - Marine Corps	05	10,086	20,798		20,798	74,227		74,227	U

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143	0604810N	Joint Strike Fighter Follow On Development - Navy	05	10,302	21,200		21,200	63,387		63,387	U
144	0605013M	Information Technology Development	05	2,670	4,824		4,824	4,856		4,856	U
145	0605013N	Information Technology Development	05	55,106	85,816		85,816	97,066		97,066	U
146	0605024N	Anti-Tamper Technology Support	05					2,500		2,500	U
147	0605212N	CH-53K RDTE	05	538,192	592,317		592,317	404,810		404,810	U
148	0605215N	Mission Planning	05					33,570		33,570	U
149	0605217N	Common Avionics	05					51,599		51,599	U
150	0605220N	Ship to Shore Connector (SSC)	05	41,616	7,778		7,778	11,088		11,088	U
151	0605327N	T-AO (X)	05					1,095		1,095	U
152	0605414N	Carrier Based Aerial Refueling System (CBARS)	05					89,000		89,000	U
153	0605450N	Joint Air-to-Ground Missile (JAGM)	05	6,104	25,898		25,898	17,880		17,880	U
154	0605500N	Multi-mission Maritime Aircraft (MMA)	05	297,380	156,293		156,293	59,126		59,126	U
155	0605504N	Multi-Mission Maritime (MMA) Increment III	05		91,616		91,616	182,220		182,220	U
156	0204202N	DDG-1000	05	196,987	103,179		103,179	45,642		45,642	U
157	0303167N	Pre-Auction Spectrum Relocation Fund	05	1,569							U
158	0303267N	Auctioned Spectrum Relocation Fund	05	4,569							U
159	0304231N	Tactical Command System - MIP	05	1,011	998		998	676		676	U
160	0304785N	Tactical Cryptologic Systems	05	10,157	17,785		17,785	36,747		36,747	U
161	0305124N	Special Applications Program	05	73,975	35,905		35,905	35,002		35,002	U

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162	0306250M	Cyber Operations Technology Development	05					4,942		4,942	U
		System Development & Demonstration		5,119,875	6,274,796		6,274,796	6,025,655		6,025,655	
163	0604256N	Threat Simulator Development	06	40,178	30,769		30,769	16,633		16,633	U
164	0604258N	Target Systems Development	06	66,251	71,152		71,152	36,662		36,662	U
165	0604759N	Major T&E Investment	06	121,108	61,234		61,234	42,109		42,109	U
166	0605126N	Joint Theater Air and Missile Defense Organization	06	4,800	6,995		6,995	2,998		2,998	U
167	0605152N	Studies and Analysis Support - Navy	06	3,412	4,011		4,011	3,931		3,931	U
168	0605154N	Center for Naval Analyses	06	43,054	47,071		47,071	46,634		46,634	U
169	0605285N	Next Generation Fighter	06	4,794	5,000		5,000	1,200		1,200	U
170	0605502N	Small Business Innovative Research	06	325,429							U
171	0605804N	Technical Information Services	06	1,290	925		925	903		903	U
172	0605853N	Management, Technical & International Support	06	83,789	83,024		83,024	87,077		87,077	U
173	0605856N	Strategic Technical Support	06	2,500	3,258		3,258	3,597		3,597	U
174	0605861N	RDT&E Science and Technology Management	06	72,943	76,948		76,948	62,811		62,811	U
175	0605863N	RDT&E Ship and Aircraft Support	06	127,634	132,122		132,122	106,093		106,093	U
176	0605864N	Test and Evaluation Support	06	335,791	351,912		351,912	349,146		349,146	U
177	0605865N	Operational Test and Evaluation Capability	06	16,423	17,985		17,985	18,160		18,160	U
178	0605866N	Navy Space and Electronic Warfare (SEW) Support	06	2,992	5,316		5,316	9,658		9,658	U

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179	0605867N	SEW Surveillance/Reconnaissance Support	06	8,325	6,519		6,519	6,500		6,500	U
180	0605873M	Marine Corps Program Wide Support	06	17,449	13,627		13,627	22,247		22,247	U
181	0605898N	Management HQ - R&D	06					16,254		16,254	U
182	0606355N	Warfare Innovation Management	06					21,123		21,123	U
183	0909980N	Judgment Fund Reimbursement	06		353		353				U
184	0909999N	Financing for Cancelled Account Adjustments	06	137	2		2				U
		Management Support		1,278,299	918,223		918,223	853,736		853,736	
186	0604402N	Unmanned Combat Air Vehicle (UCAV) Advanced Component and Prototype Development	07	35,309							U
187	0605525N	Carrier Onboard Delivery (COD) Follow On	07	8,873							U
188	0607658N	Cooperative Engagement Capability (CEC)	07					84,501		84,501	U
189	0607700N	Deployable Joint Command and Control	07					2,970		2,970	U
190	0101221N	Strategic Sub & Weapons System Support	07	93,912	96,404		96,404	136,556		136,556	U
191	0101224N	SSBN Security Technology Program	07	29,146	46,481		46,481	33,845		33,845	U
192	0101226N	Submarine Acoustic Warfare Development	07	4,366	4,700		4,700	9,329		9,329	U
193	0101402N	Navy Strategic Communications	07	13,535	16,558		16,558	17,218		17,218	U
194	0203761N	Rapid Technology Transition (RTT)	07	8,323	8,632		8,632				U
195	0204136N	F/A-18 Squadrons	07	84,976	135,755		135,755	189,125		189,125	U

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196	0204163N	Fleet Telecommunications (Tactical)	07	26,333	41,538		41,538	48,225		48,225	U
197	0204228N	Surface Support	07	3,000	36,045		36,045	21,156		21,156	U
198	0204229N	Tomahawk and Tomahawk Mission Planning Center (TMPC)	07	25,543	25,227		25,227	71,355		71,355	U
199	0204311N	Integrated Surveillance System	07	72,315	49,587		49,587	58,542		58,542	U
200	0204413N	Amphibious Tactical Support Units (Displacement Craft)	07	5,522	11,335		11,335	13,929		13,929	U
201	0204460M	Ground/Air Task Oriented Radar (G/ATOR)	07	90,577	65,598		65,598	83,538		83,538	U
202	0204571N	Consolidated Training Systems Development	07	38,359	34,325		34,325	38,593		38,593	U
203	0204574N	Cryptologic Direct Support	07	1,627	1,915		1,915	1,122		1,122	U
204	0204575N	Electronic Warfare (EW) Readiness Support	07	15,993	46,403		46,403	99,998		99,998	U
205	0205601N	HARM Improvement	07	17,377	23,708		23,708	48,635		48,635	U
206	0205604N	Tactical Data Links	07	135,582	142,361		142,361	124,785		124,785	U
207	0205620N	Surface ASW Combat System Integration	07	25,567	24,435		24,435	24,583		24,583	U
208	0205632N	MK-48 ADCAP	07	25,920	47,703		47,703	39,134		39,134	U
209	0205633N	Aviation Improvements	07	83,083	106,255		106,255	120,861		120,861	U
210	0205675N	Operational Nuclear Power Systems	07	104,023	101,323		101,323	101,786		101,786	U
211	0206313M	Marine Corps Communications Systems	07	82,576	77,909		77,909	82,159		82,159	U
212	0206335M	Common Aviation Command and Control System (CAC2S)	07	31,568	13,431		13,431	11,850		11,850	U

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213	0206623M	Marine Corps Ground Combat/ Supporting Arms Systems	07	49,173	48,590		48,590	47,877		47,877	U
214	0206624M	Marine Corps Combat Services Support	07	18,185	19,955		19,955	13,194		13,194	U
215	0206625M	USMC Intelligence/Electronic Warfare Systems (MIP)	07	16,178	12,671		12,671	17,171		17,171	U
216	0206629M	Amphibious Assault Vehicle	07	87,940	45,110		45,110	38,020		38,020	U
217	0207161N	Tactical AIM Missiles	07	36,361	71,016		71,016	56,285		56,285	U
218	0207163N	Advanced Medium Range Air-to-Air Missile (AMRAAM)	07	9,820	32,172		32,172	40,350		40,350	U
219	0219902M	Global Combat Support System - Marine Corps (GCSS-MC)	07					9,128		9,128	U
223	0303109N	Satellite Communications (SPACE)	07	34,716	47,312		47,312	37,372		37,372	U
224	0303138N	Consolidated Afloat Network Enterprise Services (CANES)	07	24,137	21,667		21,667	23,541		23,541	U
225	0303140N	Information Systems Security Program	07	22,655	28,081		28,081	38,510		38,510	U
227	0305160N	Navy Meteorological and Ocean Sensors-Space (METOC)	07	356	599		599				U
228	0305192N	Military Intelligence Program (MIP) Activities	07	6,166	6,207		6,207	6,019		6,019	U
229	0305204N	Tactical Unmanned Aerial Vehicles	07	8,505	8,550		8,550	8,436		8,436	U
230	0305205N	UAS Integration and Interoperability	07		41,831		41,831	36,509		36,509	U
231	0305208M	Distributed Common Ground/Surface Systems	07	10,916	1,105		1,105	2,100		2,100	U
232	0305208N	Distributed Common Ground/Surface Systems	07	18,146	23,149		23,149	44,571		44,571	U
233	0305220N	MQ-4C Triton	07	419,242	227,118		227,118	111,729		111,729	U

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234	0305231N	MQ-8 UAV	07	43,294	52,770		52,770	26,518		26,518	U
235	0305232M	RQ-11 UAV	07	682	635		635	418		418	U
236	0305233N	RQ-7 UAV	07	851	688		688	716		716	U
237	0305234N	Small (Level 0) Tactical UAS (STUASL0)	07	4,813	4,647		4,647	5,071		5,071	U
238	0305239M	RQ-21A	07	7,782	6,251		6,251	9,497		9,497	U
239	0305241N	Multi-Intelligence Sensor Development	07	17,751	39,645		39,645	77,965		77,965	U
240	0305242M	Unmanned Aerial Systems (UAS) Payloads (MIP)	07	1,900	9,246		9,246	11,181		11,181	U
241	0305421N	RQ-4 Modernization	07	30,000	129,892		129,892	181,266		181,266	U
242	0308601N	Modeling and Simulation Support	07	4,556	4,757		4,757	4,709		4,709	U
243	0702207N	Depot Maintenance (Non-IF)	07	20,678	24,185		24,185	49,322		49,322	U
244	0708011N	Industrial Preparedness	07	36,031							U
245	0708730N	Maritime Technology (MARITECH)	07	4,187	4,321		4,321	3,204		3,204	U
9999	9999999999	Classified Programs		1,197,753	1,492,185	35,747	1,527,932	1,228,460	36,426	1,264,886	U
		Operational Systems Development		3,196,179	3,561,983		3,597,730	3,592,934		3,629,360	
Total Research, Development, Test & Eval, Navy				16,067,423	18,111,247		18,146,994	17,276,301	78,323	17,354,624	

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0603208N / <i>Training System Aircraft</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	0.000	13.115	17.989	19.938	-	19.938	22.289	6.801	2.823	2.890	0.000	85.845
3367: <i>Training Aircraft Updates</i>	0.000	13.115	17.989	19.938	-	19.938	22.289	6.801	2.823	2.890	0.000	85.845

A. Mission Description and Budget Item Justification

Decrease in by TRAINING SYSTEM AIRCRAFT \$0.837M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

The FY 2017 funding request was reduced by \$3.982M to account for the availability of prior year execution balances.

This program element provides for design, development, integration and test of various pre-production platform improvements for Naval Undergraduate Flight Training Systems. Continued development engineering for improvements in reliability, maintainability, safety and meeting Federal Aviation Administration (FAA) Next Generation Air Transportation System (NextGen) flight safety requirements are required to ensure maximum benefit is achieved to provide effective cost of ownership and availability of aircraft to meet Chief of Naval Air Training (CNATRA) student training requirements. Specific efforts include: T-45 Training System (TS) Required Avionics Sustainment Program (RASP) Phase I Automatic Dependent Surveillance-Broadcast (ADS-B) (Out); T-6 Joint Primary Aircraft Training System (JPATS) Communication and Navigation System/Air Traffic Management (CNS/ATM); TH-57 Follow-On Training System and T-6 Rudder Binding Analysis.

TH-57 Follow-On Training System and Training System Improvements are NEW STARTs for FY2017.

This program is funded under SYSTEM DEVELOPMENT AND DEMONSTRATION because it includes those projects conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full-rate production decision.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	25.153	21.708	17.814	-	17.814
Current President's Budget	13.115	17.989	19.938	-	19.938
Total Adjustments	-12.038	-3.719	2.124	-	2.124
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-3.719			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-11.300	0.000			
• SBIR/STTR Transfer	-0.739	0.000			
• Program Adjustments	0.000	0.000	6.767	-	6.767
• Rate/Misc Adjustments	0.001	0.000	-4.643	-	-4.643

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy Date: February 2016

Appropriation/Budget Activity
1319: *Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)*

R-1 Program Element (Number/Name)
PE 0603208N / *Training System Aircraft*

Change Summary Explanation

FY2015 Changes reflect reprogramming of funds based on adjustment to T-6 Automatic Dependent Surveillance-Broadcast (Out) schedule.

FY2017 program adjustments reflect addition of TH-57 Follow-On Training System effort and continuation of T-6 Joint Primary Aircraft Training System (JPATS) ADS-B Out effort. FY2017 Rate/Misc Adjustments include \$3.982M reduction for FY15 Program Execution, Targeted Bipartisan Budget Act Reduction of \$0.837M, Defense Travel Modernization Reduction of \$0.006M as well as miscellaneous adjustments for Navy Working Capital Fund and Inflation rates.

Schedule: T-45 Training System (TS) Required Avionics Sustainment Program (RASP) updated to reflect schedule impacts resulting from this effort being a new start in FY-2015 and delay in receipt of funding to 2nd QTR FY-2015. Schedules shifted by 1 to 2 quarters.

Schedule: T-6 A/B schedule updated to reflect change to abbreviated acquisition program specific to T-6B model efforts for Communication and Navigation System/Air Traffic Management (CNS/ATM) removing MS B and MS C events.

Schedule: Schedule for training system improvements added for FY2017 and beyond to reflect future development efforts to improve Naval Undergraduate Flight Training Systems.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0603208N / <i>Training System Aircraft</i>				Project (Number/Name) 3367 / <i>Training Aircraft Updates</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3367: <i>Training Aircraft Updates</i>	0.000	13.115	17.989	19.938	-	19.938	22.289	6.801	2.823	2.890	0.000	85.845
Quantity of RDT&E Articles		-	24	-	-	-	-	-	-	-		

Note

The Federal Aviation Administration (FAA) has developed a plan to modernize the National Airspace System (NAS) in order to address the impact of air traffic growth in the United States. This multi-phase plan, called Next Generation Air Transportation System (NextGen) is intended to increase the air traffic capacity while at the same time improving safety and efficiency. In part, NextGen implements a capability called Performance Based Navigation (PBN) in which the aircraft's navigation performance capability will be a determining factor as to whether or not it can fly within specific airspace, certain air traffic routes or instrument procedures. Also, NextGen transforms the NAS from a radar based system, with aircraft interrogation, to a satellite based system utilizing Automatic Dependent Surveillance-Broadcast (ADS-B) (Out) communication in order to transmit the aircraft's own position to the controllers and other ADS-B (IN) capable aircraft. PBN is an enabler for ADS-B functionality.

On May 28th, 2010 the FAA released DoT/FAA, 14 CFR Part 91: Automatic Dependent Surveillance-Broadcast (ADS-B) Out Performance Requirements To Support Air Traffic Control (ATC) Service Final Rule. This mandate stipulated that all aircraft required to have unrestricted access to operate in Classes A, B, and C airspace, certain Class E airspace, and other specified airspace requiring ADS-B (Out), must be in compliance with this regulation by January 1, 2020.

A. Mission Description and Budget Item Justification

The T-45 Training System (TS) Required Avionics Sustainment Program (RASP) Phase I ADS-B (Out):

In order for the T-45TS to continue to have unrestricted access to the NAS through its projected end of service life, 2035, and avoid impacts to Chief of Naval Air Training (CNATRA) Strike Pilot and Naval Flight Officer (NFO) training, the T-45TS must develop, test, and integrate the RASP Phase I ADS-B Out capability. This research and development effort is an ACAT III program and consists of the minimum required capability increase necessary to enable ADS-B (Out) in the T-45, equipping 197 aircraft and 18 simulators to meet the January 1, 2020 FAA ADS-B (Out) mandate. Specifically, this includes the development, integration, test and certification of the replacement for the APX-100 Transponder (with associated control panel, personality module, and data bus connectivity), the replacement of the Air Data Computer (ADC), and the integration of these components with the modified Global Position System (GPS)/ Inertial Navigation Assembly (GINA), antennas, and Mission Display Processor (MDP) Operational Flight Program (OFF) software.

The T-6 Joint Primary Aircraft Training System (JPATS) Communication and Navigation System/Air Traffic Management (CNS/ATM):

JPATS is a joint United States Navy (USN)/United States Air Force (USAF) Acquisition Program designed to replace the aging primary aircraft (T-34/T-37) fleet. Principle JPATS mission is primary training for entry-level Navy/Air Force student pilots, associated instructor pilots, and primary/intermediate training for USN NFOs. JPATS includes the T-6 Texan II which is a stepped tandem seat, commercially derived aircraft powered by a single Pratt & Whitney PT6A-68 turboprop engine. It serves as the aircraft component of the JPATS integrated primary pilot training system which replaces the T-34C primary training aircraft. In order for the T-6 A&B training aircraft to continue to have unrestricted access to the national air space through its projected end of service life and avoid impacts to CNATRA primary entry-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0603208N / <i>Training System Aircraft</i>	Project (Number/Name) 3367 / <i>Training Aircraft Updates</i>
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level student pilots and NFO training, the T-6 program must develop, integrate, test and certify ADS-B (Out) capability for both the A&B models. This R&D effort will consist of the minimum required capability increase necessary for ADS-B (Out), enabling 295 aircraft and 29 simulators to meet the January 1, 2020 FAA mandate. This effort specifically includes development, integration, test and certification. Additionally, T-6 program efforts may include studies and development supporting future pre-production improvements to the T-6 aircraft. These improvements include improvements to the flight management system as well as improvements to reliability, maintainability, and safety that support effective cost of ownership and aircraft availability.

The TH-57 Follow-On Training System:

The TH-57 Training System consists of TH-57B aircraft, TH-57C aircraft, and associated family of ground based training devices. The TH-57 Training System is experiencing obsolescence, diminishing manufacturing sources and material shortages, training capability gaps (as identified in the Capabilities based assessment Naval Aviation Undergraduate Flight Training), and increasingly expensive operating costs related to aging aircraft issues. This research and development effort will investigate alternatives for replacing the TH-57 training system and develop and validate the acquisition strategy for future procurement of the capability to continue to provide the fleet replacement squadrons with qualified and capable rotary-wing naval aviators to train on fleet platforms. This effort specifically includes market research, requirements development, evaluation of acquisition strategies, evaluation of proposals, and testing of prototypes which are technically mature and ready for evaluation in the Engineering and Manufacturing Development phase.

Training System Improvements:

Efforts will provide for design, development, integration and test of pre-production platform improvements for Naval Undergraduate Flight Training Systems which will conduct engineering and manufacturing development tasks aimed at meeting validated requirements prior to full-rate production decisions.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: T45 RASP	7.354	14.989	14.798	0.000	14.798
Articles:	-	18	-	-	-
Description: Funding supports development, integration, test, and certification of the Automatic Dependent Surveillance-Broadcast (ADS-B) Out capability in the T-45 Training System to comply with the January 1, 2020 Federal Aviation Administration ADS-B Out mandate.					
FY 2015 Accomplishments: T-45 Training System: Begin design and integration of Required Avionics Sustainment Program (RASP) Phase I into the T-45 by providing manpower to support an ACAT III Program of Record pre-Milestone B in FY15. Activities that have begun in FY15 include: contract efforts to support the award of the Engineering Manufacturing Development contract; the development, replacement, and integration of the transponder (with associated control panel, personality module, and data bus connectivity), and the Air Data Computer (ADC);					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0603208N / <i>Training System Aircraft</i>	Project (Number/Name) 3367 / <i>Training Aircraft Updates</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>and the integration of these components with the modified Global Position System/Inertial Navigation Assembly (GINA), antennas, and Mission Display Processor Operational Flight Program (MDP/OFP) software.</p> <p>FY 2016 Plans: Continue the design and integration of the Automatic Dependent Surveillance - Broadcast solution in the T-45 that will include the replacements to the transponder (with associated control panel, personality module, and data bus connectivity), the Air Data Computer (ADC), and the integration of these components with the modified Global Position System/Inertial Navigation Assembly (GINA), antennas, and Mission Display Processor Operational Flight Program (MDP/OFP) software. Continuation of the Engineering Manufacturing Development (EMD) contract for this ACAT III program to support Milestone B in FY 2017 and the certification process. To allow for sufficient lead time, 4 transponder kits, 4 GPS Navigation Units and 4 Air Data Computer articles will be purchased to support laboratory integration testing; 3 transponder kits and 3 ADC articles will be purchased to support aircraft test in FY 2017; for a total of 18 RDT&E,N articles.</p> <p>FY 2017 Base Plans: Continue the Automatic Dependent Surveillance-Broadcast (ADS-B) (Out) design and integration efforts to support Milestone B in the second quarter. Laboratory integration testing is planned to complete in the 4th quarter followed by the commencement of on-aircraft developmental test in support of certification and a Milestone C decision in FY 2018.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: T6 A/B CNS/ATM</p> <p align="right">Articles:</p> <p>Description: Funding supports development, integration, test, and certification of the Automatic Dependent Surveillance-Broadcast (ADS-B) Out capability in the T-6 A/B Training System to comply with the January 1, 2020 Federal Aviation Administration ADS-B Out mandate.</p> <p>FY 2015 Accomplishments: Activities conducted during FY15 include: Issued Request for Proposal and received response. Evaluated proposal from sole source contractor and awarded EMD contract for T-6B model.</p> <p>FY 2016 Plans: Continue engineering and qualification/certification of equipment, corresponding ground based training system and technical documentation for upgrading current instruments and associated components that do not</p>	5.761	3.000	2.990	0.000	2.990
	-	6	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0603208N / <i>Training System Aircraft</i>	Project (Number/Name) 3367 / <i>Training Aircraft Updates</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>support ADS-B Out. FY16 efforts will include design refinement from PDR through Critical Design Review, establishment of the configuration baseline and initial system demonstration. 6 Test articles have been added to exhibit which were not listed in previous submissions; test articles are required to support test and evaluation.</p> <p>FY 2017 Base Plans: Continued T-6B efforts with completion of test and evaluation and transition to procurement. For USAF lead T-6A efforts, contract award is anticipated in the second quarter of FY17.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: TH-57 Follow-On Training System</p> <p align="right">Articles:</p> <p>Description: The TH-57 Training System consists of TH-57B aircraft, TH-57C aircraft, and associated family of ground based training devices. The TH-57 Training System is experiencing obsolescence, diminishing manufacturing sources and material shortages, training capability gaps (as identified in the Capabilities based assessment Naval Aviation Undergraduate Flight Training), and increasingly expensive operating costs related to aging aircraft issues. This research and development effort will investigate alternatives for replacing the TH-57 training system and develop and validate the acquisition strategy for future procurement of the capability to continue to provide the fleet replacement squadrons with qualified and capable rotary-wing naval aviators to train on fleet platforms. This effort specifically includes market research, requirements development, evaluation of acquisition strategies, evaluation of proposals, and testing of prototypes.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans: This effort is a New Start in FY17. Activities to be conducted during FY17 include: analysis of alternatives, development of RFP, and receipt of RFP responses.</p> <p>FY 2017 OCO Plans: FY 2017 OCO Plans: N/A</p>	0.000	0.000	2.000	0.000	2.000
Articles:	-	-	-	-	-
<p>Title: Training System Improvements</p> <p align="right">Articles:</p>	0.000	0.000	0.150	0.000	0.150
Articles:	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Description: Funding provides for design, development, integration and test of platform improvements for Naval Undergraduate Flight Training Systems.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans: Conduct analysis on T-6 Rudder Binding events for safety improvement development. Continue efforts with development of Automatic Dependent Surveillance-Broadcast Out efforts on training system aircraft which will support improvements to address avionics obsolescence and system safety.</p> <p>FY 2017 OCO Plans: N/A</p>					
Accomplishments/Planned Programs Subtotals	13.115	17.989	19.938	0.000	19.938

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APN/0569: <i>T45 Series (OSIP 006-16)</i>	0.000	5.617	27.217	-	27.217	39.966	65.973	56.848	23.354	22.852	241.827
• APN/0571: <i>JT Primary Acft Trnr Sys (JPATS)</i>	1.085	12.537	17.401	-	17.401	38.354	52.303	38.872	39.655	19.265	247.093

Remarks
T45 Series OSIP 006-16 funds Required Avionics Sustainment Program.

D. Acquisition Strategy
T-45 Training System: Required Avionics Sustainment Program (RASP) Phase I is the first phase of an ACAT III Program of Record to equip the T-45 to operate in the Federal Aviation Administration's (FAA) NextGen airspace through the expected life of the T-45. The RDT&E effort will consist of a sole source Technology Maturation and Risk Reduction/ Engineering Manufacturing Development contract effort to be awarded in FY 2015. Replacement kits for the Weapon Replaceable Assemblies (WRA) associated with the Automatic Dependent Surveillance-Broadcast (ADS-B) Out capability will be contracted through the Lead Systems Integrator for the EMD phase through Test and Validation/Verification.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0603208N / <i>Training System Aircraft</i>	Project (Number/Name) 3367 / <i>Training Aircraft Updates</i>
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T6 Communication, Navigation, System/Air Traffic Management (CNS/ATM) and Avionics Upgrades for FAA Compliance are outside of the Joint Primary Aircraft Training System (JPATS) Major Defense Acquisition Program (MDAP) and will be established as a new Joint Acquisition Program with the Air Force. For the JPATS Avionics Upgrade for FAA Compliance effort, a competitive award will be the strategy for the T-6A air vehicles due to their federated design. A sole-source strategy will be sought for the T-6B air vehicles due to proprietary hardware and software. Avionics in the T-6B are of an integrated design with proprietary hardware and software controlling input and output of navigation, communications, air data and other avionics information through an Integrated Avionics Computer (IAC). The CNS/ATM mandate requires integration into these systems in order to meet FAA advisory circular 20-165A Automatic Dependent Surveillance-Broadcast Out (ADS-B) system requirements and user capability requirements for flying in national airspace by 2020. Specifically, transponder and Global Positioning System (GPS) information that the ADS-B functions rely on are processed through proprietary software written to integrate with proprietary hardware designed by the same avionics manufacturer. A sole-source approach has been selected because the government does not own or have access to proprietary data to support development of hardware or software required to integrate ADS-B into the aircraft.

The TH-57 Follow-On Training System effort will be established to determine and implement the most cost efficient and effective path forward for providing Rotary Wing Naval Aviators to the Fleet Replacement Squadrons. Possible acquisition paths include direct procurement of a new commercial off-the-shelf training system, some combination of procurement and services contract, or a services contract to provide aircraft, simulators, and ground instructors. This efforts follows up the OPNAV N98 sponsored Capabilities based assessment Naval Aviation Undergraduate Flight Training (CNAUT) Capabilities Based Assessment and follow on Initial Capabilities Document that is in work.

Training System Improvements: Efforts under this category are expected to be limited to those efforts meeting thresholds under the abbreviated acquisition category.

E. Performance Metrics

T-45 Training System: Performance of the program will be measured via the Acquisition and Systems Engineering Technical Review (SETR) Process for an ACAT III program. Milestone B is planned for 2nd quarter FY 2017 with Milestone C planned for 4th quarter FY 2018.

T-6 Joint Primary Aircraft Training System (JPATS): For T-6B National Airspace Compliance is an Abbreviated Acquisition Program with Acquisition Milestones utilizing systems engineering processes.

TH-57 Follow-On Training System: The follow on system to the TH-57 is planned to be a new Major Defense Acquisition Program (MDAP) with Acquisition Milestones utilizing the systems engineering processes. The Commercial-Off-The-Shelf system Milestone C is planned for Q2 2018. If the procurement is determined to be services based, it will be a Category I services Acquisition requiring DOD level approval for length of contract as well as DOD level Peer review and a Defense Acquisition University (DAU) sponsored Services Acquisition Workshop.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0603208N / Training System Aircraft	Project (Number/Name) 3367 / Training Aircraft Updates
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
T45 Production Development Cost	SS/CPFF	Boeing : St. Louis, MO	0.000	2.633	Jan 2016	9.087	Mar 2016	11.236	Nov 2016	-		11.236	6.394	29.350	29.350
T6 Production Development Cost	C/CPFF	Beechcraft Defense Company, LLC/ HBC : Wichita, KS	0.000	3.716	Sep 2015	0.300	May 2016	0.584	Nov 2016	-		0.584	0.290	4.890	4.890
Subtotal			0.000	6.349		9.387		11.820		-		11.820	6.684	34.240	34.240

Remarks
T45: Increase in contract amount due to addition of Air Data Computer (ADC) development effort. FY15 contract award delayed to January 2016 due to schedule impacts resulting from this effort being a new start in FY 2015 and delay in receipt of funding to 2nd QTR FY-2015.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
T45 Systems Engineering Support - EMD	WR	NAWCAD : Patuxent River, MD	0.000	3.751	Jan 2015	1.445	Jan 2016	0.658	Nov 2016	-		0.658	7.809	13.663	-
T45 Integrated Logistics Support	WR	NAWCAD : Patuxent River, MD	0.000	0.650	Jan 2015	1.498	Jan 2016	0.500	Nov 2016	-		0.500	4.773	7.421	-
T45 Engineering Study	SS/BOA	JHU : Laurel, MD	0.000	0.300	Jan 2015	0.000		0.400	Jan 2017	-		0.400	0.450	1.150	1.150
T6 Systems Engineering Support	WR	NAWCAD : Patuxent River, MD	0.000	0.229	Jan 2015	1.441	Jan 2016	1.342	Dec 2016	-		1.342	0.000	3.012	-
T6 Systems Engineering Support	WR	NADEP : Jacksonville, FL	0.000	0.000		0.101	Jan 2016	0.102	Dec 2016	-		0.102	0.000	0.203	-
T6 Integrated Logistics Support	WR	NAWCAD : Patuxent River, MD	0.000	0.380	Jan 2015	0.154	Jan 2016	0.157	Dec 2016	-		0.157	0.000	0.691	-
TH57 Systems Engineering Support	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.000		0.503	Oct 2016	-		0.503	2.458	2.961	-
TH57 Integrated Logistics Support	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.000		0.252	Oct 2016	-		0.252	0.498	0.750	-
TH57 Business Case/ Engineering Study	SS/BOA	JHU : Laurel, MD	0.000	0.000		0.000		0.423	Oct 2016	-		0.423	0.000	0.423	0.423
TH57 Source Selection	TBD	TBD : TBD	0.000	0.000		0.000		0.548	Oct 2016	-		0.548	1.376	1.924	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0603208N / <i>Training System Aircraft</i>	Project (Number/Name) 3367 / <i>Training Aircraft Updates</i>
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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Training System Improvement Engineering Study T-6 Rudder Binding	MIPR	AFRL : Wright-Patterson AFB	0.000	0.000		0.000		0.150	Jan 2017	-		0.150	0.000	0.150	-
Subtotal			0.000	5.310		4.639		5.035		-		5.035	17.364	32.348	-

Remarks
 T45: Updated Systems Engineering to reflect actual requirements.
 TH57: Added details for FY17.
 Training System Improvement T-6 Engineering Study Rudder Binding: Will support analysis of data to address rudder binding events on aircraft.
 Training System Improvements: Added line for cost to complete.

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
T45 Test & Certification	WR	NAWCAD : Patuxent River, MD	0.000	0.000		1.200	Jan 2016	0.650	Nov 2016	-		0.650	3.104	4.954	-
T6 Test and Evaluation	C/CPFF	Beechcraft Defense Corp, LLC : Wichita, KS	0.000	0.000		0.167	Mar 2016	0.125	Dec 2016	-		0.125	0.000	0.292	0.292
Subtotal			0.000	0.000		1.367		0.775		-		0.775	3.104	5.246	-

Remarks
 T6: Added test and evaluation cost line. These costs were previously listed under support as DT&E.

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
T45 Program Management	Various	Various : Various	0.000	0.000		1.000	Jan 2016	0.600	Nov 2016	-		0.600	4.434	6.034	-
T-45 Test Wing Maintenance	C/FFP	L-3 : Patuxent River, MD	0.000	0.000		0.697	Nov 2015	0.710	Oct 2016	-		0.710	0.722	2.129	2.129
T45 Travel	Various	NAVAIR : Patuxent River, MD	0.000	0.020	Jan 2015	0.062	Oct 2015	0.044	Oct 2016	-		0.044	1.080	1.206	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0603208N / <i>Training System Aircraft</i>	Project (Number/Name) 3367 / <i>Training Aircraft Updates</i>
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
T6 Program Management	Various	Various : Various	0.000	1.416	Jan 2015	0.476	Jan 2016	0.345	Nov 2016	-		0.345	0.000	2.237	-
T6 Test Wing Maintenance Parts	C/CPFF	DYNCORP International LLC : Patuxent River, MD	0.000	0.000		0.275	Oct 2015	0.285	Oct 2016	-		0.285	0.292	0.852	0.852
T6 Travel	Various	NAVAIR : Patuxent River, MD	0.000	0.020	Jan 2015	0.086	Oct 2015	0.050	Oct 2016	-		0.050	0.000	0.156	-
TH57 Progam Management	Various	Various : Various	0.000	0.000		0.000		0.232	Oct 2016	-		0.232	0.583	0.815	-
TH57 Travel	Various	Various : Various	0.000	0.000		0.000		0.042	Oct 2016	-		0.042	0.085	0.127	-
Training System Improvement Program Management	TBD	TBD : TBD	0.000	0.000		0.000		0.000		-		0.000	0.405	0.405	-
Training System Improvement Travel	Various	Various : Various	0.000	0.000		0.000		0.000		-		0.000	0.050	0.050	-
Subtotal			0.000	1.456		2.596		2.308		-		2.308	7.651	14.011	-

Remarks

T6: Travel increased in FY16 due to participation in subcontractor SETR events.
 T-45 & T-6 Test wing Maintenance: Added costs for maintenance supporting program office ADS-B Development efforts
 TH57: Added details for FY17
 Training Systems Improvement: Added lines for cost to complete.

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	13.115	17.989	19.938	-	19.938	34.803	85.845	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0603208N / <i>Training System Aircraft</i>	Project (Number/Name) 3367 / <i>Training Aircraft Updates</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021									
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q						
Training System Aircraft T45																																		
Acquisition Milestones																																		
																	T45 MS B ▲					T45 MS C ▲												
System Development																																		
Hardware Development																	T45 HW																	
Reviews																																		
																	T45 PDR ■	T45 CDR ■																
Test & Evaluation																																		
Technical Evaluation																	T45 IT&E																	
Contract Awards																																		
																	T45 EMD ●																	
Deliveries																																		
Lab Assets																	T45 Lab Assests QTY 8																	
Test Assets																	T45 Test Assests QTY 6																	

2017PB - 0603208N - 3367

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5 **R-1 Program Element (Number/Name)**
PE 0603208N / Training System Aircraft **Project (Number/Name)**
3367 / Training Aircraft Updates

Training System Aircraft T6 A/B	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
Acquisition Milestones																																
System Development																																
Justification & Approval		J&A ▼																														
RFP Release			T6 RFP ▼																													
Proposal Evaluation		T6 Evaluation ▬																														
Development Contract Award				T6 Award ●																												
Reviews																																
						T6 PDR ■	T6 CDR ■																									
Test & Evaluation																																
Acceptance Test																																
Deliveries																																

2017PB - 0603208N - 3367 MS B and C Removed to reflect abbreviated acquisition program for T-6B development efforts and reflect test articles and PDR/CDR for T-6B efforts. IOC & FOC reflects combined T-6A & T-6B development.

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0603208N / <i>Training System Aircraft</i>	Project (Number/Name) 3367 / <i>Training Aircraft Updates</i>
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TH-57 Follow-On Training System	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
Acquisition Milestones									TH57 RFP		TH57 RFP Evaluation					Milestone C ▲				TH57 IOC ▲												
Contract Awards																	TH57 Award ●															

2017PB - 0603208N - 3367

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0603208N / <i>Training System Aircraft</i>	Project (Number/Name) 3367 / <i>Training Aircraft Updates</i>
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Training System Improvements	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
System Development	<div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: 80%;"> Training System Improvements Development </div>																											

2017PB - 0603208N - 3367

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0603208N / <i>Training System Aircraft</i>	Project (Number/Name) 3367 / <i>Training Aircraft Updates</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Training System Aircraft T45</i>				
Acquisition Milestones: T45 Milestone B	2	2017	2	2017
Acquisition Milestones: T45 Milestone C	4	2018	4	2018
System Development: Hardware Development: T45 Hardware Development	2	2016	4	2018
Reviews: T45 Preliminary Design Review	4	2016	4	2016
Reviews: T45 Critical Design Review	2	2017	2	2017
Test & Evaluation: Technical Evaluation: T45 Integrated Test & Evaluation	4	2017	3	2018
Contract Awards: T45 Engineering Manufacturing Development	2	2016	2	2016
Deliveries: Lab Assets: T45 Lab Assets	1	2017	1	2017
Deliveries: Test Assets: T45 Test Assets	4	2017	4	2017
<i>Training System Aircraft T6 A/B</i>				
Acquisition Milestones: IOC	2	2019	2	2019
Acquisition Milestones: FOC	4	2019	4	2019
System Development: Justification & Approval: J&A	2	2015	2	2015
System Development: RFP Release: RFP Release	3	2015	3	2015
System Development: Proposal Evaluation: Proposal Evaluation	2	2015	3	2015
System Development: Development Contract Award: Contract Award	4	2015	4	2015
Reviews: T6 Preliminary Design Review	2	2016	2	2016
Reviews: T6 Critical Design Review	3	2016	3	2016
Test & Evaluation: Acceptance Test: Acceptance Test	2	2017	4	2017
Test & Evaluation: Deliveries: Test Assets	1	2017	1	2017
<i>TH-57 Follow-On Training System</i>				
Acquisition Milestones: Milestone C	2	2018	2	2018

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0603208N / <i>Training System Aircraft</i>	Project (Number/Name) 3367 / <i>Training Aircraft Updates</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Acquisition Milestones: RFP Development	1	2017	1	2017
Acquisition Milestones: RFP Evaluation	3	2017	3	2017
Acquisition Milestones: IOC	3	2019	3	2019
Contract Awards: Contact Award	3	2018	3	2018
<i>Training System Improvements</i>				
System Development: Training System Improvements Development	1	2017	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604212N / <i>Other Helicopter Development</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	813.810	34.436	11.101	6.268	-	6.268	10.104	12.066	7.046	4.135	Continuing	Continuing
1109: <i>CH/MH-53</i>	48.184	2.634	2.672	4.922	-	4.922	8.793	10.718	5.712	2.783	Continuing	Continuing
2415: <i>H-60 Development</i>	740.886	25.386	5.150	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	771.422
2460: <i>VH-3/VH-60</i>	24.740	6.416	3.279	1.346	-	1.346	1.311	1.348	1.334	1.352	Continuing	Continuing

Program MDAP/MAIS Code: 282

Note

Proj: 2415 H-60 Development Service Life Assessment Program (SLAP) commenced in this PE in FY 2015 but moves to PE 0702207N in FY 2017.

A. Mission Description and Budget Item Justification

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

B. Program Change Summary (\$ in Millions)

	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>
Previous President's Budget	35.099	11.101	4.092	-	4.092
Current President's Budget	34.436	11.101	6.268	-	6.268
Total Adjustments	-0.663	0.000	2.176	-	2.176
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.663	0.000			
• Program Adjustments	0.000	0.000	1.032	-	1.032
• Rate/Misc Adjustments	0.000	0.000	1.144	-	1.144

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy Date: February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604212N / <i>Other Helicopter Development</i>
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Change Summary Explanation

Technical:

2460 VH-3/VH-60: Not Applicable

Schedule:

1109 CH/MH-53: Not Applicable

2415 AMCM: Initial Operational Test & Evaluation (IOT&E) extended into FY 2016 for Littoral Combat Ship and updated delivery schedule.

2415 Forward Firing Weapon: Removed Service Life Assessment Program from schedule.

2460 VH-3/VH-60: Not Applicable

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604212N / <i>Other Helicopter Development</i>				Project (Number/Name) 1109 / <i>CH/MH-53</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
1109: <i>CH/MH-53</i>	48.184	2.634	2.672	4.922	-	4.922	8.793	10.718	5.712	2.783	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The H-53 helicopter is the premier heavy lift helicopter for the Marine Corps and the only operational airborne mine sweeping platform for the Navy. Through FY2021, H-53 efforts will continue to develop and qualify components, prior to production and approval decisions, in order to replace obsolete system components. Emphasis will be placed on supportability improvement modifications that will sustain the H-53 aircraft until the transition of the H-53K is complete. These efforts combined, will significantly improve the readiness of the H-53 fleet while reducing long term operational and supportability costs. Survivability efforts to address improved situational awareness to pilots will include improved Digital Interoperability and improve Degraded Visual Environment Awareness. Modeling and simulation will be used to the maximum practical extent throughout this effort. Manned Flight Simulator will be utilized to develop, install and test interim modifications to existing H-53 legacy avionics, while maintaining the original basic system footprint and functionality. As a part of this effort, a complete Electro Magnetic Vulnerability assessment will be required for the affected and/or modified systems.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: H-53 Avionics	0.729	0.810	1.847	0.000	1.847
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					
Integrate software applique for cockpit and avionics improvements, to include the development of new sensors. Develop flight control computer and test set design modifications to address anticipated obsolescence issues. Conduct Business Case Analyses to determine impact of high Operation and Support cost drivers and address alternatives to mitigate identified issues.					
FY 2016 Plans:					
Integrate software applications for cockpit and avionics improvements, to include the development of new sensors. Investigate solutions to address the degraded visual environment. Develop flight control computer and test set design modifications to address anticipated obsolescence issues. Conduct Business Case Analyses to determine impact of high Operation and Support cost drivers and address alternatives to mitigate identified issues.					
FY 2017 Base Plans:					
Integrate software applications for cockpit and avionics improvements, to include the development of new sensors. Investigate solutions to address the degraded visual environment. Develop flight control computer and					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604212N / <i>Other Helicopter Development</i>	Project (Number/Name) 1109 / <i>CH/MH-53</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
test set design modifications to address anticipated obsolescence issues. Conduct Business Case Analyses to determine impact of high Operation and Support cost drivers and address alternatives to mitigate identified issues. Initiate improved Degraded Visual Environmental Awareness to include coupled flight control capability. FY 2017 OCO Plans: N/A					
Title: H-53 Survivability FY 2015 Accomplishments: Perform trade studies, risk reduction, design, development, model, integration and test activities for H-53 survivability systems to include effectiveness of the ballistic vulnerability (armor) package. FY 2016 Plans: Perform trade studies, risk reduction, design, development, model, integration and test activities for H-53 survivability to include increased situational awareness via digital interoperability. FY 2017 Base Plans: Perform trade studies, risk reduction, design, development, model, integration and test activities for H-53 survivability to include increased situational awareness via digital interoperability. FY 2017 OCO Plans: N/A	0.565	0.583	0.440	0.000	0.440
Articles:	-	-	-	-	-
Title: H-53 Propulsion FY 2015 Accomplishments: Provide in-house, field activity, and contractor support of IPTs to allow for studies and analyses, preparation of acquisition documentation and examination of equipment and avionics for the H-53. Efforts include, but are not limited to, government development support, engineering support, product management support, system engineering and logistics support, and travel for the H-53 program. FY 2016 Plans: Conduct Business Case Analyses to determine impact of high Operation and Support Propulsion cost drivers and address alternatives to mitigate. FY 2017 Base Plans:	0.301	0.300	0.433	0.000	0.433
Articles:	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016			
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604212N / <i>Other Helicopter Development</i>	Project (Number/Name) 1109 / CH/MH-53				
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)						
		FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Conduct Business Case Analyses to determine impact of high Operation and Support Propulsion cost drivers and address alternatives to mitigate, as well as addressing proposed solutions to the risk associated with #2 engine fires.						
FY 2017 OCO Plans: N/A						
Title: Project Management Support		0.715	0.697	0.726	0.000	0.726
	Articles:	-	-	-	-	-
FY 2015 Accomplishments: Provide in-house, field activity, and contractor support of IPTs to allow for studies and analyses, preparation of acquisition documentation and examination of equipment and avionics for the H-53. Efforts include, but are not limited to, government development support, engineering support, product management support, system engineering and logistics support, and travel for the H-53 program.						
FY 2016 Plans: Provide in-house, field activity, and contractor support of IPTs to allow for studies and analyses, preparation of acquisition documentation and examination of equipment and avionics for the H-53. Efforts include, but are not limited to, government development support, engineering support, product management support, system engineering and logistics support, and travel for the H-53 program.						
FY 2017 Base Plans: Provide in-house, field activity, and contractor support of IPTs to allow for studies and analyses, preparation of acquisition documentation and examination of equipment and avionics for the H-53. Efforts include, but are not limited to, government development support, engineering support, product management support, system engineering and logistics support, and travel for the H-53 program.						
FY 2017 OCO Plans: N/A						
Title: H-53 Airframe		0.324	0.282	1.476	0.000	1.476
	Articles:	-	-	-	-	-
FY 2015 Accomplishments:						

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604212N / <i>Other Helicopter Development</i>	Project (Number/Name) 1109 / <i>CH/MH-53</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Perform trade studies, risk reduction, design, development, integration and test activities for the H-53 airframe to include, but not limited to, main rotor head, cowlings, aircraft structure, drive train, and various dynamic components					
<i>FY 2016 Plans:</i> Continue to develop and qualify components, prior to production and approval decisions, in order to replace obsolete system components. Perform trade studies, risk reduction, design, development, integration and test activities for the H-53 airframe to include, but not limited to, main rotor head, cowlings, aircraft structure, drive train, and various dynamic components.					
<i>FY 2017 Base Plans:</i> Develop software tool to support aircraft diagnostics, health monitoring and Fatigue Life Estimating (FLE) which will interface with Naval Enterprise Logistics Support Systems. Continue to develop tools to study/analyze and qualify components, prior to production and approval decisions, in order to replace obsolete system components. Perform trade studies, risk reduction, design, development, integration and test activities for the H-53 airframe to include, but not limited to, main rotor head, cowlings, aircraft structure, drive train, and various dynamic components.					
<i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	2.634	2.672	4.922	0.000	4.922

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APN/0528: <i>H-53 Series</i>	36.152	36.000	46.095	-	46.095	32.559	26.147	34.466	37.096	177.772	1,890.013

Remarks

D. Acquisition Strategy

This is a non-ACAT program. H-53 RDT&E efforts will focus on trade studies and risk reduction measures to identify candidate survivability, interoperability, safety, avionics, cargo handling, cockpit and other airframe specific improvements to extend the service life.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604212N / <i>Other Helicopter Development</i>	Project (Number/Name) 1109 / <i>CH/MH-53</i>

E. Performance Metrics

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

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604212N / <i>Other Helicopter Development</i>	Project (Number/Name) 1109 / CH/MH-53
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Systems Engineering	WR	NAWC AD : Patuxent River, MD	3.671	0.621	Nov 2014	0.661	Nov 2015	1.464	Nov 2016	-		1.464	Continuing	Continuing	Continuing
Systems Engineering Contract	C/CPFF	Sikorsky : Stratford, CT	0.000	0.231	Feb 2015	0.251	Feb 2016	0.981	Feb 2017	-		0.981	0.000	1.463	1.463
Systems Engineering	WR	Various : Various	0.000	0.000		0.000		0.344	Nov 2016	-		0.344	Continuing	Continuing	Continuing
Prior Year Prod Dev no longer funded in the FYDP	TBD	TBD : TBD	19.475	0.000		0.000		0.000		-		0.000	0.000	19.475	-
Subtotal			23.146	0.852		0.912		2.789		-		2.789	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Software Development	Various	Various : Various	2.697	0.560	Mar 2015	0.670	Mar 2016	0.787	Mar 2017	-		0.787	Continuing	Continuing	Continuing
GFE	Various	NAWC AD : Patuxent River, MD	2.886	0.245	Nov 2014	0.450	Nov 2015	0.319	Nov 2016	-		0.319	Continuing	Continuing	Continuing
Subtotal			5.583	0.805		1.120		1.106		-		1.106	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental Test & Evaluation	Various	Various : Various	7.113	0.599	Mar 2015	0.268	Mar 2016	0.407	Mar 2017	-		0.407	Continuing	Continuing	Continuing
Subtotal			7.113	0.599		0.268		0.407		-		0.407	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604212N / <i>Other Helicopter Development</i>	Project (Number/Name) 1109 / <i>CH/MH-53</i>
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Government Engineering Support	WR	NAWC AD : Patuxent River, MD	5.863	0.326	Nov 2014	0.325	Nov 2015	0.538	Nov 2016	-		0.538	Continuing	Continuing	Continuing
Travel	Various	Various : Various	1.805	0.052	Oct 2014	0.047	Oct 2015	0.082	Oct 2016	-		0.082	Continuing	Continuing	Continuing
Prior Year Mgmt no longer funded in the FYDP	Various	Various : Various	4.674	0.000		0.000		0.000		-		0.000	0.000	4.674	-
Subtotal			12.342	0.378		0.372		0.620		-		0.620	-	-	-

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals		48.184	2.634	2.672	4.922	-	-	-	-

Remarks
 Affordability Initiative added to FY17 \$1.174M to support Interactive Electronic Technical Manuals (IETMS) conversion of CH-53 tech pubs into electronic format and integration into current support processes for CH-53K.
 Added FY17 \$1.100M for upgrading the CH-53E to provide additional cueing and situational awareness to pilots when operating in reduced visibility conditions.

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604212N / <i>Other Helicopter Development</i>	Project (Number/Name) 1109 / <i>CH/MH-53</i>
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CH/MH-53	FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestones																												
Engineering Milestones																												
	Obsolence Issues/Studies																											
	Survivability Analysis																											
	Legacy P3I Efforts																											
	Safety Upgrades																											
Test & Evaluation																												
Production Milestones																												
Deliveries																												

2016PB - 0604212N - 1109

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604212N / <i>Other Helicopter Development</i>	Project (Number/Name) 1109 / <i>CH/MH-53</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
CH/MH-53				
Engineering Milestones: - Obsolescence Issues/Studies	1	2015	4	2021
Engineering Milestones: - Survivability Analysis	1	2015	4	2021
Engineering Milestones: - Legacy P3I Efforts	1	2015	4	2021
Engineering Milestones: - Safety Upgrades	1	2015	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604212N / <i>Other Helicopter Development</i>	Project (Number/Name) 2415 / <i>H-60 Development</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2415: <i>H-60 Development</i>	740.886	25.386	5.150	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	771.422
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Helicopter Combat Support mission provides organic fleet Armed Helo Fast Attack Craft/Fast Inshore Attack Craft (FAC/FIAC) threat response, maintains forward deployed fleet sustainability through rapid airborne delivery of materials and personnel and supports amphibious operations through search and rescue coverage. The aircraft conduct vertical replenishment, day/night ship-to-ship, ship-to-shore, and shore-to-ship external transfer of cargo; internal transport of passengers, mail and cargo, vertical on board delivery; airhead operations, and day/night search and rescue. Armed Helo and Airborne Mine Countermeasures (AMCM) were added as primary mission areas for the MH-60S as block upgrades to the platform. The MH-60S Operational Requirements Document (ORD) was modified in May 2000 to add AMCM as a primary mission for the MH-60S. ORD Change II was validated and approved by the Joint Requirements Oversight Council on 15 February 2008 updating key performance parameters. AMCM provides an organic capability for the Littoral Combat Ship Mine Countermeasures Mission Package. Armed Helo provides Special Warfare Support, Combat Search and Rescue, Surface Warfare and Maritime Interdiction Operations capability with Link 16 and Forward Firing Weapons (FFW) which includes rockets and anti-swarm weapons to address the FAC/FIAC threat. Aircraft secondary roles include torpedo and drone recovery, noncombatant evacuation operations, and SEAL team and Explosive Ordnance Disposal support. Additionally, a Service Life Assessment Program (SLAP), trade studies, and analysis efforts to develop and qualify components to replace obsolete system components commences in FY 2015. These efforts will continue in PE 0702207N in FY 2017.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: MH-60S Airframe Development and Integration	1.550	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: The effort includes analysis, design, integration, test, and support for FFW/Rockets to include Advanced Precision Kill Weapon System (APKWS) and Digital Rocket Launcher with mixed loads and enhanced targeting capability with the Helmet Display Targeting System (HDTs). FFW training development to include situational analysis and Instructional System Development documentation. Conduct SLAP, trade studies and analysis, develop and qualify components in order to replace obsolete system components on the MH-60S. Accomplishments include design, development, integration, correction of deficiencies and support of the AMCM unique items into the MH-60S airframe; Test and Evaluation on AMCM Mission Kits for the sensor/weapon systems integration on the MH-60S; and AMCM training development.					
FY 2015 Accomplishments: Continue to analyze, design, integrate, and support follow-on Forward Firing Weapons (FFW)/Rockets capability to include Digital Rocket Launcher with mixed loads and training development of FFW capability. Complete					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016		
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604212N / <i>Other Helicopter Development</i>	Project (Number/Name) 2415 / <i>H-60 Development</i>			
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)					
	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Airborne Mine Countermeasures (AMCM) sensor/weapon system integration. Conduct SLAP and obsolescence trade studies and analysis. FY 2016 Plans: N/A FY 2017 Base Plans: N/A FY 2017 OCO Plans: N/A					
Title: MH-60S Avionics Development and Integration	10.208	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: This effort includes developmental efforts on the avionics architecture and systems of the MH-60S helicopter. Limited software development/improvements for targeting to support Forward Firing Weapons (FFW) /Rockets integration to include Advanced Precision Kill Weapon System (APKWS) and Digital Rocket Launcher (DRL) with mixed loads. Training development to include situational analysis, instructional analysis and training updates for FFW,Rockets and various Airborne Mine Countermeasures (AMCM) sensors. Development of the operator consoles, as well as software modifications/improvements, to support AMCM systems. Link 16 software development/upgrades and test for AMCM messages. FY 2015 Accomplishments: Complete the FFW/Rockets integration of DRL with mixed loads. Continue the limited avionics hardware and software improvements/enhancements for enhanced targeting capability with the Helmet Display Targeting System (HDTS). Complete AMCM test efforts. FY 2016 Plans: N/A FY 2017 Base Plans: N/A FY 2017 OCO Plans: N/A					
Title: MH-60S Test, Engineering, Logistics, Management Support	13.628	5.150	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604212N / <i>Other Helicopter Development</i>	Project (Number/Name) 2415 / <i>H-60 Development</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Articles:	-	-	-	-	-
<p>Description: Navy field activity systems engineering, logistics support, management and travel for the FFW/Rockets integration to include Advanced Precision Kill Weapon System (APKWS), Digital Rocket Launcher (DRL) with mixed loads and AMCM MH-60S Sensor/Weapon Systems Integration team for airframe and avionics. Support/conduct MH-60S aircraft integration testing for Forward Firing Weapons (FFW)/Rockets and enhanced targeting capability with the Helmet Display Targeting System (HDTS). Airborne Mine Countermeasures (AMCM) sensor/weapon system integration testing and support. Additionally, provide support to a service life assessment program and trade studies and analysis efforts.</p> <p>FY 2015 Accomplishments: Continue FFW/Rockets integration/testing for Digital Rocket Launcher (DRL) with mixed loads, FFW and HDTS enhancements and AMCM sensor/weapon system integration.</p> <p>FY 2016 Plans: Complete FFW/Rockets integration/testing for DRL with mixed loads, FFW and HDTS enhancements. Commence support for a service life assessment program and trade studies and analysis efforts</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>					
Accomplishments/Planned Programs Subtotals	25.386	5.150	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APN1/017900: <i>MH-60S</i>	182.140	28.232	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	6,772.544
• APN5/053000: <i>H-60 MODS</i>	23.605	36.858	34.939	3.000	37.939	31.535	38.046	38.797	40.916	154.406	636.885

Remarks

APN5/053000 reflects only MH-60S specific OSIPS 016-04 and 09-07 funding.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604212N / Other Helicopter Development	Project (Number/Name) 2415 / H-60 Development

D. Acquisition Strategy

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

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

Block 2 aircraft are being upgraded to include Armed Helo Capability.

E. Performance Metrics

Successfully complete FFW/ Rockets Developmental/Operational Testing. Successfully achieve Initial Operational Capability for Airborne Mine Countermeasures and Littoral Combat Ship Mine Countermeasures Mission Package.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604212N / <i>Other Helicopter Development</i>	Project (Number/Name) 2415 / <i>H-60 Development</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary Hdw Dev - Airframe*	SS/CPIF	Sikorsky : Stratford, CT	170.465	0.300	Mar 2015	0.000		0.000		-		0.000	0.000	170.765	170.765
Primary Hdw Dev - Airframe FFW	SS/CPFF	Sikorsky : Stratford, CT	11.490	1.250	Aug 2015	0.000		0.000		-		0.000	0.000	12.740	12.740
Primary Hdw Dev - Avionics*	SS/CPIF	Lockheed Martin : Owego, NY	223.885	1.000	Mar 2015	0.000		0.000		-		0.000	0.000	224.885	224.885
Primary Hdw Dev - Avionics*FFW	SS/CPIF	Lockheed Martin : Owego, NY	7.319	2.001	Mar 2015	0.000		0.000		-		0.000	0.000	9.320	9.320
Primary Hdw Dev - Avionics*FFW	MIPR	Army, DOTC : Picatinny, NJ	2.650	3.060	Nov 2014	0.000		0.000		-		0.000	0.000	5.710	-
Primary Hdw Dev - Avionics*FFW	TBD	Raytheon : TBD	0.000	2.622	Mar 2015	0.000		0.000		-		0.000	0.000	2.622	2.622
Primary Hdw Dev - CSTRS	WR	NSWC : Panama City, FL	23.022	0.000		0.000		0.000		-		0.000	0.000	23.022	-
Primary Hdw Dev - CSTRS	MIPR	CECOM : APG, MD	13.629	0.000		0.000		0.000		-		0.000	0.000	13.629	-
Primary Hdw Dev - Training	TBD	TBD : TBD	0.000	1.150	Feb 2015	0.000		0.000		-		0.000	0.000	1.150	-
Primary Hdw Dev - Avionics FFW	Various	Various : China Lake, CA	0.000	0.375	Dec 2014	0.000		0.000		-		0.000	0.000	0.375	-
Prior year Product Dev cost no longer funded in the FYDP	Various	Various : Various	51.554	0.000		0.000		0.000		-		0.000	0.000	51.554	-
Subtotal			504.014	11.758		0.000		0.000		-		0.000	0.000	515.772	-

Remarks
 Remarks: FY05-FY12 SS/CPIF
 FY12-FY14 Primary Hdw Dev- Avionics - Lockheed Martin includes Progress Payments aligned to Fixed Price CLIN only.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604212N / <i>Other Helicopter Development</i>	Project (Number/Name) 2415 / <i>H-60 Development</i>
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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ILS - MSS (Non FFRDC)	Various	Various : Various	3.301	0.150	Dec 2014	0.266	Dec 2015	0.000		-		0.000	0.000	3.717	-
Integrated Logistics Support	WR	Various : Various	7.527	0.450	Dec 2014	0.000		0.000		-		0.000	0.000	7.977	-
Prior year Support cost no longer funded in the FYDP	Various	Various : Various	8.589	0.000		0.000		0.000		-		0.000	0.000	8.589	-
Subtotal			19.417	0.600		0.266		0.000		-		0.000	0.000	20.283	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Dev Test & Evaluation	WR	NAWCAD : Patuxent River, MD	54.444	4.000	Dec 2014	2.506	Dec 2015	0.000		-		0.000	0.000	60.950	-
Dev Test & Evaluation	WR	Various : Various	26.110	0.200	Dec 2014	0.820	Dec 2015	0.000		-		0.000	0.000	27.130	-
Operational Test & Evaluation	WR	OPTEVFOR : Norfolk, VA	5.927	3.725	Dec 2014	0.000		0.000		-		0.000	0.000	9.652	-
Prior year T&E cost no longer funded in the FYDP	Various	Various : Various	6.159	0.000		0.000		0.000		-		0.000	0.000	6.159	-
Subtotal			92.640	7.925		3.326		0.000		-		0.000	0.000	103.891	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Eng & Tech Svc (Non FFRDC)	Various	Various : Various	22.309	1.581	Dec 2014	0.193	Nov 2015	0.000		-		0.000	0.000	24.083	-
Government Engineering Support	WR	NAWCAD : Patuxent River, MD	17.237	1.374	Dec 2014	0.805	Dec 2015	0.000		-		0.000	0.000	19.416	-
Government Engineering Support	WR	NSWC : Panama City, FL	34.307	0.500	Dec 2014	0.000		0.000		-		0.000	0.000	34.807	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604212N / <i>Other Helicopter Development</i>	Project (Number/Name) 2415 / <i>H-60 Development</i>
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Airborne Mine Countermeasures	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acq Milestones																												
Milestones								IOC ▲																				
Test & Evaluation																												
MH-60S AMCM	IOT&E																											
Production Milestones																												
Deliveries																												
	FY12				FY13				FY14																			

2017PB - 0604212N - 2415

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604212N / <i>Other Helicopter Development</i>	Project (Number/Name) 2415 / <i>H-60 Development</i>
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Fixed Forward Firing Weapon	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Rockets																												
System Integration	System Integration																											
Reviews																												
Test and Evaluation																												
DT																												
OT																												

2017PB - 0604212N - 2415

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604212N / <i>Other Helicopter Development</i>	Project (Number/Name) 2415 / <i>H-60 Development</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Airborne Mine Countermeasures</i>				
Acq Milestones: Milestones: - Initial Operational Capability-AMCM	4	2016	4	2016
Test & Evaluation: MH-60S AMCM: Initial Operational Test and Evaluation (IOT&E)	1	2015	2	2016
Deliveries: - Production Delivery (AMCM Ancillary Kits-FY12)	1	2015	1	2016
Deliveries: - Production Delivery (AMCM Ancillary Kits-FY13)	3	2015	1	2016
Deliveries: - Production Delivery (AMCM Ancillary Kits-FY14)	3	2016	2	2017
<i>Fixed Forward Firing Weapon</i>				
Rockets: System Integration: System Integration	1	2015	4	2016
Test and Evaluation: Developmental Testing (DT) (FFW)	1	2015	3	2015
Test and Evaluation: Operational Testing (OT) (FFW)	4	2015	2	2016

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604212N / <i>Other Helicopter Development</i>	Project (Number/Name) 2460 / <i>VH-3/VH-60</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2460: <i>VH-3/VH-60</i>	24.740	6.416	3.279	1.346	-	1.346	1.311	1.348	1.334	1.352	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Marine Helicopter Squadron One (HMX-1) is required to provide safe and timely transportation for the President and Vice President of the United States, heads of state and others as directed by the White House Military Office. Currently two Type, Model, Series aircraft are used by HMX-1 for the Presidential support mission - the VH-3D and the VH-60N. This project currently funds the VH Executive Helicopter's Aircraft Life Management Program.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: VH Executive Helicopter Aircraft Life Management Program	6.416	3.279	1.346	0.000	1.346
Articles:	-	-	-	-	-
<p>Description: VH Executive Helicopter Aircraft Life Management Program: Provides for management and improvement of all Executive Helicopter systems readiness including safety, operational weight, mission availability, structural integrity, component reliability, maintainability, software, and obsolescence issues as they arise.</p> <p>FY 2015 Accomplishments: Provide government support and contract awards for efforts associated with the Aircraft Life Management Program for VH Executive Helicopters. Support design, integration, and test of a WBLoS System for Executive Lift Platforms. The majority of the RDT&E, N WBLoS hardware and software integration work is in FY 2015 using the VH software support activity.</p> <p>FY 2016 Plans: Provide initial capability of Phase II WBLoS into 1st VH-3D Executive helicopter, to include installation, testing and verification actions associated with performance, drawings, and schematics. Support software development and testing of 1st VH60N aircraft OFP as well as initial aircraft installation design efforts. Complete software testing of the Phase II WBLoS software OFP, and begin the effort of Phase III of the WBLoS system.</p> <p>FY 2017 Base Plans: Provide government program management and engineering support for efforts associated with the Aircraft Life and Management Program ensuring aircraft availability and mission readiness to the VH Executive Helicopters.</p> <p>FY 2017 OCO Plans:</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604212N / <i>Other Helicopter Development</i>	Project (Number/Name) 2460 / <i>VH-3/VH-60</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
Accomplishments/Planned Programs Subtotals	6.416	3.279	1.346	0.000	1.346

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APN/056600: <i>Executive Helicopters Series</i>	68.128	66.624	66.835	-	66.835	61.638	50.275	19.225	18.092	Continuing	Continuing

Remarks

Results of the Aircraft Life Management Program trade studies and risk reduction efforts will lead to modifications to be addressed through the program's Obsolescence Management Program and VH Comm Suite Upgrade Operational Safety and Improvement Programs as directed by the Deputy Secretary of Defense.

D. Acquisition Strategy

VH Executive Helicopter ALMP will include trade studies and risk reduction efforts necessary to address safety, operational weight, mission availability, structural integrity, component reliability, maintainability, software, and obsolescence issues as they arise.

E. Performance Metrics

Completion of VH Executive Helicopter Aircraft Life Management Program efforts.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
1319 / 5				PE 0604212N / Other Helicopter Development				2460 / VH-3/VH-60							
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	SS/CPFF	Sikorsky : Stratford, CT	8.675	0.000		0.000		0.000		-		0.000	7.206	15.881	15.881
Primary HW Development	TBD	Sikorsky : Stratford, CT	0.000	0.899	Dec 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Software Development	SS/FFP	Rockwell Collins : Cedar Rapids, IA	0.000	2.422	Dec 2014	0.000		0.000		-		0.000	0.000	2.422	2.627
Systems Engineering	WR	NAWCAD : Patuxent River, MD	0.000	1.218	Dec 2014	0.768	Dec 2015	0.000		-		0.000	0.000	1.986	-
Prior Year Prod Dev no longer funded in the FYDP	Various	Various : Various	5.321	0.000		0.000		0.000		-		0.000	0.000	5.321	-
Subtotal			13.996	4.539		0.768		0.000		-		0.000	-	-	-
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Test & Evaluation-WBLoS	WR	NAWCAD : Patuxent River, MD	0.000	1.168	Dec 2014	1.688	Nov 2015	0.499	Nov 2016	-		0.499	Continuing	Continuing	Continuing
Subtotal			0.000	1.168		1.688		0.499		-		0.499	-	-	-
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support	WR	NAWCAD : Patuxent River, MD	9.493	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Program Management Support	WR	NAWCAD : Patuxent River, MD	0.765	0.555	Dec 2014	0.793	Nov 2015	0.814	Nov 2016	-		0.814	Continuing	Continuing	Continuing
System Engineering	SS/CPFF	NAVSEA : Washington Navy Yard, DC	0.255	0.100	Feb 2015	0.000		0.000		-		0.000	0.000	0.355	0.355

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy											Date: February 2016				
Appropriation/Budget Activity 1319 / 5				R-1 Program Element (Number/Name) PE 0604212N / <i>Other Helicopter Development</i>				Project (Number/Name) 2460 / <i>VH-3/VH-60</i>							
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	Various	Various : Various	0.231	0.054	Oct 2014	0.030	Oct 2015	0.033	Oct 2016	-		0.033	Continuing	Continuing	Continuing
Subtotal			10.744	0.709		0.823		0.847		-		0.847	-	-	-
			Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			24.740	6.416		3.279		1.346		-		1.346	-	-	-
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604212N / <i>Other Helicopter Development</i>	Project (Number/Name) 2460 / <i>VH-3/VH-60</i>
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VH-3/VH-60	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
Engineering Milestones	VH ALMP																															
Systems Development	VH Comms Upgrade Aircraft Prototype Engineering																															
	VH Comms Upgrade System Integration																															
	VH Comms Upgrade Software Integration																															

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604212N / <i>Other Helicopter Development</i>	Project (Number/Name) 2460 / <i>VH-3/VH-60</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>VH-3/VH-60</i>				
Engineering Milestones: VH-3D / VH-60N ALMP	1	2015	4	2021
Engineering Milestones: Systems Development: VH Comms Upgrade Aircraft Prototype Engineering and Flight Test	1	2015	2	2017
Engineering Milestones: Systems Development: VH Comms Upgrade System Integration	1	2015	2	2017
Engineering Milestones: Systems Development: VH Comms Upgrade Software Integration	1	2015	4	2016

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604214N / AV-8B Aircraft - Engine Dev
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	329.464	24.558	27.668	33.664	-	33.664	39.078	32.150	23.084	17.259	Continuing	Continuing
0652: AV-8B	329.464	24.558	27.668	33.664	-	33.664	39.078	32.150	23.084	17.259	Continuing	Continuing

A. Mission Description and Budget Item Justification

The program provides for AV-8B Design, Development, Integration, and Test of various platform improvements such as: Engine Life Management Program (ELMP), Escape Systems, Joint Mission Planning System (JMPS), and Block upgrades to various mission systems and software, communications systems, navigation equipment, weapons carriage and countermeasures, and the Obsolescence Replacement (OR)/Readiness Management Plan (RMP) including structural, hydraulic, electrical, environmental, and mechanical systems. The JMPS is required as part of the Department of the Navy directed migration to a common Navy and Marine Corps mission planning system. OR/RMP represents all engineering activities for development and design to support aircraft safety flight clearances, concept explorations, responses to evolving threats, and developments to support Program Objective Memorandum. The program's Evolutionary Acquisition Strategy includes Design, Development, Integration, and Test activities under the consolidated effort of Block Developments: H6.1, H6.2 and follow-on block upgrades, to include a H7.0 block upgrade that will be required to implement full Link 16 capability. The H6.1 update provided enhancements and software corrections that improved the AV-8B platform combat effectiveness, survivability, and relevance through avionics processor upgrades, mission planning updates, and Litening Operational Flight Programs (OFP). A H6.2 update, including the Common Avionics Program, provides AV-8B a self-contained Global Positioning System navigation capability that is required to access preferred airspaces, and will include a Litening OFP V3, and initial Link 16 Precise Participant Location and Identification capability, which will provide interoperability, digital combat identification and increase situational awareness on the battlefield. Link 16 is a Top 10 item in the Operational Advisory and Systems Safety Groups. AV-8B funding supports peculiar flight test requirements. The Link 16 full integration effort, which will require an H7.0 OFP upgrade beyond H6.2, will provide information sharing capabilities and integration of an increased number of Link 16 messages and the ability to act on shared target track information. Connection to the Link 16 network is vital to the AV-8B's ability to operate within some Command and Control situations and Operational Plans, as designed today, as well as provide a tactical capability for the more effective and safe prosecution of both airborne and ground targets. Continued AV-8B combat relevance and ability to respond to evolving and emergent threats through end of service is critical to the Marine Air-Ground Task Force's ability to generate aviation combat power throughout the transition to F-35B. J-series, K-series, Tactical Targeting Network Technology, and other emerging datalink technology messages are required to support current and future mission threads. Linked performance on par with current tactical platforms as well as design to communicate with F-35 is required for the AV-8B to remain tactically relevant to transition. Unique Weapons and Countermeasures integration and stores expansion testing will be required, to include Advanced Precision Kill Weapons System, AIM-9X, ALE-43, and AIM-120 unique platform flight test which will be required to utilize updated AIM-120C variants on the AV-8B and utilize the AIM-120 in mixed stores loadouts. The ELMP is a comprehensive plan to increase safety of flight and operational readiness of the AV-8B F402-RR-408 Engine and accessories. PMA-257 will accomplish this mission by conducting Engineering Project Description investigations and performing a series of planned Endurance Tests to derive engineering improvements to the engine. The OR/RMP is required to ensure the AV-8B air vehicle's sustained mission availability, and safe and reliable operational readiness until end of service. Air vehicle sustainment requires component and system analyses, technical planning, identification, prioritization, and diagnosis of emergent problems and the allocation of resources for the development, testing and flight clearance of engineering solutions in the areas of flight, crew safety, and escape systems and structural integrity, obsolescence, systems reliability and maintainability, inventory preservation, alternative mission development, or other emergent material or equipment conditions affecting AV-8B systems readiness. Activities include research/analysis for system safety deficiency corrections, fuel system safety improvements, structural analyses, monitoring and integrity analysis, component compatibility, component and materials obsolescence analyses and

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604214N / <i>AV-8B Aircraft - Engine Dev</i>
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mitigation development, explorations for aging equipment, reliability improvement analyses and design developments. FY 2017 continues development efforts and associated obsolescence and readiness requirements for ELMP, RMP, Link 16, weapons carriage/integration, and OFP updates.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	25.372	39.878	22.315	-	22.315
Current President's Budget	24.558	27.668	33.664	-	33.664
Total Adjustments	-0.814	-12.210	11.349	-	11.349
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-12.210			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.300	0.000			
• SBIR/STTR Transfer	-0.514	0.000			
• Program Adjustments	0.000	0.000	14.175	-	14.175
• Rate/Misc Adjustments	0.000	0.000	-2.826	-	-2.826

Change Summary Explanation

Cost:

FY 2017 Base Program Adjustment to Operational Flight Program (OFP) and Avionics Weapons Systems Development and Integration for Digital Interoperability.

Schedule:

H6.2 IOC moved from 4Q/17 to 2Q/18, H6.2 Development extended from 4Q/16 to 3Q/17, and H6.2 Test extended from 3Q/17 to 1Q/18 due to challenges with Global Positioning System navigation capability integration, as well as inclusion of initial Link 16 Precise Participant Location and Identification (PPLI) capability in the H6.2 Operational Flight Program.

H6.2 Software Delivery moved from 4Q/17 to 2Q/18 due to challenges with Global Positioning System navigation capability integration, as well as inclusion of initial Link 16 PPLI capability in the H6.2 OFP.

H7.0 IOC and H7.0 Software Delivery added in 4Q/20.

Link 16 Hardware Development completion moved from 1Q/19 to 1Q/18 due to requirement to complete Link 16 hardware development prior to H6.2 software delivery.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604214N / <i>AV-8B Aircraft - Engine Dev</i>	
<p>H7.0 Software Development start date moved from 1Q/16 to 3Q/16 and completion date extended from 1Q/18 to 4Q/19 due to challenges with H6.2 and inclusion of initial Link 16 PPLI capability into H6.2. H7.0 schedule and Link 16 full integration is adjusted based on H6.2 schedule changes.</p> <p>H7.0 Link 16 DT/IT start date moved from 1Q/16 to 2Q/18 and completion date extended from 1Q/19 to 4Q/20 due to challenges with H6.2 and inclusion of initial Link 16 PPLI capability into H6.2. H7.0 schedule and Link 16 full integration is adjusted based on H6.2 schedule changes.</p> <p>RMP Flight Test completion extended from 4Q/16 to 4Q/18 due to requirements for evaluation of new designs for the Main Landing Gear Hand Operating Strut in FY16-17, Brake Temperature and Outrigger Landing Gear Indicators in FY16, and Pitot Static Probe and new canopy transparency material in FY18.</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604214N / AV-8B Aircraft - Engine Dev				Project (Number/Name) 0652 / AV-8B			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
0652: AV-8B	329.464	24.558	27.668	33.664	-	33.664	39.078	32.150	23.084	17.259	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This program provides for AV-8B Design, Development, Integration and Test of the following improvements: The Engine Life Management Program (ELMP), Operational Flight Program (OFP) and Avionics/Weapons Integration, Escape System, and Readiness Management Plan (RMP). The ELMP is a comprehensive plan to increase safety of flight and operational readiness of the AV-8B F402-RR-408 Engine and Gas Turbine Starter, as well as other critical engine components. The Program Office will accomplish this mission through the Component Improvement Program, which entails Engineering Project Description investigations and a series of planned Endurance Tests to derive safety and reliability improvements to the engine and engine components. The Joint Mission Planning System is required as part of the Department of Navy directed migration to a common Navy and Marine Corps mission planning system. H6.1 provided enhancements and software corrections, and H6.2 (Common Avionics Program) provides Global Positioning System navigation capabilities, a Litening common OFP and initial Link 16 capability to include use of the APX-123, as well as software updates. H7.0 OFP will integrate full Link 16 capability and provide software updates. H7.0 will also integrate common avionics ADS-B (out), Mode 5, and Mode S Identification Friend or Foe capabilities. Other specific efforts include peculiar integration and flight test requirements such as AIM-120C flight test, as AIM-120A/B will become obsolete, as well as AIM-120 mixed stores flight test, unique weapons and countermeasures integration and stores expansion to include Advanced Precision Kill Weapons System, AIM-9X, ALE-43 and unique flight test of other avionics or weapons systems as they arise. The program is working closely with the Common Avionics Program and the Allies (Spain and Italy) on all efforts. RMP represents all engineering activities for development, design and test to support aircraft safety, flight clearance and concept exploration for resolution of emergent safety, service life, escape systems, compatibility, obsolescence, and readiness issues as well as response to fleet urgent operational requirements.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Development of RMP Engineering Change Proposals	11.066	11.729	11.734	0.000	11.734
Articles:	-	-	-	-	-
Description: Develop obsolescence solutions to improve safety, structural integrity, and systems reliability of the AV-8B aircraft.					
FY 2015 Accomplishments: Extensions to AV-8B End of Service date require extensive obsolescence mitigation efforts to preclude aircraft on ground. The program began in PB14 and continued to address known, predicted, and emergent obsolescence equipment issues. Systems engineering supported ongoing and emergent analysis and design/development efforts required to identify ECP requirements to correct systems safety, structural integrity, and readiness issues. Began design of Brake Temperature monitoring system to prevent brake fires and improve safety. Began the development of Improved Main Landing Gear strut servicing indication system to improve					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604214N / AV-8B Aircraft - Engine Dev	Project (Number/Name) 0652 / AV-8B
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

safety and reliability. Conducted system engineering study and design work for Outrigger Landing Gear service indicating system to improve safety and reliability. Began system engineering analyses and design for GR-9 component compatibility.

FY 2016 Plans:

Extension to AV-8B End of Service date requires continued obsolescence mitigation efforts to preclude aircraft on ground. The program began in PB15 and will continue to address known, predicted, and emergent obsolescence equipment issues. Systems engineering will support ongoing and emergent analysis and design/development efforts required to identify Engineering Change Proposal requirements to correct systems safety, structural integrity, compatibility, and readiness issues. Continue fatigue life tracking analyses and algorithm update development. Complete design of Brake Temperature monitoring system to prevent brake fires and improve safety. Continue the development of Improved Gun Shutoff Valve, Hand Operating Strut, Brake Temperature and Main Landing Gear Strut Servicing Indication Systems and Environmental Control System capacity (Turbine) improvements. Continue system engineering analyses and design for GR-9 component compatibility and Heads Up Display combining glass. Begin Vinson/Advanced Narrowband Digital Voice Terminal Cryptographic Modernization obsolescence remediation to improve safety and reliability.

FY 2017 Base Plans:

Extension to AV-8B End of Service date requires continued obsolescence mitigation efforts to preclude aircraft on ground. The program will continue to address known, predicted, and emergent obsolescence equipment issues, continuing efforts from prior years and develop replacements for the Pitot Static Probe, obsolete canopy transparency and composite materials components including landing gear doors. Continue fatigue life tracking analyses and algorithm update development. Continue Vinson/Advanced Narrowband Digital Voice Terminal Cryptographic Modernization obsolescence remediation to improve safety and reliability. Systems engineering will support ongoing and emergent analysis and design/development/test efforts required to identify Engineering Change Proposal requirements to correct systems safety, structural integrity, compatibility, and readiness issues including efforts required to respond to evolving and emergent threats, mission systems, communications systems, navigation equipment, weapons carriage and countermeasures, structural, hydraulic, electrical, environmental, and mechanical systems.

FY 2017 OCO Plans:

N/A

Title: Operational Flight Program (OFP) and Avionics Weapons Systems Development and Integration

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
	7.206	9.487	16.267	0.000	16.267
Articles:	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604214N / AV-8B Aircraft - Engine Dev	Project (Number/Name) 0652 / AV-8B
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Description: Develop, integrate, and test aircraft OFP updates, mission planning updates, Litening Pod software updates/capability expansions, support aircraft avionics development efforts, integrate and test unique weapons systems and countermeasures such as AIM-120C, AIM-9X, Advanced Precision Kill Weapon System, ALE-43, and other weapons/avionics systems as they arise, perform stores expansion testing, and conduct Digital Interoperability (to include Link 16) development, integration, and test efforts. Evaluate future capability expansions via studies and analyses.</p> <p>FY 2015 Accomplishments: Funds provided for future capability expansion studies and analyses, peculiar flight test requirement, and aircraft Operational Flight Program (OFP)/Litening Pod software updates and developmental test as part of the H6.2 upgrade. Began Global Positioning System performance test in to support H6.2 upgrade development testing, and associated telemetry analysis. Began developmental testing of second Mission Systems Computer processor card that will be used in H6.2.</p> <p>FY 2016 Plans: Funds will provide for future capability expansion studies and analyses, peculiar flight test requirements to include weapons/countermeasures/stores expansion integration and testing, and aircraft OFP/Litening Pod software updates and developmental test as part of the H6.2 upgrade. Continue developmental testing of second Mission Systems Computer processor card. Begin H7.0 OFP/Link 16 integration efforts.</p> <p>FY 2017 Base Plans: Funds will provide for future capability expansion studies and analyses efforts, efforts required to respond to evolving and emerging threats, peculiar flight test requirements to include various required weapons/countermeasures/stores expansion integration and testing such as AIM-120, AIM-9X, ALE-43, Advanced Precision Kill Weapon System, and other weapons/avionics systems as they arise, aircraft Operational Flight Program/Litening Pod software updates, initial Link 16 capability integration and developmental/integrated test as part of the H6.2 upgrade. Continue Link 16 hardware and software integration and test efforts in conjunction with H6.2 OFP. Continue H7.0 OFP/Link 16 software integration efforts.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: F402-RR-408 Engine Safety and Reliability Enhancements</p> <p align="right">Articles:</p> <p>Description: Improve Safety and Reliability of the F402-RR-408 Engine for the AV-8B Harrier.</p>	6.286 -	6.452 -	5.663 -	0.000 -	5.663 -

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604214N / AV-8B Aircraft - Engine Dev	Project (Number/Name) 0652 / AV-8B

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<i>FY 2015 Accomplishments:</i> The engineering Component Improvement Program (CIP) conducted investigations to develop improvements and develop design solutions for correction of deficiencies and issues resulting from safety, obsolescence and structural fatigue for the engine and accessories.					
<i>FY 2016 Plans:</i> The engineering CIP will conduct investigations to develop improvements and develop design solutions for correction of deficiencies and issues resulting from safety, obsolescence, and structural fatigue for the engine and accessories.					
<i>FY 2017 Base Plans:</i> The engineering Component Improvement Program (CIP) will conduct investigations to develop improvements and develop design solutions for correction of deficiencies and issues resulting from safety, obsolescence, and structural fatigue for the engine and accessories.					
<i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	24.558	27.668	33.664	0.000	33.664

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APN/0514: AV-8B Series Modification	54.066	78.128	60.818	-	60.818	38.953	37.751	36.911	36.449	135.472	1,689.620

Remarks

D. Acquisition Strategy

All efforts under obsolescence replacement Readiness Management Program provide investigations and analysis of testing and flight clearance authorization necessary to assess overall system capability and integration of projects. Funding for the Engine Life Management Program will be placed on a cost-type contract to Rolls-Royce to address safety of flight issues, top readiness degraders, engine removal and mission failure drivers in order to improve Fleet readiness and reduce cost of ownership. It is also developed to assess life management program issues and design fixes for any service revealed deficiencies. The program's Evolutionary Acquisition Strategy includes Design, Development, Integration and Test activity under the consolidated effort of Block Developments: H2.0, H4.0, H5.0, H6.0, H6.1, H6.2, H7.0 and following Operational Flight Programs (OFP). The development and integration of Joint Mission Planning System occurred concurrently with H2.0. H4.0 Block improvements included the Tactical Aircraft Moving Map Capability. H5.0 Block Upgrade provided Dual Mode Laser Guided Bomb, Litening Centerline/Station 4 (improvement of current weapons carriage capability). H6.0 Block Upgrade provided ALE-47 countermeasures system integration, and weapon carriage expansion. The program is

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy Date: February 2016

Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
1319 / 5	PE 0604214N / AV-8B Aircraft - Engine Dev	0652 / AV-8B

working closely with the Allies (Spain and Italy) and the Common Avionics Program on H6.1 and H6.2 efforts. The H6.1 update provided enhancements and software corrections that improve the AV-8B platform combat effectiveness, survivability, and relevance through avionics processor upgrades and Litening Common Operational Flight Program. The H6.2 update is being accomplished in conjunction with the Common Avionics Program and provides a Global Positioning System Navigation capability for AV-8B, a Litening Common Operational Flight Program, and initial Link 16 capability to include the use of APX-123. Full Link 16 integration will require an H.7.0 Operational Flight Program subsequent to H6.2 and will provide the AV-8B and Link 16 capability. H7.0 will also be accomplished in conjunction with Common Avionics Program and will integrate ADS-B (out), Mode 5, and Mode S. Peculiar flight test efforts to include weapons integration such as AIM-120, AIM-9X, Advanced Precision Kill Weapons Systems, ALE-43, other avionics/weapons systems as they arise, and stores expansion effort will be conducted by NAWCWD and AV-8B flight test squadrons.

E. Performance Metrics

Achieve Engine Life Management Program Rolls-Royce Component Improvement Program cost plus fixed fee contract award 1st Quarter FY 2017.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604214N / AV-8B Aircraft - Engine Dev	Project (Number/Name) 0652 / AV-8B
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary Hardware Development - ELMP	C/CPFF	Rolls-Royce PLC : Bristol, GB	29.368	1.886	Dec 2014	1.887	Dec 2015	1.684	Dec 2016	-		1.684	7.874	42.699	42.699
Primary Hardware Development - ELMP	C/FFP	ONTIC (Goodrich) PS : Pitstone, GB	5.811	0.050	Mar 2015	0.300	Mar 2016	0.220	Mar 2017	-		0.220	1.530	7.911	7.911
Primary Hardware Development - OFP	WR	NAWCWD : China Lake, CA	46.204	0.000		2.312	Jan 2016	9.371	Dec 2016	-		9.371	Continuing	Continuing	Continuing
Primary Hardware Development - RMP	WR	NAWCAD : Patuxent River, MD	0.234	0.346	Nov 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Primary Hardware Development - RMP	C/FFP	Boeing : St. Louis, MO	0.391	0.123	Jan 2015	0.000		0.000		-		0.000	0.776	1.290	1.290
Primary Hardware Development - OFP	C/FFP	Boeing : St. Louis, MO	0.000	0.000		4.224	Jan 2016	1.200	Dec 2016	-		1.200	4.595	10.019	10.019
Primary Hardware Development - ELMP	Various	Various : Various	0.000	0.452	May 2015	0.000		0.000		-		0.000	0.000	0.452	0.452
Systems Engineering - RMP	C/FFP	Boeing : St. Louis, MO	23.080	2.554	Jan 2015	4.324	Jan 2016	8.620	Jan 2017	-		8.620	18.793	57.371	57.371
Systems Engineering - RMP	WR	NAWCWD : China Lake, CA	3.343	0.090	Nov 2014	0.091	Nov 2015	0.711	Nov 2016	-		0.711	Continuing	Continuing	Continuing
Systems Engineering - RMP	WR	NAWCAD : Patuxent River, MD	4.171	1.911	Nov 2014	1.624	Nov 2015	1.664	Nov 2016	-		1.664	Continuing	Continuing	Continuing
Systems Engineering - OFP	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.000		0.050	Nov 2016	-		0.050	Continuing	Continuing	Continuing
Systems Engineering - RMP	WR	TBD : Other Gov	0.000	0.104	Jan 2015	0.106	Jan 2016	0.111	Jan 2017	-		0.111	Continuing	Continuing	Continuing
Systems Engineering - OFP	TBD	TBD : TBD	0.000	0.000		0.000		0.050	Dec 2016	-		0.050	Continuing	Continuing	Continuing
Prior year cost no longer funded in the FYDP	Various	Various : Various	42.888	0.000		0.000		0.000		-		0.000	0.000	42.888	-
Subtotal			155.490	7.516		14.868		23.681		-		23.681	-	-	-

Remarks

- FY17 increase in Primary Hardware Development OFP at NAWCWD China Lake is due to ramp up of Link 16 integration efforts.
- FY17 increase in RMP Systems Engineering due to FY17 efforts to develop pitot static probe, replacement canopy transparency and composite materials components. FY16 RMP Systems Engineering efforts were reprioritized to fund required AV-8B Flight Test Fixed costs at NAWCWD China Lake.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604214N / AV-8B Aircraft - Engine Dev	Project (Number/Name) 0652 / AV-8B
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

3. FY17 increase to Systems Engineering OFP due to ramp up of Link 16 integration efforts.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Software Development - RMP	C/CPFF	Boeing : St. Louis, MO	0.000	0.277	May 2015	0.476	Jan 2016	0.318	Jan 2017	-		0.318	2.488	3.559	3.559
Software Development - RMP	WR	NAWCWD : China Lake, CA	13.939	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Software Development - OFP	WR	NAWCWD : China Lake, CA	0.000	0.953	Dec 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Logistics Support - RMP	WR	NAWCAD : Patuxent River, MD	0.091	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Logistics Support - OFP	WR	NAWCAD : Patuxent River, MD	0.030	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Studies and Analysis - OFP	WR	NAWCWD : China Lake, CA	0.162	0.258	Nov 2014	0.000		0.229	Nov 2016	-		0.229	Continuing	Continuing	Continuing
Studies and Analysis - RMP	C/FFP	Boeing : St. Louis, MO	0.000	0.997	Jan 2015	0.000		0.000		-		0.000	2.708	3.705	3.705
Studies and Analysis - OFP	C/FFP	Boeing : St. Louis, MO	0.000	1.865	Aug 2015	2.044	Jan 2016	0.000		-		0.000	0.000	3.909	3.909
Prior year cost no longer funded in the FYDP	Various	Various : Various	40.019	0.000		0.000		0.000		-		0.000	0.000	40.019	-
Subtotal			54.241	4.350		2.520		0.547		-		0.547	-	-	-

Remarks
 4. RMP Software Development effort reflects continuing fatigue life tracking analyses and algorithm development.
 5. FY17 increase to OFP Studies and Analysis at NAWCWD China Lake is for future capability expansion studies and analyses.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604214N / AV-8B Aircraft - Engine Dev	Project (Number/Name) 0652 / AV-8B
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental Test & Evaluation - RMP	C/CPFF	Boeing : St. Louis, MO	1.500	3.450	Jan 2015	0.833	Jan 2016	0.000		-		0.000	0.000	5.783	5.783
Developmental Test & Evaluation - RMP	WR	NAWCWD : China Lake, CA	39.093	0.758	Jan 2015	3.727	Jan 2016	0.051	Jan 2017	-		0.051	Continuing	Continuing	Continuing
Developmental Test & Evaluation - OFP	WR	NAWCWD : China Lake, CA	9.357	2.877	Jan 2015	0.000		3.870	Jan 2017	-		3.870	Continuing	Continuing	Continuing
Developmental Test & Evaluation - RMP	WR	NAWCAD : Patuxent River, MD	0.460	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Developmental Test & Evaluation - RMP	WR	FRC-E : Cherry Point, NC	0.170	0.000		0.250	Dec 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Developmental Test & Evaluation - OFP	C/FFP	GE Aviation : Cincinnati, OH	0.000	0.774	Sep 2015	0.000		0.000		-		0.000	0.000	0.774	0.774
Operational Test & Evaluation - OFP	WR	COMOPTVEVFOR : Norfolk, VA	23.161	0.097	Dec 2014	0.406	Jan 2016	0.555	Jan 2017	-		0.555	Continuing	Continuing	Continuing
Operational Test & Evaluation - OFP	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.200	Jan 2016	0.000		-		0.000	0.000	0.200	0.200
Prior year cost no longer funded in the FYDP	Various	Various : Various	5.076	0.000		0.000		0.000		-		0.000	0.000	5.076	-
Subtotal			78.817	7.956		5.416		4.476		-		4.476	-	-	-

Remarks

6. FY16 increase to RMP Developmental Test & Evaluation efforts is due to reprioritization of RMP Systems Engineering efforts to fund required AV-8B Flight Test Fixed costs at NAWCWD China Lake.

7. FY17 increase to OFP Developmental Test & Evaluation efforts is to fund required AV-8B Flight Test Fixed costs at NAWCWD China Lake.

8. Operational Test & Evaluation OFP in FY17 for H7.0 OFP/Link 16 integration efforts to support unique flight testing and Link 16/H6.2/H7.0 efforts.

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Engineering & Tec SRVC (Non-FFRDC) - RMP	C/CPFF	Engility : Chantilly, VA	0.205	0.312	Dec 2014	0.112	Dec 2015	0.098	Dec 2016	-		0.098	0.000	0.727	0.727
Engineering & Tec SRVC (Non-FFRDC) - ELMP	C/CPFF	Zenetex : Herndon, VA	1.027	0.830	May 2015	1.115	Jun 2016	1.139	Jun 2017	-		1.139	0.000	4.111	4.111

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604214N / AV-8B Aircraft - Engine Dev	Project (Number/Name) 0652 / AV-8B
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Engineering & Tec SRVC (Non-FFRDC)	C/CPFF	Various : Various	6.373	1.078	Dec 2014	1.175	Dec 2015	1.220	Dec 2016	-		1.220	0.000	9.846	9.846
Government Engineering Support - ELMP	WR	NAWCAD : Patuxent River, MD	5.307	1.200	Nov 2014	1.812	Nov 2015	1.447	Nov 2016	-		1.447	Continuing	Continuing	Continuing
Government Engineering Support - OFP	WR	NAWCAD : Patuxent River, MD	1.501	0.297	Nov 2014	0.221	Nov 2015	0.696	Nov 2016	-		0.696	Continuing	Continuing	Continuing
Government Engineering Support	WR	Various : Various	5.552	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Government Engineering Support - ELMP	WR	NAWCWD : China Lake, CA	0.070	0.751	Dec 2014	0.025	Dec 2015	0.027	Dec 2016	-		0.027	Continuing	Continuing	Continuing
MGT & PROF SUPPT SRVC (NON-FFRDC)	C/CPFF	Various : Various	8.529	0.134	Dec 2014	0.256	Dec 2015	0.233	Dec 2016	-		0.233	12.542	21.694	21.694
Travel	WR	Various : Various	1.135	0.134	Oct 2014	0.148	Oct 2015	0.100	Oct 2016	-		0.100	Continuing	Continuing	Continuing
Prior year cost no longer funded in the FYDP	Various	Various : Various	11.217	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			40.916	4.736		4.864		4.960		-		4.960	-	-	-

Remarks
9. FY17 increase of OFP Government Engineering Support at NAWCAD Patuxent River is due to ramp up of Link 16 integration efforts.

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	329.464	24.558	27.668	33.664	-	33.664	-	-	-

Remarks
FY16 adjustments across all cost categories reflect Fact of Life changes to H7.0 OFP/Link 16 integration and reduction of AIM-120 efforts.

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604214N / AV-8B Aircraft - Engine Dev	Project (Number/Name) 0652 / AV-8B
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
AV-8B AIRCRAFT - ENGINE DEV				
Acquisition Milestones: RDC IOC	4	2015	4	2015
Acquisition Milestones: H6.1 IOC	2	2015	2	2015
Acquisition Milestones: H6.2 IOC	2	2018	2	2018
Acquisition Milestones: AVT IOC	3	2015	3	2015
Acquisition Milestones: H7.0 IOC	4	2020	4	2020
Systems Development: Hardware Development: Link 16 Development	3	2016	1	2018
Systems Development: Hardware Development: RMP Obsolescence Development	1	2015	4	2021
Systems Development: Hardware Development: RMP Hardware Dev	1	2015	4	2015
Systems Development: Software Development: H6.2 Development	1	2015	3	2017
Systems Development: Software Development: H7.0 Development	3	2016	4	2019
Systems Development: Software Development: RMP Fatigue Life Expended Development	1	2015	4	2021
Test & Evaluation: Technical Evaluation: RMP Flight Test	1	2015	4	2018
Test & Evaluation: Technical Evaluation: H6.1 DT/IT	1	2015	1	2015
Test & Evaluation: Technical Evaluation: H7.0 Link 16 DT/IT	2	2018	4	2020
Test & Evaluation: Technical Evaluation: H6.2 DT/IT	2	2015	1	2018
Production Milestones: Contract Awards: Engine Life Management Program (ELMP): ELMP Contract Award FY15	1	2015	1	2015
Production Milestones: Contract Awards: Engine Life Management Program (ELMP): ELMP Contract Award FY16	1	2016	1	2016
Production Milestones: Contract Awards: Engine Life Management Program (ELMP): ELMP Contract Award FY17	1	2017	1	2017

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604214N / AV-8B Aircraft - Engine Dev	Project (Number/Name) 0652 / AV-8B
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Production Milestones: Contract Awards: Engine Life Management Program (ELMP): ELMP Contract Award FY18	1	2018	1	2018
Production Milestones: Contract Awards: Engine Life Management Program (ELMP): ELMP Contract Award FY19	1	2019	1	2019
Production Milestones: Contract Awards: Engine Life Management Program (ELMP): ELMP Contract Award FY20	1	2020	1	2020
Production Milestones: Contract Awards: Engine Life Management Program (ELMP): ELMP Contract Award FY21	1	2021	1	2021
Deliveries: H6.1 S/W Delivery	2	2015	2	2015
Deliveries: H6.2 S/W Delivery	2	2018	2	2018
Deliveries: H7.0 S/W Delivery	4	2020	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604215N / <i>Standards Development</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	1,079.851	52.841	53.049	1.300	-	1.300	1.913	1.903	1.790	1.827	Continuing	Continuing
0572: <i>JT Service/NV Std Avionics CP/SB</i>	892.201	41.631	39.880	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	973.712
1857: <i>Calibration Standards</i>	12.564	1.582	1.653	1.300	-	1.300	1.913	1.903	1.790	1.827	Continuing	Continuing
2311: <i>Stores Planning and Weaponing Module</i>	159.154	9.088	10.941	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	179.183
2312: <i>Common Helicopters</i>	15.932	0.540	0.575	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	17.047

Note

Starting in FY17 the Common Helicopters (PU 2312) and Stores Planning and Weaponing Module (PU 2311) will be moved to Mission Planning PE (0605215N). Starting in FY17 the JT Service/NV Std Avionics CP/SB (PU 0572) PE (0604215N) will be moved to a new Common Avionics PE (0605217N).

A. Mission Description and Budget Item Justification

Decrease in STANDARDS DEVELOPMENT by \$0.053M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

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

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under SYSTEM DEVELOPMENT AND DEMONSTRATION because it includes those projects that have passed Milestone B approval and are conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full-rate production decision.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604215N / <i>Standards Development</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	53.706	53.059	69.896	-	69.896
Current President's Budget	52.841	53.049	1.300	-	1.300
Total Adjustments	-0.865	-0.010	-68.596	-	-68.596
• Congressional General Reductions	-	-0.010			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.023	0.000			
• SBIR/STTR Transfer	-0.842	0.000			
• Program Adjustments	0.000	0.000	-68.204	-	-68.204
• Rate/Misc Adjustments	0.000	0.000	-0.392	-	-0.392

Change Summary Explanation

Technical: Not applicable.

Schedule:

0572:

Tactical Communications: Title corrected from Joint Precision Approach Landing System Software (S/W) Integration to Operation Flight Plan S/W Integration.

Ground Proximity Warning Systems/Terrain Awareness Warning System (GPWS/TAWS II): H-60 TAWS II Software Development extended duration from 4Q/15 through 4Q/16 based on projected platform integration schedule.

Military Flight Quality Assurance: Test and Evaluation, MH-53R/S, M/CH-53E, AH-1Z, UH-1Y, Phase 2 Test extended from 3Q/15 to 4Q/15 due to longer testing required for a number of defects found. Phase 2 Test Readiness Review moved from 1Q/15 to 3Q/15 due to integration test took longer than planned due to number of defects found. Deliveries for H-60R/S, CH-53E, AH-1Z and UH-1Y reflect new date of 2Q/15 to align with F/A-18 procurement order.

"Mid Air Collision Avoidance Capability: Re-planned FY16-FY21 program as a result of the Business Case Analysis to properly aligned program. Material Development Decision/Acquisition Strategy Review (MDD/ASR) moved from 2Q/16 to 1Q/17. Added Capability Development Document (CDD) Draft added in 4Q16. Added Requirements Development from 1Q/16 to 4Q/16.

Starting in FY17 the JT Service/NV Std Avionics CP/SB (PU 0572) PE (0604215N) will be moved to a new Common Avionics PE (0605217N).

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity	R-1 Program Element (Number/Name)
1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	PE 0604215N / <i>Standards Development</i>

2311:
Stores Planning and Weaponing Module V3.1 IOC was delayed from 4Q14 to 3Q15 to align with the F/A-18 platform software release. FY17 and out schedule is included in the Mission Planning PE 0605215N.

2312:
Common Helicopters schedule FY17 and out is included in Mission Planning PE 0605215N.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604215N / Standards Development	Project (Number/Name) 0572 / JT Service/NV Std Avionics CP/SB
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
0572: JT Service/NV Std Avionics CP/SB	892.201	41.631	39.880	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	973.712
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Starting in FY17 the JT Service/NV Std Avionics CP/SB (PU 0572) PE (0604215N) will be moved to a new Common Avionics PE (0605217N).

A. Mission Description and Budget Item Justification

Joint Services/Navy Standard Avionics Components and Subsystems: This project provides for the identification, study, design, development, demonstration, test, evaluation, and qualification of standard avionics capabilities for Navy use, and wherever practicable, use across all Services and Foreign Military Sales. Standard avionics capabilities under development include the Joint Service Review Committee for Avionics Standardization (JSRC-AS), Communication Navigation Surveillance/Air Traffic Management (CNS/ATM), Tactical Communications (TACCOM), Ground Proximity Warning System/Terrain Awareness Warning System (GPWS/TAWS II), Military Flight Operations Quality Assurance (MFOQA), Collaborative Warfare (CW), Avionics Component Improvement Program (AvCIP), Mid Air Collision Avoidance Capability (MCAC), and Avionics Architectures Team (AAT). Participation in Human Factors Quality Management Board ensures Navy safety upgrades and mandatory safety improvements for naval aircraft.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Joint Service Review Committee for Avionics Standardization (JSRC-AS)	0.792	0.990	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: The JSRC-AS program supports Congressional and Assistant Secretary of the Navy for Research, Development and Acquisition direction to control the growing proliferation of unique avionics and improve coordination among the services through the identification, development, and promotion of investigative and development efforts across the services and U.S. Coast Guard. The JSRC-AS supports the development, analysis and review of new avionics requirements with potential for joint service application. The JSRC-AS consists of an O-6 Level principal from each service and U.S. Coast Guard, as well as the appropriate staff, to support joint service working group efforts. The JSRC-AS reports to the O-7 level tri-service Aviation Common Systems Board who reports to the O-9 level Joint Aeronautical Commanders Group.					
FY 2015 Accomplishments:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604215N / <i>Standards Development</i>	Project (Number/Name) 0572 / <i>JT Service/NV Std Avionics CP/SB</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Provided leadership in support of the Navy's interest to the JSRC-AS tri-service committee promoting commonality and joint programs with focus on interoperability, communications, navigation, Joint Services avionics obsolescence management, and update of the Core Avionics Master Plan.</p> <p>FY 2016 Plans: Provide leadership in support of the Navy's interest to the JSRC-AS tri-service committee promoting commonality and joint programs with focus on interoperability, communications, navigation, Joint Services avionics obsolescence management, and update of the Core Avionics Master Plan.</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Communication Navigation Surveillance/Air Traffic Management (CNS/ATM)</p> <p align="right">Articles:</p> <p>Description: This program will conduct and support CNS/ATM research, studies, development, integration, demonstration, test and evaluation efforts for naval aviation platforms in development. Platform integration of Mode Select (S), 8.33 kHz, Reduced Vertical Separation Minimum (RVSM), Required Navigation Performance Area Navigation (RNP/RNAV) to include M Code, and Automatic Dependent Surveillance-Broadcast Out (ADS-BO) functional integration and certification efforts into naval aircraft. Assist with insertion of communication, navigation, surveillance, and supporting technologies and conduct capability certification on developmental platforms such as F-35, CH-53K, and Unmanned Air Systems. Capabilities include Mode S, 8.33 kHz, RVSM, RNP/RNAV, ADS-BO, and other civil and military capabilities.</p> <p>FY 2015 Accomplishments: Assist with insertion and integration of CNS/ATM technologies and certification of developmental platforms. Evaluate Automated Dependent Surveillance Broadcast Out (ADS-BO) technologies and develop solutions to support platform integrations. Develop CNS/ATM Common Components to support Required Navigation Performance Area Navigation (RNP RNAV) developmental platform requirements. Continue integration/certification of Mode Select, 8.33 kHz, Reduced Vertical Separation Minimum, RNP/RNAV, and ADS-BO) into CH-53K.</p> <p>FY 2016 Plans:</p>	0.458	1.488	0.000	0.000	0.000
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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604215N / <i>Standards Development</i>	Project (Number/Name) 0572 / <i>JT Service/NV Std Avionics CP/SB</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Assist with insertion and integration of CNS/ATM technologies and certification of developmental platforms. Evaluate ADS-B (Out) technologies and develop solutions to support platform integrations. Develop CNS/ATM Common Components to support Required Navigation Performance Area Navigation (RNP RNAV) developmental platform requirements. Begin integration/certification of Mode Select, 8.33 kHz, Reduced Vertical Separation Minimum, RNP/RNAV, and ADS-B (Out) into CH-53K. Research and develop Global Positioning System (GPS) enhancements to support CNS/ATM RNP RNAV improvements. Research and develop Automatic Dependent Surveillance-Broadcast Out System Design Assurance requirements as well as compatibility with the emerging GPS M Code and its impact on RNP RNAV.</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Tactical Communications (TACCOM)</p> <p align="right">Articles:</p> <p>Description: This program will conduct research, studies, development, integration, demonstration, test and evaluation efforts to ensure tactical communication systems and capabilities are developed and available to support naval aviation requirements. Perform tactical communication platform integration studies and activities to determine technical and cost effective solutions across naval aviation. Develop tactical communications (voice/data) requirements, concepts and systems which have application across naval aviation. Support all necessary tasks to ensure evolution of legacy communications systems incorporating programmable Communication Security/Information Assurance, mandated National Security Agency (NSA) Crypto Modernization initiatives, Combat Net Radio (CNR) Variable Message Format (VMF), Beyond Line-of-Sight, Satellite Communication (SATCOM) Modernization including Mobile User Objective System (MUOS), High Frequency, Second Generation Anti-Jam Tactical UHF Radio for NATO (SATURN) civil interoperability, and Joint Precision Approach Landing System (JPALS) data link into the ARC-210 system. Support for networking requirements development and prototyping, Integrated Waveform (IW), Intelligence Broadcast System over modern Code Division Multiple Access based satellite channels, Tactical Networks, Data Links, and Link 16.</p> <p>FY 2015 Accomplishments:</p>	10.671	12.519	0.000	0.000	0.000
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604215N / <i>Standards Development</i>	Project (Number/Name) 0572 / <i>JT Service/NV Std Avionics CP/SB</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>RT-1939A and RT-1990A received NSA and JITC certifications. Fielding of RT-1939A and RT-1990A on Naval Aviation platforms has begun. Began Software Development with MUOS capable ancillaries. Continue development of air to ground, IW, and Variable Message Format/Combat Net radio capabilities.</p> <p>FY 2016 Plans: Initiate Satellite Communications Modernization and continue development of Digital Interoperability SATCOM Software capability to include Mobile User Objective System (MUOS). Continue Joint Precision Approach Landing System Software integration with airborne capabilities for a common capabilities release. Initiate design of Crypto Engine. Complete Joint Interoperability Test Command certification to deliver VMF Software. Continue development of Air to Ground (VMF Software) Interoperability.</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Ground Proximity Warning System/Terrain Awareness Warning System (GPWS/TAWS II)</p> <p align="right">Articles:</p> <p>Description: This program will conduct research, studies, development, integration, demonstration, test and evaluation efforts to meet naval aviation GPWS/TAWS II requirements. These requirements span all operational modes and operational environments, to include Degraded Visual Environment. Perform GPWS/TAWS II platform integration studies and activities to determine technical and cost effective solutions across naval aviation. Develop GPWS/TAWS II solutions tailored to platform performance and range of military operations. Develop simulation models for use at Manned Flight Simulator (MFS) or other simulation environments as required for platform tailoring, including procurement of test article hardware. Evaluate aircraft simulation models for suitability in GPWS/TAWS II development effort. Develop GPWS/TAWS II algorithms utilizing simulation environments as real-time hardware and pilot in the loop tool. Develop and evaluate algorithm interfaces necessary for integration of the algorithm within platform host computer. Develop software code to execute GPWS/TAWS II algorithm in host platforms.</p> <p>FY 2015 Accomplishments: Continue Terrain Awareness Warning System (TAWS) II with obstacles software development and platform integration for H-60. Completed Developmental Testing (DT) of H-1 Ground Proximity Warning System.</p> <p>FY 2016 Plans:</p>	4.383 -	8.137 -	0.000 -	0.000 -	0.000 -

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Deliver formal software build of TAWS II system to H-60. Complete beta testing of TAWS II in Manned Flight Simulator or other simulation environment. Complete Phase 1 DT in MH-60R/S. FY 2017 Base Plans: N/A FY 2017 OCO Plans: N/A					
Title: Military Flight Operations Quality Assurance (MFOQA) Articles: Description: This program will develop a MFOQA baseline software integration framework using Government procured software modules to perform functions such as flight data analysis, post mission aircrew debrief, aircraft maintenance and system troubleshooting and mishap investigation to meet naval aviation requirements. Additional efforts will include software development and integration for fleet wide shore based and shipboard MFOQA implementation. Evaluate aircraft recorder systems and requirements to meet current and future MFOQA requirements. Prepare and conduct MFOQA acquisition events such as Systems Readiness Review, Agile Technical Reviews, Developmental Testing, and follow-on Decision Reviews in support of initial Rotary Wing (Phase 2) platforms. FY 2015 Accomplishments: Complete Phase 2 Agile software development, software integration and test. Continue working toward deployment decision review and initiate deployment to rotary wing squadrons. FY 2016 Plans: N/A FY 2017 Base Plans: N/A FY 2017 OCO Plans: N/A	1.978	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
Title: Collaborative Warfare (CW) Articles: Description: The CW component is a Research & Development effort to identify targeting gaps and determine the warfighting benefit of integrating networked capabilities into naval aircraft to fill those gaps.	0.168	0.176	0.000	0.000	0.000
Articles:	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>The CW component also addresses targeting gaps for naval aircraft to operate more effectively with other military services. The following efforts are included: 1) A comprehensive naval aviation Tactical Networking Requirements Strategy that maps fleet gaps and requirements to cross-platform naval aviation solutions. The Naval Effects Cross Domain Targeting Capabilities Based Assessment concept refinement Joint Capability Integration Development System activity will be integrated into this effort. 2) Netted sensors proof of concept prototype demonstrations leveraging the Navy's Fleet Experimentation campaign. 3) Support of integration of Netted Sensors/Sensor Fusion into naval aviation Integrated Capabilities Packages supporting multi-mission capability enhancements to include input to the N81 Offensive Anti-Surface Warfare Targeting and Weapons Control study that ensures naval aviation Intelligence, Surveillance and Reconnaissance delivers a complete kill chain. 4) Provide resource sponsor oversight on an Office of Naval Research Future Naval Capability Enabling Capability for an Advanced Tactical Data Link (ATDL) for naval aviation. 5) Continue work on the Joint Tactical Networking Concept of Employment (JTN CONEMP) that aligns Navy ATDL and Joint Aerial Layer Network - Maritime with USAF future strategies.</p> <p><i>FY 2015 Accomplishments:</i> Execute TRIDENT WARRIOR 15 netted sensors evolution to decentralized multi-intelligence correlation architecture. Continue executing tactical networking strategy activities to define future Program Objective Memorandums and analytic agendas. Develop requirements, standards, and architectures in support of new and updated netted-sensors' Concept of Operations and capabilities.</p> <p><i>FY 2016 Plans:</i> Continue executing tactical networking strategy activities to define future Program Objective Memorandums and analytic agendas. Develop requirements, standards, and architectures in support of new and updated netted-sensors' Concept of Operations and capabilities.</p> <p><i>FY 2017 Base Plans:</i> N/A</p> <p><i>FY 2017 OCO Plans:</i> N/A</p>					
<p><i>Title:</i> Avionics Component Improvement Program (AvCIP)</p> <p align="right"><i>Articles:</i></p> <p><i>Description:</i> Investigate high value Return On Investment component improvement candidate projects in support of NAVAIR Commander's third focus area - Improve "capital A" Affordability. Stop operating and sustainment cost growth by reducing costs for fielded systems and implementing life-cycle cost reduction</p>	5.088	4.972	0.000	0.000	0.000
	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

initiatives as part of new systems development. This program positions resources for next year application to fast-track corrections to existing problematic systems. Projects address critical readiness issues (significant back-orders or impending sustainability failures that threaten to down aircraft), functional performance obsolescence issues (system failing to support mission requirement), and top sustainment cost drivers (out of proportion annual maintenance or repair costs). Resources enable design and development of technology insertion and product redesign or replacement to meet readiness goals, meet mission objectives, or reduce overall sustainment costs. Candidate projects are submitted via a rigorous template, reviewed by a panel of Avionics professionals, and selected based upon urgency, warfighting contributions, breadth of application and scope of Return On Investment. Resources cover non-recurring engineering elements (including design and development, prototypes, platform integration, test and evaluation), program management and associated logistics elements (including technical data preparation, support equipment, provisioning, and training). Analysis shows that funding applied under this program between 2006 and 2014 will enable sustainment and procurement cost avoidances exceeding a five to one margin by 2025.

FY 2015 Accomplishments:

Address current fleet problem avionics systems (top readiness degraders, cost drivers, obsolescence-driven sustainability, capability loss, fleet head-hurters).

FY 2016 Plans:

Address current fleet problem avionics systems (top readiness degraders, cost drivers, obsolescence-driven sustainability, capability loss, fleet head-hurters).

FY 2017 Base Plans:

N/A

FY 2017 OCO Plans:

N/A

Title: Mid Air Collision Avoidance Capability (MCAC)

Articles:

Description: This program will conduct research, studies, and development, integration, demonstration, test and evaluation efforts to meet Naval Aviation MCAC requirements. These requirements span all operational modes and operational environments, to include Degraded Visual Environment. Perform MCAC platform integration studies and activities to determine technical and cost effective solutions across Naval Aviation. Develop MCAC solutions tailored to platform performance and range of military operations. Develop simulation models for use at Manned Flight Simulator (MFS) or other simulation environments as required for platform tailoring, including

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
	2.399	3.460	0.000	0.000	0.000
	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>procurement of test article hardware. Evaluate aircraft simulation models for suitability in MCAC development effort. Develop MCAC solutions utilizing simulation environments as real-time hardware and pilot in the loop tools. Develop and evaluate interfaces necessary for integration of MCAC within platform host environment.</p> <p>FY 2015 Accomplishments: Completed Analysis of Alternatives and conducted additional market research to supplement AoA findings.</p> <p>FY 2016 Plans: Begin requirements development and draft Capability Development Document (CDD).</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Avionics Architectures Team (AAT)</p> <p align="right">Articles:</p> <p>Description: The Avionics Architecture Team (AAT) provides hardware and software (HW/SW) standards and product line development and management for a common HW/SW operating environments to establish testable open architecture requirements in accordance with NDAA Section 801 Open Architecture language, DoD Directive 5000.1, N6/N7 Naval Open Architecture Requirements Letter 9010, Ser. N6N7/5U916276, and SECNAVINST 5000.2E. The Future Airborne Capability Environment (FACE) Technical Standard is developed through Navy, Army, Air Force, Industry and Academia collaboration in accordance with Public Law 104-113. The Hardware Open Systems Technologies (HOST) standard is being developed through government and academia collaboration and will be provided to industry for prototyping efforts. The AAT provides Subject Matter Experts to define and architect a set of Open Architecture Standards and product lines, design guidance, development and integration tools, acquisition strategy, contracting guidance and cost estimates. The results will enable Department of Defense (DoD) weapons systems to systematically reuse HW/SW and deliver scalable, portable and interoperable war fighting capabilities at a faster rate, reducing redundant development costs and increasing competition. Infrastructure components and frameworks built to these standards will support CNS/ATM capability upgrades on various platforms by enabling integration of common, non-proprietary applications. The AAT initiatives enable the government's role as Lead Systems Integrator, per the Weapons System Acquisition Reform Act (WSARA) 2009, and cost effectively manage data rights for reuse across the DoD.</p>	15.694	8.138	0.000	0.000	0.000
	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Future Airborne Capability Environment (FACE) Program Title changed to Avionics Architectures to define Naval open architecture that includes FACE and Hardware Open Systems Technologies (HOST).					
<i>FY 2015 Accomplishments:</i> Provide development support, systems engineering and program management for design and acquisition strategy implementation guidance. Investigate revisions to the FACE technical standard to meet emerging technologies and new platform requirements. Assist developmental platforms with strategies for and implementation of the FACE technical standard. Subject Matter Expert support for platform integration and competitive source selection.					
<i>FY 2016 Plans:</i> Provide development support, mission based engineering, systems engineering and program management for design and acquisition strategy implementation guidance. Investigate revisions to the Future Airborne Capability Environment (FACE) and Hardware Open Systems Technologies (HOST) standards to meet emerging technologies and new platform requirements. Assist platforms with strategies for modular functional decomposition and implementation of FACE and HOST standards. Subject Matter Expert support for platform integration and competitive source selection. Academia prototyping and demonstration efforts for FACE and HOST initiatives.					
<i>FY 2017 Base Plans:</i> N/A					
<i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	41.631	39.880	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APN/0577: <i>Common Avionics Changes</i>	146.084	169.590	164.839	-	164.839	148.275	156.777	113.777	137.956	302.860	3,506.643

Remarks

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D. Acquisition Strategy

Communication Navigation Surveillance/Air Traffic Management (CNS/ATM) program is a system of systems. The program will encompass the integration of various systems which will be procured utilizing existing contracts for integration on forward-fit and retrofit platforms to provide CNS/ATM functionality. Tactical Communications (TACCOM) is utilizing a firm fixed price contract to Rockwell Collins for research and development of the ARC-210 Gen 5/6 and other Navy contract vehicles for integration studies. The Navy will integrate systems and components to satisfy platform requirements to achieve tactical communication capability as determined by analyses. Ground Proximity Warning System/Terrain Awareness Warning System (GPWS/TAWS II) Software Modules will be developed by a Government Software Product Team in collaboration with Industry where required. Military Flight Operations Quality Assurance (MFOQA) Government activities include integrating a combination of existing aircraft hardware, ground support equipment, Commercial Off The Shelf (COTS), government off the shelf hardware and software products. MFOQA program interfaces will be created to share data captured by the automated maintenance systems (e.g., Automated Maintenance Environment, Health and Usage Monitoring Systems) and existing databases. The Navy conducted a full and open competition for the MFOQA software development, integration and support contract as well as the COTS software data analysis product. Follow-on Sole Source Product Contracts were awarded to complete MFOQA development, as required. Avionics Component Improvement Program (AvCIP) will annually review, compete and select candidate component improvement proposals according to urgency, criticality of warfighting contributions, technical risk, breadth of application, and scope of Return On Investment (ROI). Projects are selected by a panel of Avionics management experts, including representatives from OPNAV N98, NAVAIR, NAVICP, and the Fleet. Projects are executed by managers in platform or commodity offices that own the component. The AvCIP program management team manages project selection, allocates funds, monitors multiple project executions against proposed spend plans, and tracks solution performance and achievement of projected ROIs over time using Fleet maintenance and component performance databases. Cost avoidances are coordinated with OPNAV N98 to balance Flying Hour Program costs. Component improvement solutions include modular hardware, software and material upgrades. Resources cover engineering elements (including design and development, prototypes, platform integration, test and evaluation), program management and associated logistics elements (including technical data preparation, support equipment, provisioning, and training). Mid Air Collision Avoidance Capability (MCAC) is the capability umbrella which encompasses all systems designed and developed which aid in air-to-air collision avoidance. Systems include but are not limited to Traffic Collision Avoidance Systems and Mid Air Collision Avoidance Systems. Mid Air Collision Avoidance Capability Software Modules will be developed by a Government Software Product Team in collaboration with Industry where required. Avionics Architectures Team (AAT) will provide acquisition strategy guidance and support to platforms implementing open systems architectures to address open architecture requirements.

E. Performance Metrics

Joint Service Review Committee for Avionics (JSRC-AS) - Provide leadership in support of the Navy's interest to the JSRC tri-service committee promoting commonality and joint programs with focus on interoperability, communications, Communication Navigation Surveillance/Air Traffic Management (CNS/ATM), Joint Services avionics obsolescence management and the update of the Core Avionics Master Plan. Support and participate in Naval Aviation Requirements Group panels, Operational Advisory Group, and Human Factors Quality Management Board.

CNS/ATM - Successfully complete platform integration, test, and certifications.

Tactical Communications (TACCOM) - Achieve Joint Interoperability Test Command and National Security Agency certifications on system developmental efforts to meet operational requirements.

Ground Proximity Warning System/Terrain Awareness Warning System (GPWS/TAWS II) - Develop algorithm and software to meet platform specific requirements, successfully complete flight test, and deliver product on schedule. Successfully complete Milestone B.

Military Flight Operations Quality Assurance (MFOQA) - Successfully complete Milestone C and Initial Operational Capability on schedule; successfully complete Phase 2 development and fleet introduction.

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<p>Collaborative Warfare (CW) - Identify collaborative warfighting capability gaps and ensure the development of the most intelligent, cost effective, and timely solutions to fill those gaps.</p> <p>Avionics Component Improvement Program (AvCIP) - Successful project competition and selection, execution of allocated funds, fielding of solutions, and documentation of component performance enhancement and benefits.</p> <p>Mid Air Collision Avoidance Capability (MCAC) - Achieve program acquisition milestones on cost and schedule meeting platform requirements.</p> <p>Avionics Architectures - Provide leadership in support of the Navy's interest to the Future Airborne Capability Environment (FACE) Consortium. Participate in technical and business working groups within the FACE Consortium to foster solutions that promote interoperable and integrated warfighting capability for all services. Successfully functionally decompose, prototype and demonstrate FACE conformant applications and FACE compatible operating environments. Develop technical specifications for Hardware Open System Technologies (HOST). Prototype and demonstrate HOST avionics components.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary Hardware Dev	WR	NAWCAD : Patuxent River, MD	3.612	1.379	Dec 2014	1.068	Feb 2016	0.000		-		0.000	0.000	6.059	-
Primary Hardware Dev	Various	Various : Various	61.412	4.721	Mar 2015	5.605	Mar 2016	0.000		-		0.000	0.000	71.738	-
Aircraft Integration TACCOM	SS/FFP	Rockwell Collins : Cedar Rapids, IA	57.049	7.178	Jun 2015	6.309	Feb 2016	0.000		-		0.000	0.000	70.536	70.536
Aircraft Integration GPWS	SS/CPIF	Lockheed Martin : Owego, NY	0.000	0.000		2.895	Feb 2016	0.000		-		0.000	0.000	2.895	2.895
Systems Engineering MFOQA	WR	NSWC Carderock : Bethesda, MD	2.395	0.292	Nov 2014	0.000		0.000		-		0.000	0.000	2.687	2.687
Systems Engineering	WR	NAWCAD : Patuxent River, MD	31.637	2.412	Dec 2014	4.367	Feb 2016	0.000		-		0.000	0.000	38.416	-
Systems Engineering AAT	MIPR	DTIC : Ft. Belvoir, Va	0.000	11.479	Mar 2015	1.849	Jan 2016	0.000		-		0.000	0.000	13.328	13.328
Systems Engineering	Various	Various : Various	0.614	1.476	Mar 2015	1.880	Mar 2016	0.000		-		0.000	0.000	3.970	-
Prior year Prod Dev costs no longer funded in FYDP	Various	Various : Various	465.983	0.000		0.000		0.000		-		0.000	0.000	465.983	-
Subtotal			622.702	28.937		23.973		0.000		-		0.000	0.000	675.612	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Software Development TACCOM	TBD	Rockwell Collins : Cedar Rapids, IA	0.000	0.000		0.951	Feb 2016	0.000		-		0.000	0.000	0.951	-
Integrated Logistics Support	WR	NAWCAD : Patuxent River, MD	18.197	1.528	Dec 2014	0.751	Feb 2016	0.000		-		0.000	0.000	20.476	-
Prior year Support costs no longer funded in FYDP	Various	Various : Various	54.655	0.000		0.000		0.000		-		0.000	0.000	54.655	-
Subtotal			72.852	1.528		1.702		0.000		-		0.000	0.000	76.082	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental Test and Evaluation	Various	Various : Various	13.868	0.231	Apr 2015	0.926	Apr 2016	0.000		-		0.000	0.000	15.025	-
Prior year T&E costs no longer funded in FYDP	Various	Various : Various	39.111	0.000		0.000		0.000		-		0.000	0.000	39.111	-
Subtotal			52.979	0.231		0.926		0.000		-		0.000	0.000	54.136	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Contractor Engineering Support	Various	Various : Various	74.320	5.834	Jun 2015	6.745	Feb 2016	0.000		-		0.000	0.000	86.899	-
Government Engineering Support	WR	NAWCAD : Patuxent River, MD	23.362	2.703	Mar 2015	3.365	Mar 2016	0.000		-		0.000	0.000	29.430	-
Program Management Support	WR	NAWCAD : Patuxent River, MD	23.211	2.328	Mar 2015	3.121	Mar 2016	0.000		-		0.000	0.000	28.660	-
Travel	WR	NAVAIR : Patuxent River, MD	1.239	0.070	Nov 2014	0.048	Feb 2016	0.000		-		0.000	0.000	1.357	-
Prior year Mgmt costs no longer funded in FYDP	Various	Various : Various	21.536	0.000		0.000		0.000		-		0.000	0.000	21.536	-
Subtotal			143.668	10.935		13.279		0.000		-		0.000	0.000	167.882	-

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	892.201	41.631	39.880	0.000	-	0.000	0.000	973.712	-

Remarks
 Prior Year costs from PB16 to OSD17 have been adjusted to reflect actuals.
 Starting in FY17 the JT Service/NV Std Avionics CP/SB (PU 0572) PE (0604215N) will be moved to a new Common Avionics PE (0605217N).

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

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COMMUNICATION, NAVIGATION, SURVEILLANCE/AIR TRAFFIC MGMT (CNS/ATM)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestones																												
Systems Development					Evaluate ADS-BO technologies/develop solutions to support platform integrations																							
					Develop CNS/ATM Common Component to support RNP RNAV developmental platform requirements																							
Test and Evaluation																												
Integration/Certification of 8.33 kHz, MODE S, Reduced Vertical Separation Minimums (RVSM), RNP/RNAV, and ADS-B (Out)					CH-53K																							
					CNS/ATM technologies/certification of developmental platforms																							
Production Milestones																												
Deliveries																												

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TACTICAL COMMUNICATIONS (TACCOM)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestones																												
Systems Development	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 10px;"> SATCOM S/W Development (with MUOS) </div> <div style="margin-bottom: 10px;"> SATCOM and VMF P3I S/W Assess/Dev </div> <div style="margin-bottom: 10px;"> OFP S/W Integration </div> <div style="margin-bottom: 10px;"> Crypto Engine Design </div> </div>																											
Test and Evaluation	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 10px;"> JITC ▼ </div> <div style="margin-bottom: 10px;"> JITC ▼ </div> </div>																											
Production Milestones	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 10px;"> TSV SW ▼ </div> <div style="margin-bottom: 10px;"> VMF SW ▼ </div> </div>																											
Deliveries																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604215N / <i>Standards Development</i>	Project (Number/Name) 0572 / <i>JT Service/NV Std Avionics CP/SB</i>
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GROUND PROXIMITY WARNING SYSTEM/TERRAIN AWARENESS WARNING SYSTEM (GPWS/TAWS)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestones																												
Milestones																												
Systems Development																												
Systems Development	H-60 TAWS II Software Development																											
Test and Evaluation																												
Developmental Testing	H-1 GPWS DT																											
Operational Testing																												
Production Milestones																												
Deliveries																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

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MILITARY FLIGHT OPERATION QUALITY ASSURANCE (MFOQA)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Phase 1 = F/A-18C/D/E/F and EA-18G Phase 2 = MH-60R/S, M/CH-53E, AH-1Z, UH-1Y																												
Acquisition Milestones																												
Milestones				Phase 2 Fielding Decision ◆																								
Systems Development																												
Software Development																												
Reviews	Phase 2 SYS INTEG																											
Development Contract Awards																												
Test and Evaluation																												
F/A-18 Testing Reviews																												
MH-53R/S, M/CH-53E, AH-1Z, UH-1Y Testing																												
Reviews				Phase 2 Test																								
Reviews				Phase 2 TRR ■																								
Production Milestones																												
Production Fielding				Phase 1 Fielding																								
Deliveries																												
H-60R/S																												
CH-53E																												
AH-1Z, UH-1Y																												

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COLLABORATIVE WARFARE (CW)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestones																												
JCIDS Activities																												
Netted Sensors CONOPS, Standards and Architectures/Requirements Development	CONOPS, Standards and Architectures/Requirements Development																											
Naval Aviation Tactical Networking Requirements	Naval Aviation Tactical Networking Requirements																											
Netted Sensors Demonstrations																												
Trident Warrior 15																												
Capabilities-Based Assessment																												
Systems Development																												
Test and Evaluation																												
Production Milestones																												
Deliveries																												

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AVIONICS COMPONENT IMPROVEMENT PROGRAM (AvCIP)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
Acquisition Milestones																																
Funding Allocation	▼				▼																											
Proposal Collection	—				—																											
Proposal Evaluation		▼				▼																										
Proposal Prioritization and Selection			▼				▼																									
Contract Establishment & Execution Plan			—				—																									
Systems Development																																
Test and Evaluation																																
Production Milestones																																
Deliveries																																

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MID AIR COLLISION AVOIDANCE CAPABILITY (MCAC)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestones			AOA Complete ▼					CDD Draft ▼																				
Systems Development							Requirements Development																					
Test and Evaluation																												
Production Milestones																												
Deliveries																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604215N / <i>Standards Development</i>	Project (Number/Name) 0572 / <i>JT Service/NV Std Avionics CP/SB</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
COMMUNICATION, NAVIGATION, SURVEILLANCE/AIR TRAFFIC MGMT (CNS/ATM)				
Systems Development: Evaluate ADS-BO technologies and develop solutions to support platform integrations	1	2016	4	2016
Systems Development: Develop CNS/ATM Common Component to support RNP RNAV developmental platform requirements	1	2015	4	2016
Test and Evaluation: Integration/Certification of 8.33 kHz, MODE S, Reduced Vertical Separation Minimums (RVSM), RNP/RNAV, and ADS-B (Out): Integration/Cert 8.33 kHz, MODE S, RVSM, RNP RNAV CH-53K	1	2016	4	2016
Test and Evaluation: Integration/Certification of 8.33 kHz, MODE S, Reduced Vertical Separation Minimums (RVSM), RNP/RNAV, and ADS-B (Out): Integration/Cert 8.33 kHz, MODE S, RVSM, RNP RNAV	1	2015	4	2016
TACTICAL COMMUNICATIONS (TACCOM)				
Systems Development: GEN 5 Integrated Waveform Satellite Communications (SATCOM) S/W Development Phase 2	2	2015	4	2016
Systems Development: GEN 5 SATCOM P3I S/W Assessment/Development	1	2015	4	2015
Systems Development: OFP S/W Integration	4	2015	4	2016
Systems Development: Crypto Engine Design	1	2016	4	2016
Test and Evaluation: GEN 5 JITC Certification3	1	2016	1	2016
Test and Evaluation: GEN 5 JITC Certification4	4	2016	4	2016
Production Milestones: GEN 5 Evol S/W Release5	1	2015	1	2015
Production Milestones: GEN 5 Evol S/W Release6	1	2016	1	2016
GROUND PROXIMITY WARNING SYSTEM/TERRAIN AWARENESS WARNING SYSTEM (GPWS/TAWS)				
Systems Development: H-60 TAWS II Software Development	1	2015	4	2016
Test and Evaluation: Developmental Testing: H-1 GPWS DT	1	2015	1	2015

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604215N / <i>Standards Development</i>	Project (Number/Name) 0572 / <i>JT Service/NV Std Avionics CP/SB</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Test and Evaluation: Developmental Testing: H-60 TAWS II DT (Phase I and II)	3	2016	4	2016
MILITARY FLIGHT OPERATION QUALITY ASSURANCE (MFOQA)				
Acquisition Milestones: Milestones: Phase 2 Fielding Decision	4	2015	4	2015
Systems Development: Reviews: Phase 2 Sys Integration	1	2015	1	2015
Test and Evaluation: MH-53R/S, M/CH-53E, AH-1Z, UH-1Y Testing: Phase 2 Test	2	2015	4	2015
Test and Evaluation: Reviews: Phase 2 TRR	3	2015	3	2015
Production Milestones: Production Fielding: Phase 1 Fielding	1	2015	4	2015
Deliveries: H-60R/S: 1 Squadron R&D	2	2015	4	2015
Deliveries: CH-53E: 1 Squadron R&D	2	2015	4	2015
Deliveries: AH-1Z, UH-1Y: 1 Squadron R&D	2	2015	4	2015
COLLABORATIVE WARFARE (CW)				
Acquisition Milestones: Netted Sensors CONOPS, Standards and Architectures/ Requirements Development: Netted Sensors CONOPS, Standards, and Architectures/ Requirements Development	1	2015	4	2016
Acquisition Milestones: Naval Aviation Tactical Networking Requirements: Naval Aviation Tactical Networking Requirements	1	2015	4	2016
Acquisition Milestones: Netted Sensors Demonstrations: Trident Warrior 15	1	2015	3	2015
AVIONICS COMPONENT IMPROVEMENT PROGRAM (AvCIP)				
Acquisition Milestones: Funding Allocation: Funding Allocation 15	1	2015	1	2015
Acquisition Milestones: Funding Allocation: Funding Allocation 16	1	2016	1	2016
Acquisition Milestones: Proposal Collection: Proposal Collection 15	1	2015	2	2015
Acquisition Milestones: Proposal Collection: Proposal Collection 16	1	2016	2	2016
Acquisition Milestones: Proposal Evaluation: Proposal Evaluation 15	2	2015	2	2015
Acquisition Milestones: Proposal Evaluation: Proposal Evaluation 16	2	2016	2	2016
Acquisition Milestones: Proposal Prioritization and Selection: Proposal Prioritization and Selection 15	3	2015	3	2015

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Acquisition Milestones: Proposal Prioritization and Selection: Proposal Prioritization and Selection 16	3	2016	3	2016
Acquisition Milestones: Contract Establishment & Execution Plan: Contract Establishment & Execution Plan 15	3	2015	4	2015
Acquisition Milestones: Contract Establishment & Execution Plan: Contract Establishment & Execution Plan 16	3	2016	4	2016
<i>MID AIR COLLISION AVOIDANCE CAPABILITY (MCAC)</i>				
Acquisition Milestones: AOA Complete	3	2015	3	2015
Acquisition Milestones: CDD Draft	4	2016	4	2016
Systems Development: Requirements Development	1	2016	3	2016

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604215N / <i>Standards Development</i>				Project (Number/Name) 1857 / <i>Calibration Standards</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
1857: <i>Calibration Standards</i>	12.564	1.582	1.653	1.300	-	1.300	1.913	1.903	1.790	1.827	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

OPNAV sponsored (by instruction), Navy-wide program which addresses Metrology related RDT&E issues for navy weapon systems, shipboard platforms, Naval Air, and Fleet Ground Marines. It supports development of calibration standards (equipment, procedures and technical data) required to resolve Metcal related safety, obsolescence, new and emerging technology support and cost reduction issues. It funds Navy unique and lead service responsibilities in DoD and Joint Services Metrology Research Programs to develop calibration solutions. The line supports development of measurement requirements to verify performance of all test systems used to validate the operation of Navy weapon Systems with calibration standards traceable to the National Institute of Standards and Technology to calibrate, sustain and ensure performance accuracy.

This program also provides benefits and efficiencies in a joint collaborative environment within the Tri-Services. Projects are identified and defined so that they will meet the universal requirement. Development efforts are integrated in order to achieve the common capabilities required at minimum cost. This is also a regular and common business practice within the Navy Metrology Community where R&D efforts are communicated and integrated into the multiple testing and Monitoring Systems. This is done in support of Program Managers, Sponsors, and Principle Executive officers. As a result, common requirements are established, duplication of efforts are eliminated, and best value, high quality Metcal products are produced for the Navy.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Calibration Standards	1.582	1.653	1.300	0.000	1.300
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					
(\$.907) Continue development calibration standards in support of electro optical standards (hardware) in support of safety of flight operations.					
(\$.428) Continue development of calibration standards (hardware) in support of Physical Mechanical standards in support of Shipboard Flight Operations and NAVAIR Oxygen systems.					
(\$.247) Continue development of analytical metrology (processes) in support of automated interval and uncertainty analysis.					
FY 2016 Plans:					
(\$1.287) Continue development calibration standards in support of electro optical standards (hardware) in support of safety of flight operations.					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604215N / <i>Standards Development</i>	Project (Number/Name) 1857 / <i>Calibration Standards</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
(\$.256) Continue development of calibration standards (hardware) in support of Physical Mechanical standards in support of Shipboard Flight Operations and NAVAIR Oxygen systems.					
(\$.110) Continue development of analytical metrology (processes) in support of automated interval and uncertainty analysis.					
<i>FY 2017 Base Plans:</i>					
(\$.755) Continue development calibration standards in support of electro optical standards (hardware) in support of safety of flight operations.					
(\$.288) Continue development of calibration standards (hardware) in support of physical mechanical standards in support of Shipboard Flight Operations and NAVAIR Oxygen systems.					
(\$.257) Continue development of analytical metrology (processes) in support of automated interval and uncertainty analysis.					
<i>FY 2017 OCO Plans:</i>					
N/A					
Accomplishments/Planned Programs Subtotals	1.582	1.653	1.300	0.000	1.300

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

Funds provide for in-service engineering initiation of metrology research and developmental efforts of unique non-commercial hardware standards in the development of six key thrust technological areas which correspond to Physical Mechanical, Electro-Optical, Analytical Metrology, Electrical/Electronic systems, Chembio Defense, Microwave/Millimeter wave. These standards will ensure measurement accuracy in advanced and emerging combat weapon systems and associated test equipment. These hardware test standards will also provide for cost effective and efficient system maintenance and calibration measurements that reduce wrong test decisions and will result in lower maintenance cost and higher system performance reliability.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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E. Performance Metrics

The U.S. Navy Metrology RDT&E Program will continue the research and development of 5 projects in progress in the technology areas of Physical Mechanical, Electro Optical, and Analytical Metrology for the purpose of ensuring measurement accuracy in new emerging technology measurement requirements of Navy weapon systems. Success measures will be articulated through program goals and a balance score card strategy system.

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

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FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Proj 1857	
Electro optical standards (hardware) Night Vision Gain Definition	
Electro optical standards (hardware) FTIR -15C Black body Spectral Calibration	
Electro optical Standards (hardware) development in High Energy Laser Standards	
Physical Mechanical standards (hardware) development in Plasma Cleaning	
Physical Mechanical standards (hardware) development in Nuclear Magnetic Resonance	
Physical Mechanical standards (hardware) development in Oxygen Cleaning	
Fiber Optic Return Loss StandARds	
Analytical Metrology (processes) Reliability Engineering Process Development for Initial Intervals	

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Proj 1857</i>				
Electro optical standards (hardware) Night Vision Gain Definition	1	2015	4	2015
Electro optical standards (hardware) FTIR -15C Black body Spectral Calibration	1	2015	4	2016
Electro optical Standards (hardware) development in High Energy Laser Standards	1	2016	4	2018
Physical Mechanical standards (hardware) development in Plasma Cleaning	1	2015	4	2018
Physical Mechanical standards (hardware) development in Nuclear Magnetic Resonance	1	2015	4	2018
Physical Mechanical standards (hardware) development in Oxygen Cleaning	1	2015	2	2016
Fiber Optic Return Loss StandaRds	1	2015	4	2018
Analytical Metrology (processes) Reliability Engineering Process Development for Initial Intervals	1	2016	4	2018

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2311: <i>Stores Planning and Weaponneering Module</i>	159.154	9.088	10.941	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	179.183
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Starting in FY17, the Stores Planning and Weaponneering Module PU 2311 will be moved to Mission Planning PE (0605215N).

A. Mission Description and Budget Item Justification

The Naval Aircraft Weaponneering Components project, now referred to as the Weaponneering and Stores Planning (WASP) components, are integrated software products that allow aircrew to determine the best combinations of weapons and delivery conditions to achieve the desired level of target damage, eliminate weapon delivery solutions that violate aircraft Type/Model/Series (T/M/S) specific safety-of-flight envelopes, and perform detailed weapons employment planning. WASP is approved by Air Warfare Division (N98) as a flight clearance implementation system for the F/A-18 A, A+, B, C, D, D (RC), E, F, EA-18G; potential support for other platforms, to include F-35. WASP components will alert pilots if their planned weapon release conditions meet flight clearance limits, will result in bomb-to-bomb collisions, bomb-to-aircraft collisions, aircraft overstress, or excessive risk of aircraft loss/damage in the event of fuze early bursts. Weapon employment planning is fundamental to the Joint Capability Area of Force Application and joint mission areas of Strike and Amphibious Warfare. WASP provides the Navy and Marine Corp with weaponneering capabilities that are critical requirements for Interdiction, Armed Reconnaissance and Close Air Support mission planning. Therefore, WASP product availability is critical to successful employment of the Joint Mission Planning System (JMPS) for the F/A-18 A-F and EA-18G. The WASP product encompasses a multitude of Government Furnished Information software components and tools (aircraft target maneuver simulations, weapon flyout models, target probability of damage calculators). WASP products will require updates as emergent requirements for new aircraft T/M/S, stores and weapons are approved, and new flight clearances and flight restrictions are issued by Naval Air Systems Command Headquarters (NAVAIRSYSCOM).

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Product Development	3.860	4.325	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: Includes associated system engineering design, development, installation, integration and software development for WASP components V3.0A, V3.1, V3.1A, V3.1B, V3.1C, V3.1D, V3.2, V3.2A, V3.2B, V3.3, V4.0 to support F/A-18 A-F; and V3.1 and later to support EA-18G. Naval Air Warfare Center Weapons Division (NAWCWD), Joint Software Support Activity (JSSA) will develop and maintain the AV-8B Weapons and Release Planning (WARP) tool. Define requirements to integrate WASP components into the JMPS. Provide domain engineering support for weapons separation, aircraft loads, flutter, fuzing and safe escape for application to WASP. Provide analysis of new requirements, allocation of requirements, design oversight, and life cycle					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>management of the WASP program. Develop new aircraft configuration, aircraft loading, weapon optimization, store release and delivery planning components for F/A-18 A-F and EA-18G new flight clearances and flight restrictions issued by NAVAIRSYSCOM. Provide configuration management, system administration, quality assurance, documentation, metrics and software risk management for WASP. Acquire, integrate and modify numerous Government Furnished Information (GFI) software components and tools (aircraft target maneuver simulations, weapon flyout models, target probability of damage calculators, etc.) that are used for the WASP software development. Integrate WASP with Joint Standoff Weapon/Joint Direct Attack Munitions/Standoff Land-Attack Missile - Expanded Response and other weapons mission planning systems as required.</p> <p>FY 2015 Accomplishments: Continue V3.2 development, begin development of V3.3, and release multiple database updates.</p> <p>FY 2016 Plans: Complete development of V3.3, and release multiple database updates. Begin V4.0 development which incorporates planned architectural and usability improvements.</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Test and Evaluation (T&E)</p> <p align="right">Articles:</p> <p>Description: Provide test and evaluation for unit and system level testing; functional qualification testing; safety of flight certification testing; integration and standards compliance testing for WASP versions V3.0A, V3.1, V3.1A, V3.1B, V3.1C, V3.1D V3.2, V3.2A, V3.2B and V3.3. Provide Joint Mission Planning System Mission Planning Environment Integration test support. Provide testing and test support to ensure all (to include internally developed software, externally developed GFI) components comply with Department of Navy (DoN) and Department of Defense (DoD) software mandates and directives. These include Integrated Shipboard Network System IT-21, DoD Information Assurance Certification and Accreditation Process, Navy Marine Corps Intranet (NMCI) and DoD Information Technology Portfolio Repository. All Fleet released software must comply with DoN and DoD software directives or will not be allowed to run on ship Local Area Networks or NMCI.</p> <p>FY 2015 Accomplishments:</p>	2.104	3.286	0.000	0.000	0.000
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Complete test and evaluation of WASP V3.2 in order to release to fleet in FY16. Complete test and evaluation of multiple database updates. Analyze test requirements for V3.3.</p> <p>FY 2016 Plans: Complete test and evaluation of WASP major V3.3 in order to release to fleet in FY17. Complete test and evaluation of multiple database updates. Analyze test requirements.</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Program Management/Systems Engineering</p> <p align="right">Articles:</p> <p>Description: Provide program management and systems engineering support, which includes requirements definition and analysis, compliance with Naval Air Systems Command systems engineering technical review processes, Weaponering and Stores Planning (WASP) acquisition documentation development and support, cost, schedule and performance management, contracting support (providing contract administration, preparing contract packages for award), compliance with external directives and providing financial support (accept, obligate, commit, and track funding). Provide travel for WASP Government personnel. Continue performing project management support for this program throughout the Future Years Defense Program/Plan.</p> <p>FY 2015 Accomplishments: Continue project management and systems engineering support to the WASP for future releases of WASP to the fleet. Additional support will be required for multiple database releases.</p> <p>FY 2016 Plans: Continue project management and systems engineering support to the WASP for future releases of WASP to the fleet. Additional support will be required for multiple database releases.</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans:</p>	3.124	3.330	0.000	0.000	0.000
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
Accomplishments/Planned Programs Subtotals	9.088	10.941	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• RDTE/3858,5302,5380: <i>Air Force Mission Planning Systems</i>	60.679	55.835	78.323	-	78.323	75.567	75.113	87.771	0.000	Continuing	Continuing

Remarks

D. Acquisition Strategy

Weaponneering and Stores Planning (WASP) products, delivered annually, were developed in-house by NAVAIR consisting of Naval Air Warfare Center Aircraft Division and Naval Air Warfare Center Weapons Division engineers and support contractors. The team has now migrated to a smaller government team that provides functional expertise in aircraft safety-of-flight (air-vehicle stores compatibility, weapons separation, aircraft aerodynamic flutter, ground/flight loads, authorized fuze arm times, aircraft safe escape), guided weapons employment and weapons effects against targets, with the majority of the software development conducted by various contractors. The Government, engineering, test, and support teams (test facilities, functional qualification testing and certification/accreditation test) are supplemented with contractor labor.

E. Performance Metrics

Average time to plan a flight: Threshold value is < 1 hour average time to plan a flight that includes full aircraft loadout and weapons delivery safe escape planning. Objective value is < 15 minutes average time to plan a flight that includes full aircraft loadout and weapons delivery safe escape planning. End product is a pilot's z-diagram knee board card.

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

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604215N / <i>Standards Development</i>	Project (Number/Name) 2311 / <i>Stores Planning and Weaponneering Module</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Product Development	WR	Air Force Seek Eagle : Eglin Air Force Base, FL	0.310	0.050	Jan 2015	0.081	Jan 2016	0.000		-		0.000	0.000	0.441	-
Primary Software Development	C/CPFF	DCS Corp : Alexandria, VA	11.805	3.561	Jan 2015	3.765	Jan 2016	0.000		-		0.000	0.000	19.131	19.131
SEAL Software Development	C/CPFF	ManTech : Various	1.539	0.249	Jan 2015	0.479	Jan 2016	0.000		-		0.000	0.000	2.267	2.267
Prior year Prod Dev cost no longer funded in Future Years Defense Program/ Plan	Various	Various : Various	83.463	0.000		0.000		0.000		-		0.000	0.000	83.463	-
Subtotal			97.117	3.860		4.325		0.000		-		0.000	0.000	105.302	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test & Evaluation Civilian & OCC	WR	NAWCAD : Patuxent River, MD	21.828	1.100	Nov 2014	2.254	Nov 2015	0.000		-		0.000	0.000	25.182	-
Test & Evaluation MANTECH & WYLE	C/CPFF	Various : Various	11.938	1.004	Jan 2015	1.032	Jan 2016	0.000		-		0.000	0.000	13.974	13.974
Prior Year T&E costs no longer funded in Future Years Defense Program/ Plan (FYDP)	Various	Various : Various	0.377	0.000		0.000		0.000		-		0.000	0.000	0.377	-
Subtotal			34.143	2.104		3.286		0.000		-		0.000	0.000	39.533	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604215N / <i>Standards Development</i>	Project (Number/Name) 2311 / <i>Stores Planning and Weaponing Module</i>
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support Tecelote, shared costs, Materials	WR	Naval Air Warfare Center Aircraft Division NAWCAD : Patuxent River, MD	10.065	0.500	Nov 2014	0.578	Nov 2015	0.000		-		0.000	0.000	11.143	-
Government Engineering Support Civilian Sys Eng	WR	NAWCAD : Patuxent River, MD	7.869	0.873	Nov 2014	0.875	Nov 2015	0.000		-		0.000	0.000	9.617	-
Program Management Support Brandes & MANTECH	Various	Various : Various	2.056	0.225	Feb 2015	0.289	Feb 2016	0.000		-		0.000	0.000	2.570	-
Government Engineering Support: Guided Weapons	WR	Naval Air Warfare Center Weapons Division NAWCWD : China Lake, CA	1.156	0.023	Nov 2014	0.023	Nov 2015	0.000		-		0.000	0.000	1.202	-
Travel	WR	NAWCAD : Patuxent River, MD	1.301	0.007	Nov 2014	0.015	Nov 2015	0.000		-		0.000	0.000	1.323	-
Systems Engineering Support	Various	Wyle : Huntsville, AL	4.382	1.350	Dec 2014	1.550	Dec 2015	0.000		-		0.000	0.000	7.282	7.282
Govt Engineering Support: Mission Planning Environment Integration	WR	NAWCWD : Point Mugu, CA	0.402	0.146	Jan 2015	0.000		0.000		-		0.000	0.000	0.548	-
Prior year Mgmt costs no longer funded in FYDP	Various	Various : Various	0.663	0.000		0.000		0.000		-		0.000	0.000	0.663	-
Subtotal			27.894	3.124		3.330		0.000		-		0.000	0.000	34.348	-

Project Cost Totals	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
	159.154	9.088	10.941	0.000	-	0.000	0.000	179.183	-

Remarks
Starting in FY17, PU 2311 will be budgeted under PE 0605215N.

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604215N / <i>Standards Development</i>	Project (Number/Name) 2311 / <i>Stores Planning and Weaponering Module</i>
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Stores Planning and Weaponering Module	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Systems Development																												
WASP V3.2 (F/A-18A/B/C/D/E/F, EA-18G)																												
WASP V3.3 (F/A-18A/B/C/D/E/F, EA-18G)																												
WASP V4.0 (F/A-18A/B/C/D/E/F, EA-18G)																												
Test & Evaluation Milestones																												
WASP V3.1 (F/A-18A/B/C/D/E/F, EA-18G)																												
WASP V3.2 (F/A-18A/B/C/D/E/F, EA-18G)																												
WASP V3.3 (F/A-18A/B/C/D/E/F, EA-18G)																												
Production Milestones																												
WASP V3.1 (F/A-18A/B/C/D/E/F, EA-18G) IOC:																												
WASP V3.2 (F/A-18A/B/C/D/E/F, EA-18G) IOC																												
Ongoing Database Updates																												

2017DON - 0604215N - 2311

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604215N / <i>Standards Development</i>	Project (Number/Name) 2311 / <i>Stores Planning and Weaponneering Module</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Stores Planning and Weaponneering Module				
Systems Development: WASP V3.2 (F/A-18A/B/C/D/E/F, EA-18G):	1	2015	2	2015
Systems Development: WASP V3.3 (F/A-18A/B/C/D/E/F, EA-18G):	4	2015	4	2016
Systems Development: WASP V4.0 (F/A-18A/B/C/D/E/F, EA-18G):	4	2016	4	2016
Test & Evaluation Milestones: WASP V3.1 (F/A-18A/B/C/D/E/F, EA-18G): Test and Evaluation	1	2015	2	2015
Test & Evaluation Milestones: WASP V3.2 (F/A-18A/B/C/D/E/F, EA-18G): Test and Evaluation	1	2015	4	2015
Test & Evaluation Milestones: WASP V3.3 (F/A-18A/B/C/D/E/F, EA-18G): Test and Evaluation	2	2016	4	2016
Production Milestones: WASP V3.1 (F/A-18A/B/C/D/E/F) IOC::	3	2015	3	2015
Production Milestones: WASP V3.2 (F/A-18A/B/C/D/E/F, EA-18G) IOC:	1	2016	1	2016
Production Milestones: Ongoing Database Updates:	1	2015	4	2016

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604215N / <i>Standards Development</i>				Project (Number/Name) 2312 / <i>Common Helicopters</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2312: <i>Common Helicopters</i>	15.932	0.540	0.575	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	17.047
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Starting in FY17, the Common Helicopters (PU 2312) will be moved to Mission Planning PE (0605215N). Automated mission planning systems to date have focused on developing planning capabilities for fixed-wing aircraft, while the unique planning requirements for helicopters have not been fully addressed. The unique and enhanced automated mission planning requirements that must be developed and implemented for helicopters include: data loading, an enhanced route editor (serpentine routing, hover), manipulation of higher fidelity (smaller scale) maps and imagery, enhanced performance tools (performance in and out of ground effect, performance degradation due to atmospheric conditions & elevation), and enhanced fidelity of landing zone, target zone, and threat analyses. The following type/model/series aircraft are supported by this PE: AH-1W/Z, UH-1N/Y, H-46/E, H-53E, H-60H/R/S and V-22. Common helicopter functionality will be developed for implementation in Joint Mission Planning System (JMPS).

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Common Helicopters	0.540	0.575	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: Development of Common Helicopter functionality and integration with JMPS Framework Versions 1.3.5 and 64 bit Operating System. Common Components include Common Mission Data Loader (CMDL), Weapon Employment Zone Overlays Tool (WEZOT) and Point Selection Tool (PST).					
FY 2015 Accomplishments: Continue the development of the CMDL, WEZOT and PST to operate with next JMPS FW and 64 bit Operating System.					
FY 2016 Plans: Continue the development of the CMDL, WEZOT and PST to operate with next JMPS FW and 64 bit Operating System.					
FY 2017 Base Plans: N/A					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.540	0.575	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604215N / <i>Standards Development</i>	Project (Number/Name) 2312 / <i>Common Helicopters</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• RDTE/3858,5302,5380: <i>Air Force Mission Planning Systems</i>	60.679	55.835	78.323	-	78.323	75.567	75.113	87.771	0.000	Continuing	Continuing
• RDTE/2213: <i>Naval Mission Planning Systems</i>	25.717	47.733	22.573	-	22.573	21.645	21.537	21.396	21.830	Continuing	Continuing

Remarks

D. Acquisition Strategy

Not Applicable.

E. Performance Metrics

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

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

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604215N / <i>Standards Development</i>	Project (Number/Name) 2312 / <i>Common Helicopters</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary Software Development	C/CPFF	Joint Technology Engineering Inc. : Valparaiso, FL	3.905	0.000		0.575	Feb 2016	0.000		-		0.000	0.000	4.480	4.480
Primary Developmnet Contract	C/CPFF	Innovative Defense Technologies : Arlington, VA	0.000	0.425	Mar 2015	0.000		0.000		-		0.000	0.000	0.425	0.425
Product Development Support	MIPR	Hill AFB : Hill AFB, UT	0.000	0.115	Jun 2015	0.000		0.000		-		0.000	0.000	0.115	-
Prior year Prod Dev costs no longer funded in FYDP	Various	Various : Various	11.040	0.000		0.000		0.000		-		0.000	0.000	11.040	-
Subtotal			14.945	0.540		0.575		0.000		-		0.000	0.000	16.060	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Prior year T&E costs no longer funded in FYDP	Various	Various : Various	0.987	0.000		0.000		0.000		-		0.000	0.000	0.987	-
Subtotal			0.987	0.000		0.000		0.000		-		0.000	0.000	0.987	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			15.932	0.540	0.575	0.000	-	0.000	0.000	17.047	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy

Date: February 2016

Appropriation/Budget Activity
1319 / 5

R-1 Program Element (Number/Name)
PE 0604215N / *Standards Development*

Project (Number/Name)
2312 / *Common Helicopters*

Common Helicopters	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
System Development																												
Software Development	CMDL 3.0																											
	WEZOT 1.0																											
	PST 1.0				CMDL 3.1.x																							
					WEZOT 1.0.x																							
					PST 1.1.x																							

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604215N / <i>Standards Development</i>	Project (Number/Name) 2312 / <i>Common Helicopters</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Common Helicopters				
System Development: Software Development: Common Mission Data Loader (CMDL) 3.0	1	2015	4	2015
System Development: Software Development: Weapons Employment Zone Overlay Tool (WEZOT) 1.0	1	2015	4	2015
System Development: Software Development: Point Selection Tool (PST)	1	2015	4	2015
System Development: Software Development: CMDL 3.1.x	1	2016	4	2016
System Development: Software Development: WEZOT 1.0.x	1	2016	4	2016
System Development: Software Development: PST 1.1.x	1	2016	4	2016

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604216N / <i>Multi-Mssn Helicopter Upgrade Dev</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	1,544.956	11.159	18.858	5.275	-	5.275	4.089	2.516	2.510	2.567	Continuing	Continuing
1707: <i>MH-60 Development</i>	1,544.956	11.159	18.858	5.275	-	5.275	4.089	2.516	2.510	2.567	Continuing	Continuing

Program MDAP/MAIS Code: 191

Note

Commencing in FY 2017, this Program Element 0604216N, Project Unit 1707, changes from MH-60R Development to MH-60 Development to encompass both MH-60R and MH-60S activities.

A. Mission Description and Budget Item Justification

This Program Element includes funding for the development and support of future systems and improvements to current systems of the MH-60R/S. The MH-60R/S Multi-Mission helicopter provides battle group protection and adds significant capability in coastal littorals and regional conflicts. The MH-60R represents a significant avionics improvement to the H-60 series helicopters by enhancing primary mission areas of undersea warfare and surface warfare which includes the fast attack craft/fast in-shore attack craft (FAC/FIAC) threat response capabilities. Secondary MH-60R mission areas include search and rescue, vertical replenishment, naval surface fire support, logistics support, personnel transport and medical evacuation. The MH-60S Multi-Mission helicopter conducts search and rescue, vertical replenishment, and airhead operations. Armed Helo and Airborne Mine Countermeasures (AMCM) were added as primary mission areas for the MH-60S as block upgrades to the platform. AMCM provides the Littoral Combat Ship (LCS) the airborne portion of the Mine Countermeasures Mission Package (MCM MP). Armed Helo provides Special Warfare Support, Combat Search and Rescue, Surface Warfare and Maritime Interdiction Operations capability to address FAC/FIAC threat. MH-60S secondary roles include torpedo and drone recovery, noncombatant evacuation operations, and SEAL team and Explosive Ordnance Disposal support.

The MH-60R Helicopter Infrared Suppression System (HIRSS) project was cancelled in FY 2015 after an engineering analysis determined that the temperature of the engine exhaust may cause heat damage to the avionics systems in the vicinity of the HIRSS. FY 2016 - FY 2017 funding previously budgeted for HIRSS will now be used to analyze and evaluate active/passive aircraft survivability equipment.

FY 2017 budget request funds Very High Frequency Omni Ranging/Instrument Landing System, active/passive aircraft survivability equipment, and SLAP assessment of MH-60R aircraft structure and subsystem conditions as well as MH-60S Fixed Forward Firing Weapons/rockets corrections of deficiencies.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604216N / <i>Multi-Mssn Helicopter Upgrade Dev</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	11.434	21.358	6.224	-	6.224
Current President's Budget	11.159	18.858	5.275	-	5.275
Total Adjustments	-0.275	-2.500	-0.949	-	-0.949
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-2.500			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.275	0.000			
• Program Adjustments	0.000	0.000	-0.035	-	-0.035
• Rate/Misc Adjustments	0.000	0.000	-0.914	-	-0.914

Change Summary Explanation

Decrease in Multi-Mssn Helicopter Upgrade Dev by \$0.221M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

Schedule: HIRSS project cancelled; therefore, HIRSS schedule items removed.

Technical: Commencing in FY 2017, this Program Element 0604216N, Project Unit 1707, changes from MH-60R Development to MH-60 Development to encompass both MH-60R and MH-60S activities.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604216N / <i>Multi-Mssn Helicopter Upgrade Dev</i>				Project (Number/Name) 1707 / <i>MH-60 Development</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
1707: <i>MH-60 Development</i>	1,544.956	11.159	18.858	5.275	-	5.275	4.089	2.516	2.510	2.567	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The primary mission areas of the MH-60R include anti-submarine warfare and surface warfare which includes the Fast Attack Craft/Fast In-shore Attack Craft (FAC/FIAC) threat response capabilities. Secondary mission areas include search and rescue, vertical replenishment, naval surface fire support, logistics support, personnel transport and medical evacuation. The MH-60R is executing upgrades to communication, navigation, identification friend or foe, multi-spectral targeting system/forward looking infrared radar, automatic radar periscope detection and discrimination, weapons, data link, safety, maintenance, airframe and mission planning systems. Advanced Precision Kill Weapon System (APKWS) integration will support surface warfare and maritime interdiction operations by providing forward firing weapons, which includes rockets and anti-swarm weapons, by addressing the FAC/FIAC threat. Analyze the effectiveness of active/passive aircraft survivability equipment on the MH-60R by assessing the effectiveness of platform mission and susceptibility characteristics to include current/future Infrared Countermeasure systems, evaluating threat data (acquisition range and countermeasure effectiveness) and mission requirements, assessing mission effectiveness/ susceptibility trade-space for aircraft survivability equipment systems/improvements and recommend options for susceptibility/vulnerability reductions. The MH-60S Multi-Mission helicopter conducts search and rescue, vertical replenishment, and airhead operations. Armed Helo and Airborne Mine Countermeasures (AMCM) were added as primary mission areas for the MH-60S as block upgrades to the platform. AMCM provides the Littoral Combat Ship (LCS) the airborne portion of the Mine Countermeasures Mission Package (MCM MP). Armed Helo provides Special Warfare Support, Combat Search and Rescue, Surface Warfare and Maritime Interdiction Operations capability to address FAC/FIAC threat. MH-60S secondary roles include torpedo and drone recovery, noncombatant evacuation operations, and SEAL team and Explosive Ordnance Disposal support. Infrared suppression systems reduce susceptibility to infrared missile threats and have been incorporated onto other H-60 type/model/series, including MH-60S and HH-60H. MH-60R aircraft currently have no system for engine exhaust suppression. Very High Frequency Omni Ranging/Instrument Landing System(VOR/ILS) provides precision approach capability ashore and to supplement currently available Precision Approach Radar (PAR) controlled approaches. MH-60R is the lead platform for integration of the Multifunctional Information Distribution System (MIDS)-Low Volume Terminal (LVT) Block Upgrade 2 (BU2). The MH-60R Service Life Assessment Program (SLAP) is assessing the primary aircraft structure and subsystem condition of the MH-60R fleet in order to determine what modifications are necessary to extend the aircraft design life limits to allow it to meet Chief of Naval Operations operational inventory requirements through FY 2035. Without SLAP, aircraft are retired from the USN inventory when design service life limits are reached directly impacting fleet Anti-Submarine Warfare (ASW), Anti-Surface Warfare (ASuW), Surveillance, Communications Relay, Naval Gunfire Support, Search and Rescue and logistics support.

FY 2017 budget request funds VOR/ILS, active/passive aircraft survivability equipment, and SLAP assessment of MH-60R aircraft structure and subsystem conditions as well as MH-60S Fixed Forward Firing Weapons/rockets corrections of deficiencies. Efforts include product development, government engineering, integrated logistics support, modeling and simulation and developmental and operational testing.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Avionics H/W and S/W Development	6.949	8.068	1.453	0.000	1.453

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604216N / <i>Multi-Mssn Helicopter Upgrade Dev</i>	Project (Number/Name) 1707 / <i>MH-60 Development</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p align="right"><i>Articles:</i></p> <p><i>Description:</i> Supports aircraft integration, problem investigation and resolution, lab management and upgrades, hardware investigations, and repairs in support of the test program. Provides for integrated logistics support and program management board support and subvendor support. Avionics hardware and software development and integration to include: Pre-planned Product Improvements (P3I) and automatic radar periscope detection and discrimination. Advanced Precision Kill Weapon System (APKWS) and active/passive self defense efforts address the Fast Attack Craft/Fast In-shore Attack Craft (FAC/FIAC) threat. Conduct FAC/FIAC demonstration utilizing anti-swarm weapon. VOR/ILS provides precision approach cabability.</p> <p>FY 2015 Accomplishments: Continued Advanced Precision Kill Weapon System (APKWS) development to address Fast Attack Craft/Fast In-shore Attack Craft (FAC/FIAC) threat.</p> <p>FY 2016 Plans: Continue support of APKWS with the development of software for Multi Target Spectrum (MTS) to improve FAC/FIAC solutions. Develop software for MH-60R, the lead platform for Multifunctional Information Distribution System (MIDS) Block Upgrade 2 (BU2), in support of Battle Group Tactical Data Link Network Centric Warfare. Commence active/passive aircraft survivability (in place of HIRSS due to incompatibility of HIRSS with MH-60R) and Very High Frequency Omni Ranging (VOR) /Instrument Landing System (ILS) activities.</p> <p>FY 2017 Base Plans: Continue VOR/ILS activities and active/passive aircraft survivability equipment analysis. Commence Service Life Assessment Program of MH-60R aircraft structure and subsystem conditions. Efforts include product development, government engineering, integrated logistics support, modeling and simulation and developmental and operational testing.</p> <p>FY 2017 OCO Plans: N/A</p>	-	-	-	-	-
<p>Title: Engineering and Logistics</p> <p align="right"><i>Articles:</i></p> <p>FY 2015 Accomplishments:</p>	2.707	4.296	2.352	0.000	2.352
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604216N / <i>Multi-Mssn Helicopter Upgrade Dev</i>	Project (Number/Name) 1707 / <i>MH-60 Development</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Continued to provide engineering specialists, Integrated Logistics Support, Government Furnished Equipment, Support Equipment, Program Management, Contract Support Services, and travel to support APKWS. Commenced HIRSS engineering efforts and determined it is an unfeasible solution for the MH-60R.</p> <p>FY 2016 Plans: Continue to provide engineering specialists, integrated logistics support, government furnished equipment, support equipment, program management, contract support services, and travel to support APKWS and active/passive aircraft survivability, and commence VOR/ILS engineering efforts and multifunctional information distribution system - low volume terminal block upgrade 2 modeling and simulation efforts.</p> <p>FY 2017 Base Plans: Continue to provide MH-60R engineering specialists, integrated logistics support, government furnished equipment, support equipment, program management, contract support services, and travel to support active/passive aircraft survivability, and Very High Frequency Omni Ranging/Instrument Landing System (VOR/ILS) engineering efforts. Analyze Forward Firing Weapons (FFW)/Rockets and Advanced Precision Kill Weapon System mixed loads integration for Digital Rocket Launcher on MH-60S. Commence Service Life Assessment Program of MH-60R aircraft structure and subsystem conditions.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Test and Evaluation</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: Continued Advanced Precision Kill Weapon System (APKWS) test and evaluation efforts.</p> <p>FY 2016 Plans: Continue APKWS test and evaluation efforts. Commence Very High Frequency Omni Ranging (VOR) / Instrument Landing System (ILS) test and evaluation efforts and commence multifunctional Information distribution system-low volume terminal block upgrade 2 modeling and simulation activities.</p> <p>FY 2017 Base Plans: Continue MH-60R VOR/ILS test and evaluation efforts. Evaluate operational test results of MH-60S Forward Firing Weapons/Rockets and Advanced Precision Kill Weapon System mixed loads integration with Digital</p>	1.503 -	6.494 -	1.470 -	0.000 -	1.470 -

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604216N / <i>Multi-Mssn Helicopter Upgrade Dev</i>	Project (Number/Name) 1707 / <i>MH-60 Development</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Rocket Launcher in counter Fast Attack Craft/Fast Inshore Attack Craft scenario and develop corrective action plans to address identified deficiencies in support of follow-on test.					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	11.159	18.858	5.275	0.000	5.275

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APN-1 BLI:018200: <i>MH-60R</i>	983.308	942.300	61.177	-	61.177	0.000	0.000	0.000	0.000	0.000	11,227.541
• APN-6 BLI:060510: <i>MH-60R spares</i>	0.150	0.069	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	299.500
• APN-5 BLI:053000: <i>SH60 Series</i>	58.406	43.701	58.741	-	58.741	66.302	77.609	53.284	34.547	188.650	798.976

Remarks

APN-5 BLI:053000 reflects funding from OSIP 001-06 and prior year funding from OSIPs 005-12 and 001-06 only.

D. Acquisition Strategy

APKWS and VOR/ILS will be developed using cost plus incentive fee type contracts.

E. Performance Metrics

Successfully support developmental and operation test activities to qualify aircraft modifications/upgrades.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604216N / <i>Multi-Mssn Helicopter Upgrade Dev</i>	Project (Number/Name) 1707 / <i>MH-60 Development</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary Hdw/SW Dev, Advanced Precision Kill Weapon System (APKWS)	SS/CPIF	Lockheed Martin : Owego, NY	3.030	1.748	Jun 2015	0.000		0.000		-		0.000	0.000	4.778	4.778
Primary Hdw Dev. APKWS	SS/CPIF	Sikorsky : Stratford, CT	0.225	3.540	Jun 2015	0.000		0.000		-		0.000	0.000	3.765	3.765
Primary SW Dev. Fast Attack Craft/Fast In-Shore Attack Craft (FAC/FIAC) demo	SS/BOA	Lockheed Martin : Owego, NY	3.058	1.661	Jul 2015	0.000		0.000		-		0.000	0.000	4.719	4.719
Primary SW Dev. Fast Attack Craft/Fast In-Shore Attack Craft (FAC/FIAC)	SS/BOA	Raytheon : McKinney, TX	0.000	0.000		2.000	Apr 2016	0.000		-		0.000	0.000	2.000	2.000
Primary Hdw/SW Dev, Instrument Landing System	SS/CPFF	Lockheed Martin : Owego, NY	0.000	0.000		2.068	Jun 2016	0.943	Jun 2017	-		0.943	0.000	3.011	3.176
Primary Hdw/SW Dev, Instrument Landing System	SS/CPIF	Sikorsky : Stratford, CT	0.000	0.000		2.000	Aug 2016	0.000		-		0.000	0.000	2.000	2.000
Primary HDW/SW Dev Fatigue Life Assessment	SS/CPIF	Sikorsky : Stratford, CT	0.000	0.000		0.000		0.510	Apr 2017	-		0.510	0.000	0.510	0.600
Primary Hdw Dev, Multifunctional Information Distribution System (MIDS) - Low Volume Terminal (LVT) Block Upgrade (BU2)	SS/CPFF	Lockheed Martin : Owego, NY	0.000	0.000		2.000	Apr 2016	0.000		-		0.000	0.000	2.000	2.000
Prior year Product Dev Cost no longer funded in the FYDP	Various	Various : Various	1,156.967	0.000		0.000		0.000		-		0.000	0.000	1,156.967	-
Subtotal			1,163.280	6.949		8.068		1.453		-		1.453	0.000	1,179.750	-

Remarks
 FY16 continues support of APKWS with the development of software for Multi Target Spectrum (MTS) to improve FAC/FIAC solutions. Develop software for MH-60R, the lead platform for MIDS BU2, in support of Battle Group Tactical Data Link Network Centric Warfare.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604216N / <i>Multi-Mssn Helicopter Upgrade Dev</i>	Project (Number/Name) 1707 / <i>MH-60 Development</i>
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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Government Engineering Support, Projects commencing prior to FY16	WR	NAWC AD : Patuxent River, MD	11.567	2.645	Nov 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Government eng spt, Very High Frequency Omni Ranging/Instrument Landing Syssem (VOR ILS)	Various	Various : Various	0.000	0.000		2.455	Nov 2015	0.861	Nov 2016	-		0.861	Continuing	Continuing	Continuing
Government eng spt, Active/Passive Aircraft Survivability	WR	Various : Various	0.000	0.000		1.782	Nov 2015	0.682	Nov 2016	-		0.682	0.000	2.464	-
Government eng spt, Fatigue Life Assessment	C/BA	TBD : TBD	0.000	0.000		0.000		0.505	Nov 2016	-		0.505	0.000	0.505	-
Prior year support cost no longer funded in the FYDP	Various	Various : Various	148.159	0.000		0.000		0.000		-		0.000	0.000	148.159	-
MH-60S Forward Firing Weapons/Rockets Government Engineering Support	Various	Various : Various	0.000	0.000		0.000		0.250	Dec 2016	-		0.250	0.000	0.250	-
Subtotal			159.726	2.645		4.237		2.298		-		2.298	-	-	-

Remarks

- Commencing in FY 2016 support costs will be broken out by individual project. FY 2016 increase in government engineering support is required to commence efforts for the ILS and Multifunctional Information Distribution System (MIDS) Block Upgrade 2 (BU2).
- FY 2015 costs for government engineering support for projects commencing prior to FY 2016 include automatic radar periscope detection and discrimination and advanced precision kill weapon system.

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental Test & Evaluation (DT&E), Projects commencing prior to FY16	WR	NAWC AD : Patuxent River, MD	155.859	1.028	Nov 2014	1.067	Nov 2015	0.000		-		0.000	0.000	157.954	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604216N / Multi-Mssn Helicopter Upgrade Dev	Project (Number/Name) 1707 / MH-60 Development
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Operation Test & Evaluation (OT&E), Projects commencing prior to FY16	WR	COMOPTEVFOR : Norfolk, VA	15.267	0.475	Nov 2014	1.070	Nov 2015	0.000		-		0.000	0.000	16.812	-
DT&E, VOR ILS	WR	NAWC AD : Patuxent River, MD	0.000	0.000		3.074	Nov 2015	0.858	Nov 2016	-		0.858	0.840	4.772	-
OT&E, VOR ILS	WR	COMOPTEVFOR : Norfolk, VA	0.000	0.000		1.283	Nov 2015	0.612	Nov 2016	-		0.612	0.283	2.178	-
Prior year T&E costs no longer funded in the FYDP	Various	various : various	11.688	0.000		0.000		0.000		-		0.000	0.000	11.688	-
Subtotal			182.814	1.503		6.494		1.470		-		1.470	1.123	193.404	-

Remarks

- Commencing in FY 2016 test and evaluation costs will be broken out by individual project. FY 2016 increase in test and evaluation supports commencement of Advanced Precision Kill Weapon System (APKWS) operational test (OT) activities, Instrument Landing System developmental test (DT) and OT activities, and Multifunctional Information Distribution System-Low Volume Terminal Block Upgrade 2 modeling and simulation efforts.
- FY 2015 costs for DT and OT projects commencing prior to FY 2016 include automatic radar periscope detection and discrimination and APKWS.

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Travel	WR	NAWC AD : Patuxent River, MD	4.880	0.062	Nov 2014	0.059	Nov 2015	0.054	Nov 2016	-		0.054	0.174	5.229	-
Prior year Mgmt Serv cost no longer funded in the FYDP	Various	Various : Various	34.256	0.000		0.000		0.000		-		0.000	0.000	34.256	-
Subtotal			39.136	0.062		0.059		0.054		-		0.054	0.174	39.485	-

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals		1,544.956	11.159	18.858	5.275	-	5.275	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604216N / <i>Multi-Mssn Helicopter Upgrade Dev</i>	Project (Number/Name) 1707 / <i>MH-60 Development</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
PE 0604216N: Multi-Mission Helicopter Upgrade Development																																
Acquisition Milestones																																
Milestones	APKWS EOC ▲																															
Systems Development																																
APKWS	APKWS integration development																															
HIRSS Development	HIRSS Development																															
Service Life Assessment Program (SLAP)									Fatigue Life Assessment																							
Multifunction Information Distribution System (MIDS)-Low Volume Terminal (LVT)									MIDS-LVT development																							
Very High Frequency Omni Ranging/Instrument Landing System (ILS)									VOR ILS Development																							
Active/Passive Aircraft Survivability									Platform Mission/Susceptibility Analysis				Platform Mission with Optimal and Alternative Susceptibility Analysis				Platform Survivability by Considering Platform Vulnerability Analysis															
Forward Firing Weapons/Rockets Deficiencies Test and Evaluation	APKWS DT								APKWS OT				VOR ILS DT				VOR ILS OT															
													Correction of Deficiencies																			
Production Milestones																																
Contract Awards													VOR ILS ●																			

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604216N / <i>Multi-Mssn Helicopter Upgrade Dev</i>	Project (Number/Name) 1707 / <i>MH-60 Development</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
PE 0604216N: Multi-Mission Helicopter Upgrade Development				
Acquisition Milestones: Milestones: Advanced Precision Kill Weapon System (APKWS) EOC	2	2015	2	2015
Systems Development: APKWS: APKWS integration development	1	2015	4	2016
Systems Development: HIRSS Development: HIRSS Development	2	2015	3	2015
Systems Development: Service Life Assessment Program (SLAP): Fatigue Life Assessment	3	2017	4	2021
Systems Development: Multifunction Information Distribution System (MIDS)-Low Volume Terminal (LVT): Block Upgrade 2 Integration	2	2016	3	2017
Systems Development: Very High Frequency Omni Ranging/Instrument Landing System (ILS): ILS integration	2	2016	3	2017
Systems Development: Active/Passive Aircraft Survivability: Phase I - Platform Mission and Susceptibility Analysis	2	2016	3	2016
Systems Development: Active/Passive Aircraft Survivability: Phase II - Platform Mission with Optimal and Alternative Susceptibility Analysis	4	2016	2	2017
Systems Development: Active/Passive Aircraft Survivability: Phase III - Platform Survivability by Considering Platform Vulnerability Analysis	3	2017	1	2018
Systems Development: Forward Firing Weapons/Rockets Deficiencies: Correction of Deficiencies	2	2017	3	2018
Systems Development: Test and Evaluation: APKWS DT	1	2015	2	2016
Systems Development: Test and Evaluation: APKWS OT	2	2016	4	2016
Systems Development: Test and Evaluation: VOR ILS DT	4	2016	3	2017
Systems Development: Test and Evaluation: VOR ILS OT	4	2016	3	2017
Production Milestones: Contract Awards: ILS Kit	3	2017	3	2017

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604218N / <i>Air/Ocean Equipment Engineering</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	79.213	2.126	4.515	3.875	-	3.875	4.563	15.111	5.255	5.360	Continuing	Continuing
2345: <i>Fleet METOC Equipment</i>	57.519	1.200	3.379	2.692	-	2.692	3.319	3.925	3.975	4.055	Continuing	Continuing
2346: <i>METOC Sensor Engineering</i>	21.694	0.926	1.136	1.183	-	1.183	1.244	11.186	1.280	1.305	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Air/Ocean Equipment Engineering (AOEE) Program Element provides new capabilities to support naval combat forces. This program engineers and developmentally tests organic and remote sensors, communication interfaces, and processing and display devices. This equipment is engineered to measure, ingest, store, process, distribute and display conditions of the physical environment that are essential to the optimum employment and performance of naval warfare systems. AOEE also engineers capabilities for shipboard and shore-based tactical systems. A major area of focus for the AOEE program is to provide the engineering development of specialized equipment and measurement capabilities that are intended to monitor specific conditions of the physical environment in hostile and remote areas in response to fleet demand signals for increased sensing capability and capacity to support battlespace collections and prediction on short to intermediate time scales. With such capabilities, the war fighters' situational awareness of the operational effects of the physical environment are made more certain.

Major emphasis is on the Meteorological and Oceanographic Future Mission Capabilities (METOC FMC) project.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	2.164	4.515	2.156	-	2.156
Current President's Budget	2.126	4.515	3.875	-	3.875
Total Adjustments	-0.038	0.000	1.719	-	1.719
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.038	0.000			
• Program Adjustments	0.000	0.000	0.000	-	0.000
• Rate/Misc Adjustments	0.000	0.000	1.719	-	1.719

Change Summary Explanation

Decrease in Air/Ocean Equipment Engineering (AOEE) by \$0.083M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity
1319: *Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)*

R-1 Program Element (Number/Name)
PE 0604218N / *Air/Ocean Equipment Engineering*

Schedule - 1) LBS-UUV schedule is updated to reflect the development of the LBS-AUV (S) technical data package for sensor payloads in FY17.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604218N / <i>Air/Ocean Equipment Engineering</i>				Project (Number/Name) 2345 / <i>Fleet METOC Equipment</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2345: <i>Fleet METOC Equipment</i>	57.519	1.200	3.379	2.692	-	2.692	3.319	3.925	3.975	4.055	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides for the engineering and manufacturing development of sensors, communication interfaces, processing and display meteorological and oceanographic (METOC) equipment. This equipment is designed to provide future mission capabilities for war fighters to measure, ingest, store, process, distribute and display METOC parameters and derived products.

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

Major emphasis areas include the Meteorological and Oceanographic Future Mission Capabilities (METOC FMC) project, Littoral Battlespace Sensors - Unmanned Undersea Vehicles (LBS-UUV) and the Environmental Satellite Receiver Processor (ESRP) (comprised of AN/SMQ-11 (sea and shore configuration) and AN/FMQ-17 (shore configuration)) program.

FY 2017 request provides for the conduct of Littoral Battlespace Sensors - Gliders (LBS-G) and Littoral Battlespace Sensors - Autonomous Undersea Vehicles (LBS-AUV) engineering design studies and development of system upgrades via ECP and correction of software & hardware deficiencies as required, and develop LBS-AUV Submarine Variant (AUV(S)) technical package for sensor payloads, and continue to develop and test annual hardware and software upgrades to integrate new METOC Satellite Sensors available in the Geostationary Operational Environmental Satellite (GOES) and the Polar Orbiting Environmental Satellite (POES).

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Meteorological and Oceanographic (METOC) Future Mission Capabilities (FMC)	0.815	2.951	0.489	0.000	0.489
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Continued to advance METOC infrastructure development for METOC decision support software applications and interfaces to tactical and strategic decision aids along with component and prototype efforts associated with					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604218N / <i>Air/Ocean Equipment Engineering</i>	Project (Number/Name) 2345 / <i>Fleet METOC Equipment</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>acquiring environmental data. Continued the development of an end-to-end methodology to collect, fuse, and integrate these data into Navy and DoD networks and command & control nodes. Continued the development of support infrastructure for advanced global & regional METOC prediction systems.</p> <p>FY 2016 Plans: Continue advanced METOC infrastructure development for METOC decision support software applications and interfaces to tactical and strategic decision aids along with component and prototype efforts associated with acquiring environmental data. Continue development of an end-to-end methodology to collect, fuse, and integrate these data into Navy and DoD networks and command & control nodes. Continue development of support infrastructure for advanced global & regional METOC prediction systems. Begin the Dual Band (air surveillance) Radar design and development for the new weather radar processing and display software for CVN 78 class ships.</p> <p>FY 2017 Base Plans: Continue advanced software tools development for METOC asset allocation, METOC decision support software applications, and interfaces to tactical and strategic decision aids along with component and prototype efforts associated with acquiring environmental data. Continue development of an end-to-end methodology to collect, fuse, and integrate these data into Navy and DoD networks and command & control nodes. Continue the development of support infrastructure for advanced global & regional METOC prediction systems. Coordinate efforts regarding the Dual Band (air surveillance) Radar design and development for the new weather radar processing and display software for CVN 78 class ships.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Littoral Battlespace Sensors - Unmanned Undersea Vehicle (LBS-UUV)</p> <p align="right">Articles:</p>	0.145 -	0.138 -	1.938 -	0.000 -	1.938 -
<p>FY 2015 Accomplishments: Conducted LBS-G and LBS-AUV engineering design and feasibility studies as required. Developed system upgrades via Engineering Change Proposals (ECPs), and corrected any identified software and/or hardware deficiencies as required. Continued efforts on enhanced AUV autonomy, Glider Operations Center (GOC) automation, battery redesign, and others as directed. Completed communications enhancements investigation</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016		
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604218N / Air/Ocean Equipment Engineering	Project (Number/Name) 2345 / Fleet METOC Equipment			
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)					
and some sub-elements of the GOC automation task (Batch File, Storm Mode, and Autonomous Abort Handling). Completed battery redesign study.					
FY 2016 Plans: Conduct LBS-G and LBS AUV engineering design studies as required. Develop system upgrades via ECPs and correct any identified software and/or hardware deficiencies as required. Continue efforts on AUV autonomy. Continue GOC automation efforts and battery redesign investigations. Begin investigating next generation propulsion technologies such as the Hybrid Thruster, battery chemistry, thermal engines, and universal buoyancy engines for potential system upgrades as directed.					
FY 2017 Base Plans: Conduct LBS-G and LBS AUV engineering design studies as required. Develop LBS-AUV submarine variant technical data package for sensor payloads. Develop system upgrades via ECPs and correct any identified software and/or hardware deficiencies as required. Continue efforts on AUV autonomy. Continue GOC automation efforts. Continue investigating next generation propulsion technologies such as the Hybrid Thruster, battery chemistry, thermal engines, and universal buoyancy engines for potential system upgrades.					
FY 2017 OCO Plans: N/A					
Title: Environmental Satellite Receiver Processor (ESRP)					
Articles:					
	0.240	0.290	0.265	0.000	0.265
	-	-	-	-	-
FY 2015 Accomplishments: Continued developing and testing of annual hardware and software upgrades to integrate new METOC Satellite Sensors available in the Geostationary Operational Environmental Satellite (GOES) and the Polar Orbiting Environmental Satellite (POES). Continued integration of ESRP systems in support of Joint Polar Satellite System (JPSS), and European Meteorology Satellites (EUMETSAT). Overall program efforts included investigation of emerging technologies through study, development and associated testing for feasibility of program insertion.					
FY 2016 Plans: Continue to develop and test annual hardware and software upgrades to integrate new METOC Satellite Sensors available in the GOES and the POES. Continue integration of ESRP systems in support of JPSS, and					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604218N / <i>Air/Ocean Equipment Engineering</i>	Project (Number/Name) 2345 / <i>Fleet METOC Equipment</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
EUMETSAT. Overall program efforts include investigation of emerging technologies through study, development and associated testing for feasibility of program insertion.					
<i>FY 2017 Base Plans:</i> Continue to develop and test annual hardware and software upgrades to integrate new METOC Satellite Sensors available in the GOES and the POES. Continue integration of ESRP systems in support of JPSS, and EUMETSAT. Overall program efforts include investigation of emerging technologies through study, development and associated testing for feasibility of program insertion.					
<i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	1.200	3.379	2.692	0.000	2.692

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• OPN/4226:	12.825	15.090	29.253	-	29.253	27.020	22.605	18.837	19.802	Continuing	Continuing
<i>Meteorological Equipment</i>											
• RDTEN/0603207N/2341:	2.487	3.763	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
<i>METOC Data Acquisition</i>											
• RDTEN/0603207N/2342: <i>METOC Data Assimilation and MOD</i>	4.891	8.168	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• RDTEN/0604218N/2346:	0.926	1.136	0.000	-	0.000	0.000	9.933	0.000	0.000	Continuing	Continuing
<i>METOC Sensor Engineering</i>											

Remarks

D. Acquisition Strategy

Acquisition, management and contracting strategies are to support engineering and manufacturing development by providing funds to Naval Research Laboratories and miscellaneous contractors, with management oversight by the Office of Naval Research.

E. Performance Metrics

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

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604218N / <i>Air/Ocean Equipment Engineering</i>	Project (Number/Name) 2345 / <i>Fleet METOC Equipment</i>

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

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604218N / Air/Ocean Equipment Engineering	Project (Number/Name) 2345 / Fleet METOC Equipment
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
METOC Future Mission Capabilities	WR	Naval Research Laboratory : Monterey, CA	21.618	0.815	Nov 2014	0.751	Nov 2015	0.489	Nov 2016	-		0.489	0.000	23.673	Continuing
METOC Future Mission Capabilities	Various	Various : Various	30.848	0.000		0.000		0.000		-		0.000	0.000	30.848	18.623
Littoral Battlespace Sensing - Gliders	C/CPIF	Teledyne Brown Engineering : Alabama	0.476	0.073	Mar 2015	0.069	Mar 2016	0.970	Mar 2017	-		0.970	Continuing	Continuing	Continuing
Littoral Battlespace Sensing - Autonomous Undersea Vehicle	C/FP	Hydroid : Pocasset, MA	0.594	0.072	Mar 2015	0.069	Mar 2016	0.968	Mar 2017	-		0.968	Continuing	Continuing	Continuing
METOC ESRP	C/CPFF	RAYTHEON : Indianapolis	0.840	0.240	Feb 2015	0.290	Feb 2016	0.265	Feb 2017	-		0.265	Continuing	Continuing	Continuing
METOC Future Mission Capabilities (DBR)	C/FFP	Unknown : Unknown	0.000	0.000		0.685	Feb 2016	0.000		-		0.000	0.000	0.685	-
METOC Future Mission Capabilities DBR	C/FFP	Unknown : Unknown	0.000	0.000		1.515	Mar 2016	0.000		-		0.000	0.000	1.515	-
Subtotal			54.376	1.200		3.379		2.692		-		2.692	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
METOC Future Mission Capabilities	C/CPFF	SSA/CSC : MISC	1.312	0.000		0.000		0.000		-		0.000	0.000	1.312	-
Littoral Battlespace Sensing - Autonomous Undersea Vehicle	Various	Various : Various	0.767	0.000		0.000		0.000		-		0.000	0.000	0.767	-
Subtotal			2.079	0.000		0.000		0.000		-		0.000	0.000	2.079	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604218N / <i>Air/Ocean Equipment Engineering</i>	Project (Number/Name) 2345 / <i>Fleet METOC Equipment</i>
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test & Evaluation	WR	OPTEVFOR : Virginia	0.424	0.000		0.000		0.000		-		0.000	0.000	0.424	-
Littoral Battlespace Sensing - Unmanned Undersea Vehicle	WR	NSWC Carderock : Maryland	0.150	0.000		0.000		0.000		-		0.000	0.000	0.150	-
METMF R NEXGEN	C/FP	Smiths Detection : Rhode Island	0.090	0.000		0.000		0.000		-		0.000	0.000	0.090	-
Subtotal			0.664	0.000		0.000		0.000		-		0.000	0.000	0.664	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Management Services	C/CPFF	SAIC : Virginia	0.400	0.000		0.000		0.000		-		0.000	0.000	0.400	0.400
Subtotal			0.400	0.000		0.000		0.000		-		0.000	0.000	0.400	0.400

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			57.519	1.200	3.379	2.692	-	2.692	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604218N / <i>Air/Ocean Equipment Engineering</i>	Project (Number/Name) 2345 / <i>Fleet METOC Equipment</i>
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Meteorological and Oceanographic (METOC) Future Mission Capabilities (FMC)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
FMC Network Integration (DoN & DoD)																																
FMC Develop Global & Regional Support Infrastructure																																
FMC Through the Sensor (TTS) Ocean Characterization Techniques: FY 17-20																																
DBR Design and Development																																

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604218N / <i>Air/Ocean Equipment Engineering</i>	Project (Number/Name) 2345 / <i>Fleet METOC Equipment</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Meteorological and Oceanographic (METOC) Future Mission Capabilities (FMC)</i>				
FMC Network Integration (DoN & DoD):	1	2015	4	2016
FMC Develop Global & Regional Support Infrastructure:	1	2015	4	2020
FMC Through the Sensor (TTS) Ocean Characterization Techniques: FY 17-20:	1	2017	4	2020
DBR Design and Development:	2	2016	4	2016
<i>Littoral Battlespace Sensors - Unmanned Undersea Vehicle (LBS-UUV)</i>				
Technical Data Package Development:	2	2017	4	2017
Sensor Payload Enhancement:	1	2018	4	2021
Sensor Payload Integration: Sensor Payload Integration 1	3	2018	4	2018
Sensor Payload Integration: Sensor Payload Integration 2	1	2019	4	2021
Sensor Payload Approval: Sensor Payload Approval 1	1	2019	1	2019
Sensor Payload Approval: Sensor Payload Approval 2	1	2020	1	2020
Sensor Payload Approval: Sensor Payload Approval 3	1	2021	1	2021
Sensor Payload Testing: Sensor Payload Testing 1	2	2019	2	2019
Sensor Payload Testing: Sensor Payload Testing 2	2	2020	2	2020
Sensor Payload Testing: Sensor Payload Testing 3	2	2021	2	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604218N / Air/Ocean Equipment Engineering				Project (Number/Name) 2346 / METOC Sensor Engineering			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2346: METOC Sensor Engineering	21.694	0.926	1.136	1.183	-	1.183	1.244	11.186	1.280	1.305	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides for the engineering and manufacturing development of specialized, high resolution instrumentation systems and measurement capabilities for obtaining near real-time, in-situ Meteorological and Oceanographic (METOC) data in hostile, remote, and denied areas. The project's objectives are to engineer near term future mission sensing capabilities that are intended to survive the harsh littoral and deep-strike environments and also to meet demanding requirements for timeliness and accuracy. Engineering is performed within this project to ensure that air and safety certification for deployment from fleet aircraft or ships is met and that the proper data formats are engineered for electronic communications transmissions, human interface displays, and inputs to predictive models. The major area of emphasis is the METOC Future Mission Capabilities (FMC) project.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Meteorological and Oceanographic (METOC) Future Mission Capabilities (FMC)	0.926	1.136	1.183	0.000	1.183
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					
Continued the system development and demonstration of METOC manned, unmanned and automated sensors (to include integration of environmental sensors into a larger environmental sensing strategy). Continued the development of advanced sensor system support technologies and techniques for sensor deployment, data processing and analysis to include performance metrics to optimize sensor performance. Continued the development of infrastructure to acquire, process and distribute METOC data and products.					
FY 2016 Plans:					
Continue development of METOC manned, unmanned and automated sensing technologies (to include integration of environmental sensors into a larger environmental sensing strategy). Continue the development of advanced sensor system support technologies and techniques for sensor deployment, data processing and analysis to include performance metrics to optimize sensor performance. Continue to develop infrastructure to acquire, process and distribute METOC data and products. Additionally, FY16 funding will assess new sensor capabilities.					
FY 2017 Base Plans:					
Continue system development and demonstration of METOC manned, unmanned and automated sensors					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604218N / Air/Ocean Equipment Engineering	Project (Number/Name) 2346 / METOC Sensor Engineering

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
(to include integration of environmental sensors into a larger environmental sensing strategy). Continue the development of advanced sensor system support technologies and techniques for sensor deployment, data processing and analysis to include performance metrics to optimize sensor performance. Assessed viability of sensors and subsystem sensors on unmanned and manned aircraft systems and autonomous undersea systems for collection of automated Meteorological and Oceanographic (METOC) data. Continue the development infrastructure to acquire, process and distribute METOC data and products. Assess improved sensor capabilities for unmanned and manned aircraft systems and autonomous undersea systems. <i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	0.926	1.136	1.183	0.000	1.183

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>	
• RDTEN/0603207N/2341: <i>METOC DATA ACQUISITION</i>	2.487	3.763	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• RDTEN/0603207N/2342: <i>METOC DATA ASSIMILATION AND MOD</i>	4.891	8.168	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• RDTEN/0604218N/2345: <i>FLEET METOC EQUIPMENT</i>	1.200	3.379	0.354	-	0.354	0.491	0.480	0.458	0.467	0.467	Continuing	Continuing

Remarks

D. Acquisition Strategy

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

E. Performance Metrics

Goal: Develop and engineer unique sensors to acquire METOC data in order to improve the accuracy of global and regional scale meteorological and oceanographic forecast models.
Metric: Tasks will address no less than 75% of applicable capability gaps and requirements, as

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604218N / <i>Air/Ocean Equipment Engineering</i>	Project (Number/Name) 2346 / <i>METOC Sensor Engineering</i>

identified by Resource Sponsor and Type Commander(s). No less than 75% of sensor engineering initiatives will be informed by an Analysis of Alternatives or market study to assess the state of the technology.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)						Project (Number/Name)					
1319 / 5				PE 0604218N / Air/Ocean Equipment Engineering						2346 / METOC Sensor Engineering					
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	WR	Naval Research Laboratory : Monterey, CA	9.936	0.147	Nov 2014	0.193	Nov 2015	1.183	Nov 2016	-		1.183	Continuing	Continuing	Continuing
Product Development	Various	Various : Various	11.750	0.000		0.000		0.000		-		0.000	0.000	11.750	-
Product Development	C/CPFF	University of Washington : Washington	0.000	0.100	Apr 2015	0.125	Apr 2016	0.000		-		0.000	0.000	0.225	-
Product Development	WR	NSWC Carderock : Maryland	0.000	0.105	Oct 2014	0.125	Oct 2015	0.000		-		0.000	0.000	0.230	-
Product Development	C/FP	SSC PAC : San diego, CA	0.000	0.300	Oct 2014	0.693	Oct 2015	0.000		-		0.000	0.000	0.993	-
Product Development	WR	NPS : Monterey, CA	0.000	0.063	Dec 2014	0.000		0.000		-		0.000	0.000	0.063	-
Product Development	C/CPFF	OWEN, LLC : New Jerisy	0.000	0.200	Jun 2015	0.000		0.000		-		0.000	0.000	0.200	-
Subtotal			21.686	0.915		1.136		1.183		-		1.183	-	-	-
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Acquisition Workforce	C/CPFF	Not Specified : Not Specified	0.008	0.000		0.000		0.000		-		0.000	0.000	0.008	0.008
METOC Future Mission Capabilities	C/CPFF	PSS : California	0.000	0.006	Jun 2015	0.000		0.000		-		0.000	0.000	0.006	-
METOC Future Mission Capabilities	C/CPFF	Unknown : Unknown	0.000	0.005	Sep 2015	0.000		0.000		-		0.000	0.000	0.005	-
Subtotal			0.008	0.011		0.000		0.000		-		0.000	0.000	0.019	-
Project Cost Totals			21.694	0.926		1.136		1.183		-		1.183	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy							Date: February 2016			
Appropriation/Budget Activity 1319 / 5			R-1 Program Element (Number/Name) PE 0604218N / <i>Air/Ocean Equipment Engineering</i>			Project (Number/Name) 2346 / <i>METOC Sensor Engineering</i>				
	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604218N / <i>Air/Ocean Equipment Engineering</i>	Project (Number/Name) 2346 / <i>METOC Sensor Engineering</i>
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Meteorology and Oceanographic (METOC) Future Mission Capabilities (FMC)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Develop & Demonstrate METOC Automated Sensors																												
Advanced METOC Sensor Deployment, Data Processing, & Performance Metrics																												
Assess Viability of METOC Sensors & Subsystems on Aircraft Systems and Undersea Platforms																												
Develop Infrastructure to Acquire, Process, and Distribute METOC Data																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604218N / <i>Air/Ocean Equipment Engineering</i>	Project (Number/Name) 2346 / <i>METOC Sensor Engineering</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Meteorology and Oceanographic (METOC) Future Mission Capabilities (FMC)</i>				
Develop & Demonstrate METOC Automated Sensors:	1	2015	4	2016
Advanced METOC Sensor Deployment, Data Processing, & Performance Metrics:	1	2015	4	2020
Assess Viability of METOC Sensors & Subsystems on Aircraft Systems and Undersea Platforms:	1	2015	4	2020
Develop Infrastructure to Acquire, Process, and Distribute METOC Data:	1	2015	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>					R-1 Program Element (Number/Name) PE 0604221N / <i>P-3 Modernization Program</i>							
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	18.474	0.698	1.514	1.909	-	1.909	1.958	1.900	0.000	0.000	0.000	26.453
3016: <i>Fatigue Life Mgmt Program</i>	18.474	0.698	1.514	1.909	-	1.909	1.958	1.900	0.000	0.000	0.000	26.453

A. Mission Description and Budget Item Justification

Decrease in P-3 MODERNIZATION PROGRAM by \$0.080M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

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

This program is funded under SYSTEM DEVELOPMENT AND DEMONSTRATION because it includes those projects that have passed Milestone B approval and are conducting engineering and manufacturing development tasks aimed at meeting validated requirement prior to full-rate production decision.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	0.710	1.514	2.008	-	2.008
Current President's Budget	0.698	1.514	1.909	-	1.909
Total Adjustments	-0.012	0.000	-0.099	-	-0.099
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.012	0.000			
• Program Adjustments	0.000	0.000	-0.015	-	-0.015
• Rate/Misc Adjustments	0.000	0.000	-0.084	-	-0.084

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604221N / P-3 Modernization Program				Project (Number/Name) 3016 / Fatigue Life Mgmt Program			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3016: <i>Fatigue Life Mgmt Program</i>	18.474	0.698	1.514	1.909	-	1.909	1.958	1.900	0.000	0.000	0.000	26.453
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

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

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: P-3/EP-3 Fatigue Life Management	0.698	1.514	1.909	0.000	1.909
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Fatigue Life Management Program: Managed P-3/EP-3 inventory fatigue life including conducting structural analysis, analyzing structural issues, conducting engineering studies, assessing Fleet impact. Researched, tested and applied new Fatigue Inspection techniques to the P-3/EP-3 Fleet.					
FY 2016 Plans: Fatigue Life Management Program: Manage P-3/EP-3 inventory fatigue life including conducting structural analysis, analyzing structural issues, conducting engineering studies, assessing Fleet impact. Research, test and apply new Fatigue Inspection techniques to the P-3/EP-3 Fleet.					
FY 2017 Base Plans: Fatigue Life Management Program: Manage P-3/EP-3 inventory fatigue life including conducting structural analysis, analyzing structural issues, conducting engineering studies, and assessing Fleet impact. Research, test and apply new Fatigue Inspection techniques to the P-3/EP-3 Fleet.					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.698	1.514	1.909	0.000	1.909

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APN/0538: P-3 Series	2.658	3.067	2.781	-	2.781	2.986	0.000	0.000	0.000	0.000	4,912.544

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604221N / P-3 Modernization Program	Project (Number/Name) 3016 / Fatigue Life Mgmt Program
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

D. Acquisition Strategy

The Fatigue Life Management Program leverages off of prior work done under P-3 Service Life Extension Program (2451). The Anti-Surface Warfare Improvement Program Operational Requirements Documents 355-88-94 was approved 30 March 94. Work will be performed by Lockheed Martin Aeronautical Systems and other industry participants along with the Naval Air Systems Command Structural Engineering Dept, AIR-4.3. This program supports the 7 June 2003 CNO approved P-3/EP-3 Sustainment Bridge to Multi-Mission Maritime Aircraft.

E. Performance Metrics

Successful application of system engineering processes.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604221N / P-3 Modernization Program	Project (Number/Name) 3016 / Fatigue Life Mgmt Program
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Systems Engineering	C/CPIF	LM : Marietta, GA	10.104	0.311	Jan 2015	0.892	Jan 2016	1.045	Jan 2017	-		1.045	0.000	12.352	12.439
Subtotal			10.104	0.311		0.892		1.045		-		1.045	0.000	12.352	12.439

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Government Engineering Support	WR	NAWCAD : PAX RIVER, MD	7.224	0.338	Nov 2014	0.582	Nov 2015	0.824	Nov 2016	-		0.824	0.000	8.968	Continuing
Travel	WR	NAWCAD : PAX RIVER, MD	0.876	0.049	Oct 2014	0.040	Oct 2015	0.040	Oct 2016	-		0.040	0.000	1.005	Continuing
Prior Year costs no longer funded in FYDP	Various	Various : Various	0.270	0.000		0.000		0.000		-		0.000	0.000	0.270	Continuing
Subtotal			8.370	0.387		0.622		0.864		-		0.864	0.000	10.243	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			18.474	0.698	1.514	1.909	-	1.909	0.000	22.595	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604221N / P-3 Modernization Program	Project (Number/Name) 3016 / Fatigue Life Mgmt Program
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Fatigue Life Mgmt Program	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021																				
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q																	
Acquisition Milestones																																													
Milestones																																													
Systems Development																																													
Hardware Development																																													
Software Development																																													
Reviews																																													
Test & Evaluation																																													
Technical Evaluation	Inventory Fatigue Life Management/Sustainment																																												
Operational Evaluation																																													
Production Milestones																																													
Contract Awards																																													
Deliveries																																													

2017DON - 0604221N - 3016

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604221N / <i>P-3 Modernization Program</i>	Project (Number/Name) 3016 / <i>Fatigue Life Mgmt Program</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Fatigue Life Mgmt Program</i>				
Test & Evaluation: Technical Evaluation: Inventory Fatigue Life Management/ Sustainment	1	2015	4	2019

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604230N / <i>Warfare Support System</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	56.017	9.050	5.875	13.237	-	13.237	12.251	10.380	9.956	10.164	Continuing	Continuing
3326: <i>NIWO Rapid Capabilities Development for CIC</i>	13.992	4.950	2.373	6.708	-	6.708	6.250	5.332	5.458	5.571	Continuing	Continuing
4011: <i>Naval Coastal Warfare Surv and C4I Sys</i>	38.703	3.340	2.944	3.406	-	3.406	3.903	3.717	3.650	3.725	Continuing	Continuing
9C86: <i>Combatant Craft Replacement</i>	3.322	0.760	0.558	3.123	-	3.123	2.098	1.331	0.848	0.868	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Navy Expeditionary project supports the Navy Expeditionary Combat Command (NECC) mission to detect, deter or interdict potential threats to DoN assets using agile, modular and scalable technology. NECC will develop and deploy adaptive force packages (AFPs) tailored for the specific missions to achieve greater efficiency and combat readiness. NECC units have a number of current and future Command, Control, Communications, Computers & Intelligence (C4I) technological requirements for Tactical/Command Operations Center, vehicles, craft, personnel capabilities and SATCOM availability. Each NECC operation requires units to maintain effective command and control, develop and display a tactical picture, and share intelligence and current operational information with higher, adjacent, and subordinate headquarters. These capabilities must be interoperable with higher and adjacent echelons of command (to include coalition allies) as well as with supporting elements to include joint forces. Small, Medium and/or Large Scale Communication Systems (LSCS) are the C4I hub for the NECC Forces. LSCS suites are interoperable with joint systems and include communications HF, VHF, and UHF in all common modes with encrypted and clear voice and data, to include Tactical Data Link Network capability. The future of large scale communications assets such as Mobile Ashore Support Terminal (MAST), Ruggedized Deployable Satellite/Tactical Data Network (RDSAT/ TDN) and Deployable Expeditionary Network-Medium (DEXNet-M) supporting Surveillance Control Central, Expeditionary (ESCC) formerly Radar Sonar Surveillance Center (RSSC) will be converging to a common baseline, the Navy Enterprise Tactical Command and Control (NETC2). Next generation air, surface and subsurface surveillance systems, as well as enhanced C4I capabilities, are required to meet operational objectives. Future technologies are being evaluated as enabling capabilities to expand situational awareness, providing additional tactical decision aids to the local area commander. Future C4I research and development efforts will be identified within NECC's strategic Expeditionary Warfare Improvement Program (EXWIP) Integrated Priority Capability List (IPCL) priorities to increase agility, mobility and network security posture. Additional efforts will be driven by greater DoD initiatives, such as Joint Information Environment (JIE) Inc II, in order to maintain interoperability and drive down DoN enterprise costs.

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

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604230N / <i>Warfare Support System</i>
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This funding supports the Identity Dominance System (IDS) as key enabler in support of the Joint Personnel Identity (JPI) program. MESF forces have a mobile security mission that requires methodologies, procedures, equipment and the communications capacity to identify individuals who represent a potential threat as a means to deter and eliminate individuals from conducting asymmetric/non-traditional attacks upon friendly forces, high value assets and coastal areas that NCW is charged with protecting. The Vessel Boarding Search and Seizure (VBSS) teams conducting Expanded Maritime Interception Operations also have a similar requirement to identify individuals. The development of a device to support identity functions is captured in the Identity Dominance System Capability Development Document (IDS CDD) and implemented in the Identity Dominance System Capability Production Document (IDS CPD). IDS is used in the following environments: aboard ship and ashore in ports, the littorals and extended inland field environments worldwide. IDS is employed in maritime and very austere ashore environments and carried by individuals who are part of ship boarding parties and disembarked patrols. These mission and environmental demands dictate a portable, lightweight, rugged, and reliable system with intuitive and user friendly features. IDS biometric modalities may differ by mission profile, requiring the authoritative response to the On-Scene Commander/Boarding Officer on whether to detain or further investigate an individual of interest.

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

This program supports the Navy Expeditionary Innovations Warfare Branch formerly known as the Navy Irregular Warfare (IW) Office to identify and assess available technologies that confront current and future expeditionary challenges. These challenges include irregular warfare and urgent/emergent and unfulfilled needs of the warfighter as outlined in Joint Urgent Operational Needs (JUON), Navy Urgent Operational Needs (UON), Marine Corps Urgent Universal Needs (UUN), and/or support rapid insertion into a Department of Navy (DoN) Program of Record (PoR) or other acquisition programs. Program funding provides for validation and combat demonstration of identified technologies and/or packages of technologies to meet Oversea Contingency Operation (OCO) goals and supports additional investment and sustainment of demonstrated capabilities. The goal of the Navy Expeditionary Warfare Innovations Branch office is to: identify those requirements necessary to meet immediate and future warfighter needs; integrate those existing unique and/or related capabilities that can best meet those warfighter needs; test those integrated capabilities; and then demonstrate in real time and/or during planned deployments within a 6-24 month period.

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

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604230N / <i>Warfare Support System</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	9.094	5.875	12.269	-	12.269
Current President's Budget	9.050	5.875	13.237	-	13.237
Total Adjustments	-0.044	0.000	0.968	-	0.968
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.044	0.000			
• Program Adjustments	0.000	0.000	1.500	-	1.500
• Rate/Misc Adjustments	0.000	0.000	-0.532	-	-0.532

Change Summary Explanation

The FY 2016 funding request was reduced by -\$3.9 million to account for the availability of prior year execution balances.

The FY 2017 funding request was reduced by -\$0.350 million to account for the availability of prior year execution balances and by -\$0.129 million as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

Technical: Not applicable.

Schedule: Not applicable.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604230N / Warfare Support System				Project (Number/Name) 3326 / NIWO Rapid Capabilities Development for CIC			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3326: NIWO Rapid Capabilities Development for CIC	13.992	4.950	2.373	6.708	-	6.708	6.250	5.332	5.458	5.571	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This program supports the Navy Expeditionary Innovations Warfare Branch formerly known as the Navy Irregular Warfare (IW) Office to identify and assess available technologies that confront current and future expeditionary challenges. These challenges include irregular warfare and urgent/emergent and unfulfilled needs of the warfighter as outlined in Joint Urgent Operational Needs (JUON), Navy Urgent Operational Needs (UON), Marine Corps Urgent Universal Needs (UUN), and/or support rapid insertion into a Department of Navy (DoN) Program of Record (PoR) or other acquisition programs. Program funding provides for validation and combat demonstration of identified technologies and/or packages of technologies to meet Oversea Contingency Operation (OCO) goals and supports additional investment and sustainment of demonstrated capabilities. The goal of the Navy Expeditionary Warfare Innovations Branch office is to: identify those requirements necessary to meet immediate and future warfighter needs; integrate those existing unique and/or related capabilities that can best meet those warfighter needs; test those integrated capabilities; and then demonstrate in real time and/or during planned deployments within a 6-24 month time period. Those areas of capability to be investigated by the Expeditionary Warfare Innovations Branch include any or all of the following:

- Persistent Intelligence Surveillance Reconnaissance (ISR)
- Close-in, Expeditionary ISR
- Conventional Forces Support to SOF
- Rotary Wing Support to SOF
- All source intelligence fusion
- Littoral precision strike capability
- Unmanned Vehicles (Undersea/Air/Surface/Ground vehicles for Mine/ISR/Strike/Surveillance/Detection/IED capabilities)

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Navy Irregular Warfare	4.950	2.373	6.708	0.000	6.708
Articles:	-	-	-	-	-
Description: The FY16 funding request was reduced, and rephrased to FY17 and FY18, by -\$2.7 million to account for the availability of prior year execution balances.					
FY 2015 Accomplishments: Identified, assessed, integrated and tested available close-in expeditionary ISR and littoral precision strike technologies in support of the Navy Expeditionary Warfare missions, including Irregular Warfare, supporting the					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604230N / Warfare Support System	Project (Number/Name) 3326 / NIWO Rapid Capabilities Development for CIC

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
warfighter. Additional efforts to validate and demonstrate identified ISR and littoral precision strike technologies including payloads and platforms. Other technologies assessed/demonstrated in support of Confronting Expeditionary Warfare Challenges as available.					
<i>FY 2016 Plans:</i> Identify, assess, integrate and test available close-in expeditionary ISR and littoral precision strike technologies in support of the Navy Expeditionary Warfare missions, including Irregular Warfare, supporting the warfighter. Additional efforts to validate and demonstrate identified ISR and littoral precision strike technologies including payloads and platforms. Other technologies assessed/demonstrated in support of Confronting Expeditionary Warfare Challenges as available.					
<i>FY 2017 Base Plans:</i> Identify, assess, integrate and test available close-in expeditionary ISR and littoral precision strike technologies in support of the Navy Expeditionary Warfare missions, including Irregular Warfare, supporting the warfighter. Additional efforts to validate and demonstrate identified ISR and littoral precision strike technologies including payloads and platforms. Other technologies assessed/demonstrated in support of Confronting Expeditionary Warfare Challenges as available.					
<i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	4.950	2.373	6.708	0.000	6.708

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

Identify, integrate, test and demonstrate capabilities to meet the warfighter needs.

E. Performance Metrics

To successfully conduct technology reviews to confront expeditionary warfare challenges and successfully identify and validate identified technologies.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604230N / Warfare Support System	Project (Number/Name) 3326 / NIWO Rapid Capabilities Development for CIC
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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Spt	C/CPFF	Dell : Washington, DC	0.500	0.100	Mar 2015	0.100	Jan 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Program Management Spt	TBD	TBD : TBD	0.000	0.000		0.000		0.100	Feb 2017	-		0.100	0.000	0.100	-
Travel	WR	NAVSEA/HQ : Washington, DC	0.160	0.060	Dec 2014	0.060	Dec 2015	0.060	Dec 2016	-		0.060	Continuing	Continuing	Continuing
Subtotal			0.660	0.160		0.160		0.160		-		0.160	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation	WR	NUWC : Newport, RI	1.796	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Test and Evaluation	WR	NAWC : China Lake, CA	0.595	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Test and Evaluation	WR	NSWC : Carderock, MD	0.239	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Test and Evaluation	SS/CPFF	ARL/UT : Austin, TX	0.327	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Test and Evaluation	SS/CPFF	SPAWAR : San Diego, CA	1.195	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Test and Evaluation	WR	SPAWAR : Charleston, SC	1.050	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Test and Evaluation	WR	SPAWAR : San Diego, CA	0.904	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Test and Evaluation	SS/FFP	ARL/PSU : State College, PA	0.240	0.300	Apr 2015	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Test and Evaluation	WR	NRL : Washington, DC	0.400	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Test and Evaluation	WR	NSWC : Indian Head, MD	1.156	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Test and Evaluation	Various	Various : Various	1.827	0.447	Apr 2015	0.446	Apr 2016	0.496	Apr 2017	-		0.496	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604230N / Warfare Support System	Project (Number/Name) 3326 / NIWO Rapid Capabilities Development for CIC
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test and Evaluation	SS/FFP	NSWC : Panama City, FL	0.264	0.000		0.000		0.000		-		0.000	0.000	0.264	-
Test and Evaluation	WR	NSWC : Dahlgren, VA	0.235	0.250	Mar 2015	0.000		0.450	Mar 2017	-		0.450	0.000	0.935	-
Test and Evaluation	SS/FFP	NSWC : Dahlgren, VA	0.512	0.000		0.000		0.000		-		0.000	0.000	0.512	-
Test and Evaluation	SS/CPFF	APL/JHU : Laurel, MD	0.125	0.000		0.000		0.000		-		0.000	0.000	0.125	-
Test and Evaluation	SS/CPFF	Army Research Lab. : Adelphia, MD	0.247	0.000		0.000		0.000		-		0.000	0.000	0.247	-
Test and Evaluation	SS/CPFF	PNNL : Richland, WA	0.130	0.000		0.000		0.000		-		0.000	0.000	0.130	-
Test and Evaluation	C/CPFF	Georgia Tech : Atlanta, GA	0.515	1.119	Mar 2015	0.260	Feb 2016	0.000		-		0.000	0.000	1.894	-
Test and Evaluation	C/CPFF	Charles River : Cambridge, MA	0.100	0.421	Mar 2015	0.000		0.000		-		0.000	0.000	0.521	-
Test and Evaluation	C/CPFF	L3 Comm : Burlington, MA	0.621	0.351	Mar 2015	0.000		0.000		-		0.000	0.000	0.972	-
Test and Evaluation	C/CPFF	QinetiQ NA : Waltham, MA	0.704	0.000		0.000		0.000		-		0.000	0.000	0.704	-
Test and Evaluation	C/CPFF	TBD : TBD	0.000	0.000		1.507	Apr 2016	3.700	Apr 2017	-		3.700	0.000	5.207	-
Test and Evaluation	SS/CPFF	Strategos Consulting : Coronado, Ca	0.000	0.178	May 2015	0.000		0.000		-		0.000	0.000	0.178	-
Test and Evaluation	WR	NAVAIR : San Diego, CA	0.150	0.275	Sep 2015	0.000		0.000		-		0.000	0.000	0.425	-
Test and Evaluation	SS/CPFF	NSMA : Wash, DC	0.000	1.299	Mar 2015	0.000		1.902	Apr 2017	-		1.902	0.000	3.201	-
Test and Evaluation	C/CPFF	Advaned Systems : Manassas, VA	0.000	0.150	May 2015	0.000		0.000		-		0.000	0.000	0.150	-
Subtotal			13.332	4.790		2.213		6.548		-		6.548	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604230N / Warfare Support System	Project (Number/Name) 3326 / NIWO Rapid Capabilities Development for CIC
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	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	13.992	4.950	2.373	6.708	-	6.708	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604230N / <i>Warfare Support System</i>	Project (Number/Name) 3326 / <i>NIWO Rapid Capabilities Development for CIC</i>

FISCAL YEARS	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
NIWO	←		Technology Assessments/Demonstrations	→			
	←		Test and Evaluation	→			

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604230N / <i>Warfare Support System</i>	Project (Number/Name) 3326 / <i>NIWO Rapid Capabilities Development for CIC</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3326				
System Development: Technology Assessments/Demonstrations	1	2015	4	2021
System Development: Test and Evaluations	1	2015	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604230N / Warfare Support System				Project (Number/Name) 4011 / Naval Coastal Warfare Surv and C4I Sys			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
4011: Naval Coastal Warfare Surv and C4I Sys	38.703	3.340	2.944	3.406	-	3.406	3.903	3.717	3.650	3.725	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Navy Expeditionary project supports the Navy Expeditionary Combat Command (NECC) mission to detect, deter or interdict potential threats to DoN assets using agile, modular and scalable technology. NECC will develop and deploy adaptive force packages (AFPs) tailored for the specific missions to achieve greater efficiency and combat readiness. NECC units have a number of current and future Command, Control, Communications, Computers & Intelligence (C4I) technological requirements for Tactical/Command Operations Center, vehicles, craft, personnel capabilities and SATCOM availability. Each NECC operation requires units to maintain effective command and Control, develop and display a tactical picture, and share intelligence and current operational information with higher, adjacent, and subordinate headquarters. These capabilities must be interoperable with higher and adjacent echelons of command (to include coalition allies) as well as with supporting elements to include joint forces. Small, Medium and/or Large Scale Communication Systems (LSCS) are the C4I hub for the NECC Forces. LSCS suites are interoperable with joint systems and include communications HF, VHF, and UHF in all common modes with encrypted and clear voice and data, to include Tactical Data Link Network capability.

The future of large scale communications assets such as Mobile Ashore Support Terminal (MAST), Ruggedized Deployable Satellite/Tactical Data Network (RDSAT/ TDN) and Deployable Expeditionary Network-Medium (DEXNet-M) supporting Surveillance Control Central, Expeditionary (ESCC) formerly Radar Sonar Surveillance Center (RSSC) will be converging to a common baseline, the Navy Enterprise Tactical Command and Control (NETC2). Next generation air, surface and subsurface surveillance systems, as well as enhanced C4I capabilities, are required to meet operational objectives. Future technologies are being evaluated as enabling capabilities to expand situational awareness, providing additional tactical decision aids to the local area commander. Future C4I research and development efforts will be identified within NECC strategic Expeditionary Warfare Improvement Program (EXWIP) Integrated Priority Capability List (IPCL) priorities to increase agility, mobility and network security posture. Additional efforts will be driven by greater DoD initiatives, such as Joint Information Environment (JIE) Inc II, in order to maintain interoperability and drive down DoN enterprise costs. Identity Dominance System (IDS) supports the Navy's Vessel Boarding Search and Seizure (VBSS) teams conducting Expanded Maritime Interception Operations with a biometric capability.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: NECC C4ISR Modernization	2.619	2.699	2.377	0.000	2.377
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Continued development of Navy Enterprise Tactical Command & Control (NETC2) capability sets to replace legacy Mobile Ashore Support Terminal (MAST), Deployable Expeditionary Network, Light (DEXNET-L), Deployable Expeditionary Network, Medium (DEXNET-M) in Coastal Riverine Force (CRF) inventory.					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604230N / Warfare Support System	Project (Number/Name) 4011 / Naval Coastal Warfare Surv and C4I Sys

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Efforts included development of capabilities based on emergent requirements and operational feedback, to include reach back for tactical vehicles and craft in the coastal, littoral and riverine environments, tactical data link capability, and develop sensor technologies in support of harbor defense, littoral surveillance, and reconnaissance missions.</p> <p>FY 2016 Plans: Continue to align NETC2 efforts to emerging DoD technologies in order to enhance capabilities provided to the warfighter and continue to incorporate technologies in NETC2 test efforts in order to facilitate virtualization. Move Expeditionary common services to a Joint Information Environment (JIE) Core Data Center node using cloud infrastructure and inclusion of unique requirements into cloud generation.</p> <p>FY 2017 Base Plans: Further orientation to a multi-program baseline architecture while converging to the Joint Information Environment (JIE). Continue to incorporate Joint, DoD, and industry developed technologies in order to enhance NETC2 capabilities provided at the tactical edge while reducing system size, weight, power, and logistics infrastructure.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Identity Dominance System</p> <p align="right">Articles:</p> <p>Description: The increase in funding from FY16 to FY17 supports research and development efforts for the next increment of the Identity Dominance System (IDS).</p> <p>FY 2015 Accomplishments: Identity Dominance System (IDS) currently provides a critical biometric capability to the Navy's Vessel Boarding Search and Seizure (VBSS) teams conducting Expanded Maritime Interception Operations. The IDS has developed and established a hardware and software baseline for Windows 7 compliance via Engineering Change Proposal (ECP) 0003.</p> <p>FY 2016 Plans: IDS ECP 0003 will be finalized and implemented. Currently fielded IDS kits will be retrofitted with the ECP 0003 update. System fielding will continue through the FY. Research and development efforts will evaluate current</p>	0.721 -	0.245 -	1.029 -	0.000 -	1.029 -

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604230N / Warfare Support System	Project (Number/Name) 4011 / Naval Coastal Warfare Surv and C4I Sys

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
technology available to support a technology refresh of the Identity Dominance System. This will support the development of a prioritized enhancement plan.					
<i>FY 2017 Base Plans:</i> As IDS achieves full operational capability (FOC) in FY17 and moves fully into the operations and lifecycle maintenance phase; Research, Development, Testing and Evaluation (RDT&E) efforts will continue to develop and assess upgrades and modifications to keep IDS relevant and effective through follow on Engineering Change Proposals (ECPs).					
<i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	3.340	2.944	3.406	0.000	3.406

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• OPN/8120: Maritime Expeditionary Security Force	24.459	9.929	9.073	-	9.073	9.224	9.446	6.574	9.590	Continuing	Continuing

Remarks

D. Acquisition Strategy

Funding supports an evolutionary acquisition strategy supporting the dynamically evolving rapid action mission of Navy Expeditionary Forces. Large Scale Communication Systems (LSCS) funding will align LSCS to the Deployable Joint Command and Control (DJC2) product baseline. The project will continuously analyze operational utilization of the systems and will roll analysis results into periodic system upgrades to prevent obsolescence and maximize operational effectiveness. The intent of this strategy is to: drive down development, production, and logistics costs, while leveraging technologies developed for other agencies to increase the capabilities of Navy Expeditionary Forces. The future baseline configuration for Large Scale Communication Systems (LSCS) will be the NETC2, a system scalable to Adaptive Force Package (AFP) levels. Efforts include development of capabilities based on emergent requirements, operational feedback, alignment with DoD initiatives such as Joint Information Environment (JIE) Inc II, and identification through strategic Expeditionary and Warfare Improvement Program (EXWIP) Integrated Priority Capability List (IPCL) priorities to include reach back for tactical vehicles and craft, blue force tracking, tactical data link capability, and sensor technologies in support of surveillance and reconnaissance missions. Identity Dominance System (IDS) will continue to provide a biometric capability to the Navy's expeditionary/forward deployed forces through system upgrades and further collaboration with other biometric stakeholders.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604230N / <i>Warfare Support System</i>	Project (Number/Name) 4011 / <i>Naval Coastal Warfare Surv and C4I Sys</i>

E. Performance Metrics

The Navy Expeditionary program continues to identify, evaluate and test a minimum of 3-5 new technologies or configurations per year for potential insertion into the Technical Refresh Plan, to be demonstrated at Fleet Demonstrations

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
1319 / 5				PE 0604230N / Warfare Support System				4011 / Naval Coastal Warfare Surv and C4I Sys							
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	SSC CH : CHARLESTON	0.750	0.380	Feb 2015	0.450	Nov 2015	0.405	Nov 2016	-		0.405	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC : PANAMA CITY	0.000	1.800	Feb 2015	1.648	Nov 2015	1.554	Nov 2016	-		1.554	Continuing	Continuing	Continuing
Hardware/Software Development	WR	NSWC DAHLGREN : DAHLGREN	3.816	0.000		0.000		0.200	Nov 2016	-		0.200	Continuing	Continuing	Continuing
Hardware/Software Development	WR	NSWC CRANE : CRANE	1.450	0.000		0.000		0.100	Nov 2016	-		0.100	Continuing	Continuing	Continuing
Systems Engineering6	WR	NSWC : DAHLGREN	6.059	0.000		0.000		0.405	Nov 2016	-		0.405	Continuing	Continuing	Continuing
Product Development Prior Years	Various	Various : Various	10.174	0.000		0.000		0.000		-		0.000	0.000	10.174	10.174
Subtotal			22.249	2.180		2.098		2.664		-		2.664	-	-	-
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Technical Data	WR	NSWC : CRANE	0.250	0.000		0.000		0.010	Nov 2016	-		0.010	Continuing	Continuing	Continuing
Technical Data	WR	NSWC : DAHLGREN	0.175	0.000		0.000		0.012	Nov 2016	-		0.012	Continuing	Continuing	Continuing
Support Prior Years	Various	Various : Various	5.206	0.000		0.000		0.000		-		0.000	0.000	5.206	5.206
Subtotal			5.631	0.000		0.000		0.022		-		0.022	-	-	-
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Management Services Prior Years	Various	Various : Various	0.275	0.000		0.000		0.000		-		0.000	0.000	0.275	0.275
Program Management Support	WR	SSC CH : CHARLESTON, SC	0.000	0.211	Feb 2015	0.119	Nov 2015	0.220	Nov 2016	-		0.220	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604230N / Warfare Support System	Project (Number/Name) 4011 / Naval Coastal Warfare Surv and C4I Sys
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	SSC SD : SSC SAN DIEGO	0.641	0.250	Feb 2015	0.200	Nov 2015	0.200	Nov 2016	-		0.200	Continuing	Continuing	Continuing
Program Management Support	Various	Various : Various	4.170	0.699	Feb 2015	0.527	Nov 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Program Management Support	WR	NSWC : DAHLGREN	4.675	0.000		0.000		0.100	Nov 2016	-		0.100	Continuing	Continuing	Continuing
Program Management Support	WR	NSWC : CRANE	1.062	0.000		0.000		0.200	Nov 2016	-		0.200	Continuing	Continuing	Continuing
Subtotal			10.823	1.160		0.846		0.720		-		0.720	-	-	-
			Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			38.703	3.340		2.944		3.406		-		3.406	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604230N / Warfare Support System	Project (Number/Name) 4011 / Naval Coastal Warfare Surv and C4I Sys
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Proj 4011	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	
Acquisition Milestones																													
Identity Dominance System (IDS)																					▲								
System Development																													
Coastal Riverine Force (CRF) Modernization	EAVS VTC Upgrade																												
System Development																													
NECC C4ISR Development	SCSM Upgrades																												
		▲				▲				▲				▲				▲				▲				▲			
	NETC2 Capability Development																												
Production																													
NECC C4ISR Procurement	LSCS Upgrades/Refresh																												
	Tactical Vehicles and Combatant Crafts																												
	EVUS Upgrade																												
	Network Upgrades																												
	Converged IP																												
	VoISP																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604230N / Warfare Support System	Project (Number/Name) 4011 / Naval Coastal Warfare Surv and C4I Sys

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 4011				
Acquisition Milestones: Identity Dominance System (IDS): IDS FOC	2	2017	2	2017
System Development: Coastal Riverine Force (CRF) Modernization: Expeditionary VTC Upgrade	1	2015	4	2015
System Development: Trailer Senso Platform EO/IR, Image Tracking,Radar Upgrades	1	2015	4	2015
System Development: SHF Comm System, Medium (SCSM) Ka Band Upgrade	1	2015	4	2015
System Development: NECC C4ISR Development: Navy C4I Test and Certification Events FY15	3	2015	3	2015
System Development: NECC C4ISR Development: Navy C4I Test and Certification Events FY16	3	2016	3	2016
System Development: NECC C4ISR Development: Navy C4I Test and Certification Events FY17	3	2017	3	2017
System Development: NECC C4ISR Development: Navy C4I Test and Certification Events FY18	3	2018	3	2018
System Development: NECC C4ISR Development: Navy C4I Test and Certification Events FY19	3	2019	3	2019
System Development: NECC C4ISR Development: Navy C4I Test and Certification Events FY20	3	2020	3	2020
System Development: NECC C4ISR Development: Navy C4I Test and Certification Events FY21	3	2021	3	2021
System Development: NECC C4ISR Development: NETC2 Capability Development	1	2015	4	2021
Production: NECC C4ISR Procurement: LSCS Upgrades/Refresh	1	2015	4	2021
Production: NECC C4ISR Procurement: Tactical Vehicles and Combatant Crafts PR/ TR	1	2015	4	2021

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604230N / <i>Warfare Support System</i>	Project (Number/Name) 4011 / <i>Naval Coastal Warfare Surv and C4I Sys</i>

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Production: NECC C4ISR Procurement: Expeditionary VHF/UHF/SATCOM (EVUS) UHF TACSAT Upgrade	1	2015	4	2021
Production: NECC C4ISR Procurement: Expeditionary SIPR/NIPR Network Upgrades/ Refresh	1	2016	4	2021
Production: NECC C4ISR Procurement: Converged IP	1	2016	4	2021
Production: NECC C4ISR Procurement: VoISP	1	2016	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604230N / Warfare Support System	Project (Number/Name) 9C86 / Combatant Craft Replacement
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
9C86: <i>Combatant Craft Replacement</i>	3.322	0.760	0.558	3.123	-	3.123	2.098	1.331	0.848	0.868	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

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

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Combatant Craft Replacement	0.760	0.558	3.123	0.000	3.123
Articles:	-	-	-	-	-
Description: The increase in funding from FY16 to FY17 supports design/development of the Navy Expeditionary Combat Command (NECC) next generation Patrol Boat (PB-X).					
FY 2015 Accomplishments: Continued Future Combatant Craft design efforts including replacement program of legacy 33' Riverine Assault Boats, 33' Special Operations Craft Riverine, 34' Patrol Boats, and 39' Riverine Patrol Boats with a common combatant craft hull, mechanical, and electrical (HME) package. Continued to support MK VI PB Fleet Introduction Team boat and boat system familiarization support and training efforts. Began Combatant Craft System Development and Demonstration.					
FY 2016 Plans: Continue Future Combatant Craft design efforts including replacement program of legacy 33' Riverine Assault Boats, 33' Special Operations Craft Riverine, 34' Patrol Boats, and 39' Riverine Patrol Boats with a common combatant craft hull, mechanical, and electrical (HME) package. Continue to support MK VI PB Fleet Introduction Team boat and boat system familiarization support and training efforts. Continue Combatant Craft System Development and Demonstration.					
FY 2017 Base Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604230N / Warfare Support System	Project (Number/Name) 9C86 / Combatant Craft Replacement
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>The Navy Expeditionary Combat Command (NECC) fleet of craft are reaching their end of service life and will create a capability gap if they are not replaced. The replacement will be a phased approach and begin with the recapitalization of the fleet maritime expeditionary security force, Force Protection - Small (25-ft Patrol Boats) and Force Protection - Large (34-ft PBs), with the design development and procurement of Patrol Boat X (PB-X). The fleet maritime expeditionary security force patrol green water littoral zones such as coastal water approaches, bays, major rivers, ports, and harbors for surface presence, detection and response as well as a host of other missions.</p> <p>Conduct planning, research, analysis, design and developmental/operational testing in support of the recapitalization of combatant craft as well as to continue the development of user needs, science and technology and technology development work to refine material solutions to fill critical capability gaps. Continue to support system development, demonstration, fleet introduction team and boat system familiarization support and training for the MK VI Patrol Boat program.</p> <p>FY 2017 OCO Plans: N/A</p>					
Accomplishments/Planned Programs Subtotals	0.760	0.558	3.123	0.000	3.123

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• OPN/1210: <i>Standard Boats (NECC)</i>	1.128	0.059	8.249	-	8.249	11.094	11.192	11.296	11.397	Continuing	Continuing

Remarks

D. Acquisition Strategy

Acquisition of RDT&E funded mockup and prototype craft for testing to be accomplished using "tailored" GSA procurements in accordance with a PMS325G approved/OPNAV N95 endorsed Riverine Combatant Craft Replacement Acquisition Strategy.

E. Performance Metrics

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

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604230N / Warfare Support System	Project (Number/Name) 9C86 / Combatant Craft Replacement
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Craft Feasibility Study	WR	NSWC : Carderock, MD	0.832	0.380	Jan 2015	0.107	Jan 2016	0.593	Feb 2017	-		0.593	Continuing	Continuing	Continuing
Craft Material Solution & Design Development	WR	NSWC : Carderock, MD	1.640	0.000		0.344	Jan 2016	1.937	Feb 2017	-		1.937	Continuing	Continuing	Continuing
Craft Study Report	WR	NSWC : Carderock, MD	0.850	0.380	Jan 2015	0.107	Jan 2016	0.593	Feb 2017	-		0.593	Continuing	Continuing	Continuing
Craft Test and Evaluation	WR	NSWC : Carderock, MD	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Subtotal			3.322	0.760		0.558		3.123		-		3.123	-	-	-
Project Cost Totals			3.322	0.760		0.558		3.123		-		3.123	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604230N / Warfare Support System	Project (Number/Name) 9C86 / Combatant Craft Replacement
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Proj 9C86	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
	Combatant & Fleet Expeditionary Security Craft Design Studies																											
	Combatant & Fleet Expeditionary Security Craft Awards																											
	Combatant & Fleet Expeditionary Security Craft Deliveries																											
	Craft Test and Evaluation																											
	Selection of Craft for Production																											
	Selection of Lethal effectors																											
									Integration of Lethal effectors																			

2017PB - 0604230N - 9C86

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604230N / <i>Warfare Support System</i>	Project (Number/Name) 9C86 / <i>Combatant Craft Replacement</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Proj 9C86</i>				
Combatant & Fleet Expeditionary Security Craft Design Studies	1	2015	2	2021
Combatant & Fleet Expeditionary Security Craft Awards	1	2017	4	2021
Combatant & Fleet Expeditionary Security Craft Deliveries	1	2019	4	2021
Craft Test and Evaluation	1	2019	4	2021
Selection of Craft for Production	1	2017	4	2021
Selection of Lethal effectors	1	2017	1	2018
Integration of Lethal effectors	1	2018	1	2019

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	754.485	52.285	73.533	36.323	-	36.323	46.278	42.475	35.469	36.207	Continuing	Continuing
0486: <i>Tactical Support Center</i>	120.415	4.136	5.016	5.244	-	5.244	5.651	5.676	5.776	5.895	Continuing	Continuing
2213: <i>Mission Planning</i>	294.047	25.717	39.733	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	359.497
3032: <i>NTCSS (Naval Tactical Command Spt Sys)</i>	69.107	4.216	8.157	13.610	-	13.610	14.618	12.431	4.849	4.961	Continuing	Continuing
3320: <i>TRIDENT Warrior</i>	9.087	2.218	2.205	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	13.510
3323: <i>Maritime Tactical Command & Control (MTC2)</i>	18.998	11.859	15.262	14.293	-	14.293	22.557	21.113	21.528	21.966	Continuing	Continuing
3324: <i>Navy Air Operations Command and Control (NAOC2)</i>	10.496	1.784	0.801	0.999	-	0.999	1.043	1.010	1.028	1.050	Continuing	Continuing
9123: <i>FORCEnet</i>	232.335	2.355	2.359	2.177	-	2.177	2.409	2.245	2.288	2.335	Continuing	Continuing

A. Mission Description and Budget Item Justification

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

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

Mission Planning: The Joint Mission Planning System (JMPS) is the designated automated mission planning system for the Navy. JMPS enables weapon system employment by providing the information, automated tools, and decision aids needed to rapidly plan aircraft, weapon, or sensor missions, load mission data into aircraft and weapons, and conduct post-mission analysis. JMPS is a mission critical system which is a co-development effort between the United States Navy (USN) and United States Air Force (USAF). Common requirements are identified and capabilities are developed and prioritized in an evolutionary approach. An individual JMPS Mission Planning Environment (MPE) is a combination of the JMPS framework, common components, and the necessary system hardware required to satisfy mission planning objectives. Most Tactical Naval Aviation platforms are dependent solely on JMPS to plan precision guided munitions, sensor systems, tactical data links, secure voice communications, and basic Safety of Flight functions. The following type/model/series (T/M/S) naval aircraft are supported by JMPS: AH-1W, F/A-18 A-F, E-2C, EP-3E, EA-6B, AV-8B, S-3, V-22, Chief of Naval Air Training (CNATRA), EA-18G, MV-22, C-2, MH-53E, P-3, Aircraft Carrier Intelligence Center (CVIC), SH-60B/F, HH-60H,

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>	
<p>CH-53D/E, CH-46E, UH-1N, VH-3/VH-60, AH-1Z, UH-1Y, MH-60R/S and E-2D. All T/M/S are required to transition to Microsoft Windows 7 due to End of Life (EOL) of Microsoft XP (April 2014) using Framework (FW) Version 1.3.5. Custom support for Windows XP is planned to allow remaining naval aircraft to be supported during the transition. Future JMPS platforms include: MQ-4C (Triton) and CH-53K. The re-architecture of JMPS will support net-centric goals by providing route "publish and subscribe" capabilities, transition to 64 bit allows for memory space expansion to accommodate future Microsoft Operating Systems, emerging technologies, and critical Cyber Security updates. Funding profile includes JMPS baseline efforts for all existing T/M/S on Windows 7 32 bit framework while concurrently re-architecting to a 64 bit framework. 64-bit development requires complete software restructure to address memory limitations and system errors resulting in JMPS computer crashes. The transition from the current 32-bit architecture (4GB RAM) to a 64-bit architecture (196GB RAM) provides additional memory access, increased planning efficiencies; creating a more stabilized architecture with fewer fleet memory crashes. Delaying JMPS 64-bit transition to the fleet will cause system crashes to continue. It will also delay required mission planning fixes based upon known software obsolescence, and decreases platform stability.</p> <p>Naval Tactical Command Support System (NTCSS): Enterprise Database and Maritime Logistics Data Network (MLDN): The NTCSS is a multi-function program designed to provide standard tactical support information systems to various afloat and associated shore-based fleet activities. The mission is to provide the Navy and Marine Corps with an integrated, scalable system that supports the management of logistical information, personnel, material and funds required to maintain and operate ships, submarines, and aircraft.</p> <p>Maritime Tactical Command and Control (MTC2): Maritime Tactical Command and Control (MTC2) is a software program which will provide tactical command and control capabilities and maritime unique operational level of war capabilities not supported by the joint C2 effort. MTC2 will align with the Navy Tactical Cloud (NTC) when available and leverage Consolidated Afloat Network Enterprise Service (CANES), Agile Core Services (ACS), and legacy Integrated Shipboard Network System (ISNS) in order to field to all echelons of command (afloat and ashore) within the Navy. The program's objective is to provide a suite of maritime applications that enable enhanced situational awareness, planning, execution, monitoring, and assessment in support of operational and tactical level of war requirements. MTC2 will field maritime applications designed to provide automated and structured support for tactical and operational planning, decision-making, and execution.</p> <p>Global Force Management - Data Initiative (GFM-DI) is the Department-wide enterprise solution that enables visibility/accessibility/sharing of data applicable to the entire DoD force structure. MTC2 will be the program that fulfills a portion of the Navy's GFM-DI requirements.</p> <p>Navy Air Operations Command and Control (NAOC2): Integrates and tests Air Force produced systems that provide for an integrated and scalable planning system for standardized, secure, automated decision support for Air Force, Joint, and Allied commanders worldwide. These programs provide automated air operations planning, execution management and intelligence capabilities at the Force level to include fleet commanders, numbered fleet commanders, Commander Carrier Strike Group, Commander Expeditionary Strike Group, Commander Landing Force, and Joint Task Force Commanders. NAOC2 includes Theater Battle Management Core System (TBMCS), Command and Control Air and Space Operations Suite - Command and Control Information Services (C2AOS-C2IS). C2AOS-C2IS is being developed as Service Oriented Architecture (SOA) service to allow for scalability and integration with Common Computing Environments (CCE). Continuation of these efforts will significantly enhance the Joint Force Air Component Commander (JFACC) and Combined Air Operations Center (CAOC) personnel to plan daily air operations including strike, airlift, offensive/defensive air, and refueling missions in support of combat operations, addressing the requirement of war fighter distributed planning and execution processes along with significantly improving Joint interoperability. TBMCS continues a hardware transition to CCEs such as Consolidated Afloat Networks and Enterprise Services (CANES). Currently, TBMCS is the key system that is used to conduct real world air planning in the Joint and Navy environments. C2AOS-C2IS will replace TBMCS in a SOA environment while bringing more flexibility to the war fighter.</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>
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FORCEnet: Initiative's mission is to deliver Information Dominance by (a) accelerating the transformation to a Distributed, Networked force; (b) achieve interoperability based on Architectures and Standards; and (c) Experiment with, evaluate and employ the enabling technologies. Effort is a non-acquisition program that is the operational instantiation of FORCEnet. The end-state is a distributed network of weapons, sensors, Command and Control (C2), platforms and warriors.

Trident Warrior (TW): TW enables early delivery of Net-Centric Operation/Warfare (NCO/W) capabilities to the warfighter via Fleet-directed Trident Warrior operational events with an emphasis on delivering Maritime Domain Awareness (MDA) with Maritime Operations Center (MOC) capability.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	60.195	81.553	70.835	-	70.835
Current President's Budget	52.285	73.533	36.323	-	36.323
Total Adjustments	-7.910	-8.020	-34.512	-	-34.512
• Congressional General Reductions	-	-0.020			
• Congressional Directed Reductions	-	-8.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-7.179	0.000			
• SBIR/STTR Transfer	-0.730	0.000			
• Program Adjustments	0.000	0.000	-28.122	-	-28.122
• Rate/Misc Adjustments	-0.001	0.000	-6.390	-	-6.390

Change Summary Explanation

Decrease in Tactical Command System by \$1.7M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

Technical: Not applicable.

Schedule:

TACTICAL SUPPORT CENTER (Project 0486):

N/A

Naval Tactical Command Support System (NTCSS) (Project 3032):

RRR for NTCSS OA Release 1 BCM-Interdiction and NTCSS OA Release 2 Global ICRL has now been combined and is scheduled for Q3 FY16. A result of combining NTCSS OA Release 1 & 2 into one RRR event, TRR for NTCSS OA Release 2 Global ICRL shifted to Q2 FY16. DT for NTCSS OA Release 1 BCM-Interdiction and NTCSS OA Release 2 Global ICRL has now been combined and is scheduled for Q4 FY16. NTCSS Web-Enabled RADM RRR slipped to Q1 2019 due to RDT&E marks in FY15 and FY16.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy Date: February 2016

Appropriation/Budget Activity
1319: *Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)*

R-1 Program Element (Number/Name)
PE 0604231N / *Tactical Command System*

Maritime Tactical Command and Control (MTC2) (Project 3323):
Schedule changes are due to an increase in pre-acquisition activities required to complete Milestone B (formerly Build Decision (BD)) in FY 2017. Also, MTC2 software iterations will now be referred to as Builds vice Releases in this exhibit to align with the DoDI 5000.02 Model 3 Incrementally Deployed Software Intensive Program. Prior to FY 2017, MTC2 risk reduction efforts were conducted. The Requirements Definition Package (RDP) has been changed to an Information Systems - Capability Development Document (IS-CDD). Joint Staff reviewed the requirements documentation due to the pending Acquisition Category (ACAT) IAM Program of Record (PoR) designation and determined the document needed to be a Joint Requirements Oversight Council (JROC) approved IS-CDD. B1 Drop (formally R1 Drop) changed from FY 2018 Q2 to FY 2018 Q3 due to fact of life budget constraints to achieve affordability as the PoR is in pre-acquisition.

Navy Air Operations Command and Control (NAOC2)(Project 3324):
United States Air Force PE0207410F Air & Space Operations Center received an FY15 congressional mark that has resulted in a one year delay in the development of Command and Control Air Operations Suite - Command and Control Information Services (C2AOS-C2IS) Capability Package 3 (CP3) Air eXecution Information Systems (AXIS). This capability is required for the consolidated CP1, CP2, and CP3 Navy integration and Initial Operational Test & Evaluation of C2AOS-C2IS plus retirement of Theater Battle Management Core System (TBMCS).

Mission Planning (Project 2213):
Test and Evaluation:
Framework v1.3.5 MPE integration/validation has extended from 4th QTR 2015 to 4QTR 2016 to allow full fielding of Mission Planning on the F/A-18 platform. Mission Planning schedule FY17 and out is included in Mission Planning PE 0605215N.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>				Project (Number/Name) 0486 / <i>Tactical Support Center</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
0486: <i>Tactical Support Center</i>	120.415	4.136	5.016	5.244	-	5.244	5.651	5.676	5.776	5.895	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

TacMobile brings Enterprise Command, Control, Communications, Computers and Intelligence, Surveillance and Reconnaissance (C4ISR) to the Maritime Patrol and Reconnaissance Force (MPRF) community.

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

The missions are supported by the Tactical Operations Centers (TOCs), and the Mobile Tactical Operations Centers (MTOCs). Services provided include analysis and correlation of diverse sensor information; data management support; command decision aids; rapid data communication; mission planning, evaluation and dissemination of surveillance data and threat alerts to operational users ashore and afloat.

TOCs provide Command, Control, Communications, Computers and Intelligence (C4I) capability, air-ground, satellite and point-to-point communications systems; sensor analysis capabilities; avionics and weapons system interfaces and facilities equipment. MTOCs are scalable, mobile versions for operations from remote forward operating airfields. This program assures that existing TOCs and MTOCs are interoperable to fulfill their operational requirements. TOC/MTOC will continue to provide the ground Command and Control capabilities and C4I interfaces for the MPRF Family of Systems (FOS) aircraft and systems evolution including P-8A Multi-mission Maritime Aircraft (MMA) baseline and Increment 2, and the development of future C4I support capabilities for the P-8A Poseidon Increment 3, Advanced Airborne Sensor (AAS), and the MQ-4C TRITON Unmanned Aerial System.

The TacMobile program follows an Evolutionary Acquisition approach for adding capabilities that maintain and support MPRF weapons systems. Current requirements for TacMobile are to adapt to a smaller footprint and scalable Network-centric Services Oriented Architecture (SOA) configuration. Additional TacMobile requirements are to converge TOCs and MTOCs to a single configuration.

FY17: Funding supports core TacMobile systems development and testing to maintain interoperability with P-8A Poseidon and the MQ-4C Triton. Specifically this development is intended to increase modularity, establish additional security enclaves and reduce footprint to offset the size/weight/cube of additional required aircraft interfaces developed to support P-8A Increment 3, Advanced Airborne Sensor (AAS) and emerging Maritime Patrol and Reconnaissance Aircraft operations. Network-centric Services Oriented Architecture (SOA) and airborne C4I integration efforts continue to ensure interoperability with emerging MPRF Aircraft and Sensors, facilitate the MPRF ISR and ASW data Processing - Exploitation - Dissemination (PED) process, and reduce TacMobile footprint enhancing mobility capabilities.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>	Project (Number/Name) 0486 / <i>Tactical Support Center</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Net Ready	0.638	0.938	0.938	0.000	0.938
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					
Continued Services Oriented Architecture (SOA) design implementation leveraging P-8A Applications Based Architecture Best of Breed architecture design. Began development of an initial TacMobile Ground Support portal - (TR 2.1.1). Developed plans to commence initial Tactical Operations Center Operational Control Prototype SOA fielding in TR 2.1.1. Continued Automated Digital Network System and Full Motion Video implementations - (TR 2.1.1). Continued Family of Systems (FoS) collaboration on Maritime Patrol and Reconnaissance Force (MPRF)/Air Anti-Submarine Warfare (ASW) Community of Interest (COI) data model development to support SOA environment with Extensible Markup Language (XML) schema and Tactical Operations Center / Mobile Tactical Operations Center Content Management XML Data Dictionary - (Inc 3). Incorporated Inc 2.1 CPD change memorandum and related changes - (T.R. 2.1.1). Began development of TacMobile Data Strategy, Information Support Plan , and Capabilities Production Document for Increment 3, supporting P-8A Poseidon Inc 3 - (Inc 3). Began update of all required TOC/MTOC Department of Defense Architecture Framework (DoDAF) products, integrated with the MPRF/Air ASW COI Family of Systems DoDAF products - (Inc 3). Continued Wideband Beyond Line of Sight Satellite Communications requirements analysis - (Inc 3). Commenced review of TacMobile Concept of Operations in alignment with Family of Systems CONOPS - (TR 2.1.1). Continued identifying requirements to evolve legacy point to point exchanges of information to utilize Services Oriented Architecture and new technologies and down select sustainable technologies - (TR 2.1.1). Matured Measures of Effectiveness to maintain integrated requirements management with Increment 3 architecture elements - (Inc 3).					
FY 2016 Plans:					
Integrate Services Oriented Architecture (SOA) implementations from P8 Applications Based Architecture with TacMobile architecture - (TR 2.1.1). Leverage Tactical Operations Center Operational Control Prototype SOA development with TacMobile Services Oriented Architecture implementation based on Best of Breed from P8 Applications Based Architecture and leveraged Tactical Operations Center Operational Control Prototype SOA work. Continue Automated Digital Network System and Full Motion Video implementations - (TR 2.1.1). Mature Family of Systems Community of Interest data model development for TacMobile SOA environment instantiation with Extensible Markup Language (XML) schema and Tactical Operations Center Mobile Tactical Operations Center Content Management XML Data Dictionary - (Inc 3). Continue evolving TacMobile Data Strategy, Information Support Plan, and Capabilities Production Document for Increment 3, supporting P-8A Poseidon Inc 3 - (Inc 3). Finalize TOC/MTOC Operational view and System view Department of Defense Architecture Framework (DoDAF) products, and integrate to the Maritime Patrol and Reconnaissance Force /Air Anti-					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>	Project (Number/Name) 0486 / <i>Tactical Support Center</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Submarine Warfare Community of Interest Family of Systems Department of Defense Architecture Framework products - (Inc 3). Continue review of TacMobile Concept of Operations (CONOPS) in alignment with Family of Systems CONOPS - (TR 2.1.1). Mature identifying requirements to evolve legacy point to point exchanges of information to utilize Services Oriented Architecture and new technologies and down select sustainable technologies - (TR 2.1.1). Refine Measures of Effectiveness to maintain integrated requirements management with Increment 3 architecture elements - (Inc 3).</p> <p>FY 2017 Base Plans: Continue to mature Services Oriented Architecture (SOA) implementations from P8 Applications Based Architecture with TacMobile architecture - (Inc3). Leverage Tactical Operations Center Operational Control Prototype SOA development with TacMobile Services Oriented Architecture implementation based on Best of Breed from P8 Applications Based Architecture and leveraged Tactical Operations Center Operational Control Prototype SOA work - (Inc3). Continue Automated Digital Network System and Full Motion Video implementations - (TR 2.1.1). Mature Family of Systems (FoS) Community of Interest data model development for TacMobile SOA environment instantiation with Extensible Markup Language (XML) schema and Tactical Operations Center Mobile Tactical Operations Center Content Management XML Data Dictionary - (Inc 3). Continue evolving TacMobile Data Strategy, Information Support Plan, and Capabilities Production Document for Increment 3, supporting P-8A Poseidon Inc 3 - (Inc 3). Finalize TOC/MTOC Operational view and System view Department of Defense Architecture Framework (DoDAF) products, and integrate to the Maritime Patrol and Reconnaissance Force /Air Anti-Submarine Warfare Community of Interest FoS DoDAF products - (Inc3). Continue review of TacMobile Concept of Operations (CONOPS) in alignment with Family of Systems CONOPS and P8 CONOPS - (TR 2.1.1). Mature identifying requirements to evolve legacy point to point exchanges of information to utilize Services Oriented Architecture and new technologies and down select sustainable technologies - (TR 2.1.1). Mature refining Measures of Effectiveness to maintain integrated requirements management with Increment 3 architecture elements - (Inc 3).</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Tactical Mobile Acoustic Support System (TACMASS)</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: Implemented P-8A Poseidon Increment 2 Engineering Change Proposal (ECP) 1 Multistatic Active Coherent Phase 1 - (FR30). Continued implementing designs, integration and test of P-8A Poseidon Increment 2 (ECP) 2</p>	0.736	0.736	0.736	0.000	0.736
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>	Project (Number/Name) 0486 / <i>Tactical Support Center</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>and 3 - (FR40 /FR50). Continued requirement analysis and commence design of TacMobile system in support of P-8A Poseidon Increment 3 - (Inc 3). Commenced initial TacMobile system testing of ECP 2 - (FR40).</p> <p>FY 2016 Plans: Finalize implementation of P-8A Poseidon Increment 2 Engineering Change Proposal (ECP) 2 - (FR40) and commence implementation of P-8A Poseidon Increment 2 ECP 3 - (FR50 / Inc 3). Finalize designs and commence development of TacMobile Multistatic Active Coherent Attack system in support of P-8A Poseidon Increment 3 upgrades - (Inc 3).</p> <p>FY 2017 Base Plans: Validate and test P8 Increment 2 Engineering Change Proposal (ECP) 3 Multistatic Active Coherent (MAC) upgrades and functionality (TR 2.1.1). Mature requirements development for MAC Enhancements (MAC-E) and commence design of MAC-E - (Inc 3).</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Aircraft Interfaces</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: Commenced test and production of P8 Poseidon Increment 2 Engineering Change Proposal (ECP) 1 and ECP 2 required TacMobile support - (TR 2.1.1). Supported P-8A Poseidon Increment 2 Operational Evaluations - (TR 2.1.1) Continued refining Advanced Airborne Systems and TacMobile stack integration - (TR 2.1.1). Supported P8 Poseidon Increment 3 Applications Based Architecture System Readiness Review and Test and Evaluation prototyping - (Inc 3). Continued supporting interface design for Net Enabled Weapon and T-Sized Stores - (Inc 3). Commenced implementation of P-8A Poseidon Fly Away Kits, for media grooming and split deployment support - (TR 2.1.1).</p> <p>FY 2016 Plans: Continue test and production of P8 Poseidon Increment 2 Engineering Change Proposal (ECP) 1 and ECP 2 required TacMobile support - (TR 2.1.1). Continue supporting all P-8A Poseidon Increment 2 Operational Evaluations- (TR 2.1.1) Finish refining Advanced Airborne Systems and TacMobile stack integration - (TR 2.1.1). Support P8 Poseidon Increment 3 Applications Based Architecture Preliminary Design Review (PDR) 1 and Test and Evaluation prototype development - (Inc 3). Mature interface design for Net Enabled Weapon and</p>	0.583	0.883	0.883	0.000	0.883
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>	Project (Number/Name) 0486 / <i>Tactical Support Center</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>T-Sized Stores - (Inc 3). Finalize implementation of P-8A Poseidon Fly Away Kits, for media grooming and split deployment support - (Inc 3).</p> <p>FY 2017 Base Plans: Complete testing of TacMobile support for P8 Poseidon Increment 2 Engineering Change Proposal (ECP) 1 and ECP 2 - (TR 2.1.1). Complete support for all P-8A Poseidon Increment 2 Operational Evaluations - (TR 2.1.1) Conduct end to end testing of Advanced Airborne Systems and TacMobile stack integration - (TR 2.1.1). Continue support P8 Poseidon Increment 3 Applications Based Architecture Design Reviews and Test and Evaluation prototype development - (Inc 3). Integrate support for Net Enabled Weapon and T-Sized Stores - (TR2.1.2). Begin integration of P-8A media grooming and C4I Fly Away Kits - (TR 2.1.1). Install TacMobile Advanced Airborne Sensor (TMAAS) stack Engineering Development Model in Tactical Operations Center Jax for OT. (TR 2.1.1 Ph2)</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Tactical Data Links</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: Continued to monitor LINK-11 sundown plan, impacts on TacMobile, and potential adoption of LINK-22 / NATO Improved Link Eleven - (Inc 3). Commenced assessment of LINK-16 Concurrent Multi-Netting, adoption of Multifunctional Information Distribution System Joint Tactical Radio System, and adoption of Tactical Targeting Network Technology - (Inc 3). Commenced technology review for selected Tactical Targeting Network Technology and Multifunctional Information Distribution System Joint Tactical Radio System Courses of Action - (TR 2.1.1) Commenced requirements analysis on Common Data Link Upgrade, Broadcast Intelligence Analysis, Joint Range Extension, Third Party Targeting, High Frequency Internet Protocol, LINK 16 updates - (Inc 3).</p> <p>FY 2016 Plans: Continue design for selected Tactical Targeting Network Technology and Multifunctional Information Distribution System Joint Tactical Radio System Courses of Action - (TR 2.1.1) Continue requirements analysis on Common Data Link Upgrade, Broadcast Intelligence Analysis, Joint Range Extension, Third Party Targeting, High Frequency Internet Protocol, Link 16 updates - (Inc 3).</p> <p>FY 2017 Base Plans:</p>	0.160	0.160	0.160	0.000	0.160
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>	Project (Number/Name) 0486 / <i>Tactical Support Center</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>- Commence communications upgrade design/integration/development including New Technology-Common Data Link Upgrade, Broadcast Intelligence Analysis, Joint Range Extension, Third Party Targeting, High Frequency Internet Protocol, and Link 16 updates (TR2.1.2 /Inc 3).</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Enterprise Solutions</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: Continued with Applications Based Architecture (ABA) requirements analysis, and commenced ABA design and development for TacMobile (TM) systems - (Inc 3). Completed Just a Bunch of Disks (now called Data Storage Architecture Upgrade (DSAU)) replacement requirement analysis, and DSAU design and development for TacMobile systems - (TR 2.1.1). Continued development of Multiple Security level Enclaves and evaluated Distributed Common Ground System Navy capabilities implementation - (Inc 3). Commenced development of next generation Mass Storage requirement - (Inc 3).</p> <p>FY 2016 Plans: Continue maturing the Applications Based Architecture (ABA) requirements analysis, and commence ABA design and development for TacMobile systems - (Inc 3). Continue Data Storage Architecture Upgrade development and implementation - (TR 2.1.1). Continue development of Multiple Security level Enclaves and design of Distributed Common Ground System Navy implementation - (Inc 3). Continue development of next generation Mass Storage requirement - (Inc 3).</p> <p>FY 2017 Base Plans: Continue Applications Based Architecture (ABA) requirements analysis, and continue ABA design and development for implementation on TacMobile systems - (Inc 3). Complete Data Storage Architecture Upgrade integration to support follow on test and evaluation - (TR 2.1.1). Continue development of Multiple Security level enclaves and design of Distributed Common Ground System Navy implementation - (Inc 3). Continue development of next generation Mass Storage requirement - (Inc 3).</p> <p>FY 2017 OCO Plans: N/A</p>	0.580	0.780	0.880	0.000	0.880
	-	-	-	-	-
<p>Title: Command and Control (C2)</p> <p align="right">Articles:</p>	0.402	0.402	0.607	0.000	0.607
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>	Project (Number/Name) 0486 / <i>Tactical Support Center</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p><i>FY 2015 Accomplishments:</i> Completed Tactical Operations Center Operational Control Prototype Services Oriented Architecture (SOA) implementations thru phase 5 and commenced TacMobile SOA design leveraging P-8A Applications Based Architecture into TacMobile SOA requirements analysis and design/development. Prepared to leverage Poseidon Data modeling, security, applications and architecture - (Inc 3). Continued requirements analysis and commence development of Advanced Airborne Sensor system as part of TacMobile Multiple Security level Enclaves - (Inc 3). Implemented Global Command and Control System - Maritime Group Level 4.1 in support of Triton Mission Control System interface and continued to assess next generation Maritime Tactical Command and Control - (Inc 3).</p> <p><i>FY 2016 Plans:</i> Continue Tactical Operations Center Operational Control Prototype Services Oriented Architecture (SOA) design leveraging P-8A Applications Based Architecture into TacMobile SOA requirements analysis and design/development. Leverage Poseidon Data modeling, security, applications and architecture - (Inc 3). Mature requirements analysis, continue development, and commence implementation of Advanced Airborne Sensor system as part of TacMobile (TM) Multiple Independent Levels of Security - (Inc 3). Evaluate Global Command and Control System - Maritime Group Level 4.1 in support of Triton Mission Control System interface and conduct requirements analysis to assess next generation Maritime Tactical Command and Control - (TR 2.1.1).</p> <p><i>FY 2017 Base Plans:</i> Further mature Tactical Operations Center Operational Control Prototype Services Oriented Architecture (SOA) design leveraging P-8A Applications Based Architecture into TacMobile SOA requirements analysis and design/development including Cross Domain Solutions. Continue to leverage Poseidon Data modeling, security, applications and architecture - (Inc 3). Continue Engineering Development Model development with High Assurance Guard, and continue implementation of Advanced Airborne Sensor system as part of TacMobile Multiple Independent Levels of Security - (Inc 3). Integrate Global Command and Control System - Maritime Group Level 4.1 in support of Triton Mission Control System interface and continue requirements analysis to assess next generation Maritime Tactical Command and Control - (TR 2.1.1 / TR 2.1.2).</p> <p><i>FY 2017 OCO Plans:</i> N/A</p>					
<p><i>Title:</i> Maritime Patrol and Reconnaissance Force (MPRF) Interoperability/TacMobile Footprint Reduction</p> <p align="right"><i>Articles:</i></p>	1.037	1.117	1.040	0.000	1.040
<p><i>FY 2015 Accomplishments:</i></p>	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>	Project (Number/Name) 0486 / <i>Tactical Support Center</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Commenced implementation of full system integration of P-8A Poseidon Aircraft Increment 2 Mission Planning interoperability upgrades - (TR 2.1.1). Commenced design model development of automated TacMobile system functionality to reduce operator workload, to offset increasing Maritime Patrol and Reconnaissance Force Intelligence Surveillance and Reconnaissance Mission/Function/Task - (TR 2.1.1). Commenced hardware fielding for convergence of Tactical Operations Center (TOC) and Mobile Tactical Operations Center (MTOC) architecture toward common baseline to reduce platform unique training requirements and duplicative life cycle logistics costs - (TR 2.1.1). Began stakeholder requirements analysis to reduce TOC/MTOC Size, Weight, Power and Cooling footprint via (TR 2.1.1). Began implementing selected Analysis of Alternatives design for automated TacMobile system functionality to reduce operator workload, to offset increasing Maritime Patrol and Reconnaissance Force Intelligence Surveillance and Reconnaissance Mission/Function/Task growth and develop an engineering design model - (TR 2.1.1). Continued implementing hardware design optimizations which reduce and consolidate TacMobile footprint, and Maritime Patrol and Reconnaissance Aircraft media changes - (TR 2.1.1). Began Change Request process for technologies that continues best optimizes data transfer rates - (Inc 3). Continued with development of Multiple Security level Enclaves utilizing a Multiple Independent Levels of Security approach. Initiated Higher than SECRET enclave's requirements analysis and design for TacMobile - (Inc 3).</p> <p>FY 2016 Plans: Continue design model development of automated TacMobile system functionality to reduce operator workload, to offset increasing Maritime Patrol and Reconnaissance Force Intelligence Surveillance and Reconnaissance Mission/Function/Task - (TR 2.1.1). Complete stakeholder Size Weight Power and Cooling requirements analysis and commence TOC/MTOC design - (TR 2.1.1). Continue implementing all hardware design optimizations which reduce and consolidate TacMobile footprint and any Maritime Patrol and Reconnaissance Aircraft media changes - (TR 2.1.1). Commence Wide Band SatCom requirements analysis and continue utilizing technology that continues best optimizes data transfer rates - (Inc 3). Continue with development of Multiple Security level Enclaves, mature Higher than SECRET enclave's requirements analysis and design for TacMobile - (Inc 3).</p> <p>FY 2017 Base Plans: Refine design of TacMobile system functionality to reduce operator workload, to offset the increasing Mission/Function/Task of the Maritime Patrol and Reconnaissance Force Intelligence Surveillance and Reconnaissance - (TR 2.1.1). Initiate stakeholder Size Weight Power and Cooling design analysis and commence TOC/MTOC design - (TR 2.1.2/Inc3). Complete implementing all hardware design optimizations which reduce and consolidate TacMobile footprint and any Maritime Patrol and Reconnaissance Aircraft media changes - (TR 2.1.1). Commence integration of P-8 Inc 3 Block 1 design elements - (TR 2.1.1). Commence Wide</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>	Project (Number/Name) 0486 / <i>Tactical Support Center</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Band SatCom design utilizing technology that continues best optimizes data transfer rates - (TR 2.1.2 /Inc 3). Continue with development of Multiple Security level Enclaves, mature Higher than SECRET enclave's requirements analysis and design for TacMobile - (Inc 3). Continue defining Processing Exploitation and Dissemination support requirements for the wide range of P8A missions and Anti-Submarine Warfare and Intelligence Surveillance and Reconnaissance data elements - (Inc 3).					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	4.136	5.016	5.244	0.000	5.244

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• OPN/2246: <i>MPRF Mission Support</i>	14.390	13.725	13.501	-	13.501	13.823	14.164	14.462	14.751	Continuing	Continuing
• OPN/2906: <i>TacMobile</i>	16.766	13.600	16.041	-	16.041	17.239	17.006	17.367	17.716	Continuing	Continuing

Remarks

D. Acquisition Strategy

Evolutionary Acquisition - Increment 2.0 provided enhanced Beyond Line of Sight (BLOS) Global Information Grid (GIG) reach back capability, and supports Maritime Situational Awareness connectivity enhancements for data exchange with Maritime Patrol and Reconnaissance Force (MPRF) aircraft and with Coalition data networks. It incorporated Anti Submarine Warfare (ASW) acoustical analysis improvements and new P-3C aircraft ASW interfaces. Increment 2.1 supported migration to follow on Global Command and Control System - Maritime (GCCS-M) version 4.0.3 and introduction of the P-8A Poseidon. Tech Refresh 2.1.1 supports technical engineering changes associated with the introduction of P-8A Poseidon Increment 2, MQ-4C Triton, Advanced Airborne Sensor (AAS), migration to GCCS-M 4.1 Group Level, and transition to WIN7 baselines. Increment 3 will incorporate support for other Maritime Patrol and Reconnaissance Force (MPRF) Family of Systems (FOS) Aircraft Systems, as they transition to a Services Oriented Architecture (SOA).

E. Performance Metrics

The primary metrics utilized by the TacMobile program development process, include achieving/maintaining all required Interface Exchange Requirements (IER's) and successful achievement of 100% of Key Performance Parameters for incremental upgrade threshold capabilities, as observed by Commander Operational Test Force representatives during Operational Evaluation. TacMobile Inc 2.1 development supported increased IER requirements of 486% from 112 to 544. Development to support these new IER's tapered off in FY-12 as the Increment entered the Operational Evaluation Phase. Development focus then shifted to efforts required to retain fielded IER's and update IER's to comply with emerging and evolving standards associated with P-8A Poseidon Increment 2, and the MQ-4C Triton Unmanned Aerial System (UAS), other Maritime Patrol and Reconnaissance Force (MPRF) Family of Systems (FOS) Aircraft and Systems, and evolving operational employment

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
1319 / 5	PE 0604231N / <i>Tactical Command System</i>	0486 / <i>Tactical Support Center</i>

concepts. Increment 3 development will increase IER's by extending the TacMobile core to extend integrated capabilities into higher than SECRET enclaves and Services Oriented Architecture (SOA). The quantification of the increase in IER's will be dependent upon final requirements which are still being defined.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>	Project (Number/Name) 0486 / <i>Tactical Support Center</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary Hardware Development	C/CPFF	SSC LANT; TAPESTRY : Charleston, SC; Pax River, MD	8.280	0.928	Dec 2014	1.188	Dec 2015	1.387	Dec 2016	-		1.387	Continuing	Continuing	Continuing
Systems Engineering	C/CPFF	SSC LANT; TAPESTRY; BAH, Sentek : Charleston, SC; Pax River, MD; San Diego, CA	31.053	0.978	Dec 2014	1.398	Dec 2015	1.308	Dec 2016	-		1.308	Continuing	Continuing	Continuing
Training Development	C/CPFF	SSC LANT; TAPESTRY; Sentek : Charleston, SC; Pax River, MD; San Diego, CA	2.561	0.300	Dec 2014	0.300	Dec 2015	0.300	Dec 2016	-		0.300	Continuing	Continuing	Continuing
Software Development	C/CPFF	SSC LANT, TAPESTRY, BAH, Sentek : Charleston, SC; Pax River, MD; San Diego, CA	47.202	0.302	Dec 2014	0.402	Dec 2015	0.602	Dec 2016	-		0.602	Continuing	Continuing	Continuing
Integrated Logistics Support	C/CPFF	SSC LANT, TAPESTRY : Charleston, SC; Pax River, MD	1.250	0.225	Dec 2014	0.225	Dec 2015	0.225	Dec 2016	-		0.225	Continuing	Continuing	Continuing
Configuration Management	C/CPFF	SSC LANT, TAPESTRY : Charleston, SC; Pax River, MD	0.975	0.175	Dec 2014	0.175	Dec 2015	0.175	Dec 2016	-		0.175	Continuing	Continuing	Continuing
Technical Data	C/CPFF	SSC LANT, TAPESTRY : Charleston, SC; Pax River, MD	1.260	0.220	Dec 2014	0.220	Dec 2015	0.220	Dec 2016	-		0.220	Continuing	Continuing	Continuing
Studies & Analyses	C/CPFF	SSC LANT, TAPESTRY, Sentek : Pax River, MD; San Diego CA	0.825	0.100	Dec 2014	0.100	Dec 2015	0.100	Dec 2016	-		0.100	Continuing	Continuing	Continuing
Subtotal			93.406	3.228		4.008		4.317		-		4.317	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>	Project (Number/Name) 0486 / <i>Tactical Support Center</i>
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental Test & Evaluation	C/CPIF	SSC LANT; TAPESTRY : Charleston, NC; Pax River, MD	2.536	0.240	Dec 2014	0.340	Dec 2015	0.340	Dec 2016	-		0.340	Continuing	Continuing	Continuing
Operational Test & Evaluation	MIPR	OPTEVFOR; SSC LANT; TAPESTRY : Jacksonville, FL	5.706	0.157	Dec 2014	0.157	Dec 2015	0.157	Dec 2016	-		0.157	Continuing	Continuing	Continuing
Subtotal			8.242	0.397		0.497		0.497		-		0.497	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Contractor Engineering Support	C/CPIF	TAPESTRY BAH; Sentek : Pax River, MD; Charleston, SC; San Diego, CA	2.754	0.236	Dec 2014	0.215	Dec 2015	0.215	Dec 2016	-		0.215	Continuing	Continuing	Continuing
Government Engineering Support	WR	SSC LANT : Charleston, NC	1.932	0.127	Dec 2014	0.134	Dec 2015	0.134	Dec 2016	-		0.134	Continuing	Continuing	Continuing
Program Management Support	C/CPIF	SSC LANT; PMW750; BAH; TAPESTRY; Sentek : Charleston, NC; San Diego, CA	13.853	0.130	Dec 2014	0.144	Dec 2015	0.063	Dec 2016	-		0.063	Continuing	Continuing	Continuing
Travel	WR	PMW750 : San Diego, CA	0.228	0.018	Dec 2014	0.018	Dec 2015	0.018	Dec 2016	-		0.018	Continuing	Continuing	Continuing
Subtotal			18.767	0.511		0.511		0.430		-		0.430	-	-	-

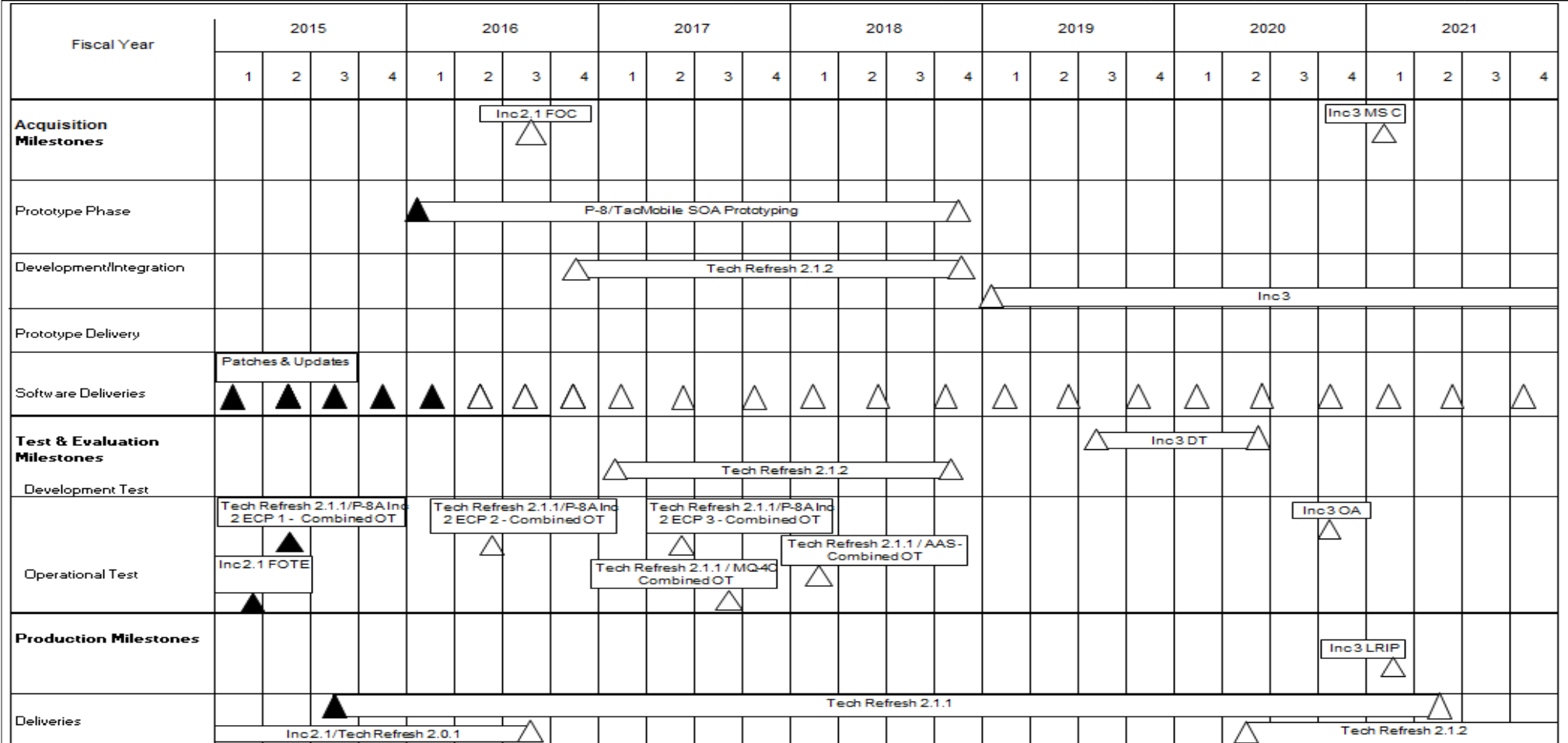
	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals		120.415	4.136	5.016	5.244	5.244	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>	Project (Number/Name) 0486 / <i>Tactical Support Center</i>
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Note: None Exhibit R-4, Schedule Profile

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 0486				
Software Delivery (Quarterly)	1	2015	4	2021
Increment 2.1 Delivery	1	2015	3	2016
Tech Refresh Delivery (TR 2.0.1)	1	2015	3	2016
Tech Refresh Delivery (TR 2.1.1)	3	2015	2	2021
Tech Refresh Delivery (TR 2.1.2)	2	2020	4	2021
Increment 3 Delivery (First LRIP unit)	4	2021	4	2021
Follow On Test and Evaluation (Increment 2.1)	1	2015	1	2015
Increment 2.1 FOC	3	2016	3	2016
Combined Operational Test (Tech Refresh 2.1.1)	2	2015	1	2018
Development (TR 2.1.2)	4	2016	4	2018
Developmental Test (Tech Refresh 2.1.2)	1	2017	4	2018
Prototyping (P-8/SOA)	1	2015	4	2018
Development (Increment 3)	1	2019	4	2021
Developmental Test (Increment 3)	3	2019	2	2020
Operational Assessment (Increment 3)	4	2020	4	2020
Milestone C (Increment 3)	1	2021	1	2021
Low Rate Initial Production (Increment 3)	1	2021	1	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>				Project (Number/Name) 2213 / <i>Mission Planning</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2213: <i>Mission Planning</i>	294.047	25.717	39.733	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	359.497
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Starting in FY17, Mission Planning (PU 2213) portion of the Tactical Command PE has been moved to Mission Planning PE (0605215N). The Joint Mission Planning System (JMPS) is the designated automated mission planning system for the Navy. JMPS enables weapon system employment by providing the information, automated tools, and decision aids needed to rapidly plan aircraft, weapon, or sensor missions, load mission data into aircraft and weapons, and conduct post-mission analysis. JMPS is a mission critical system which is a co-development effort between the United States Navy (USN) and United States Air Force (USAF). Common requirements are identified and capabilities are developed and prioritized in an evolutionary approach. An individual JMPS Mission Planning Environment (MPE) is a combination of the JMPS framework, common components, and the necessary system hardware required to satisfy mission planning objectives. Most Tactical Naval Aviation platforms are dependent solely on JMPS to plan precision guided munitions, sensor systems, tactical data links, secure voice communications, and basic Safety of Flight functions. Over 40 (T/M/S) naval aircraft are supported by JMPS. All T/M/S are required to transition to Microsoft Windows 7 due to End of Life (EOL) of Microsoft XP (April 2014) using Framework (FW) Version 1.3.5. Custom support for Windows XP is planned to allow remaining naval aircraft to be supported during the transition. Future JMPS platforms include; MQ-4C (Triton), P-8, and CH-53K. The re-architecture of JMPS will support net-centric goals by providing route "publish and subscribe" capabilities, transition to 64-bit allows for memory space expansion to accommodate future Microsoft Operating Systems, emerging technologies, and critical Cybersecurity updates. Funding profile includes JMPS baseline efforts for all existing T/M/S on Windows 7 32-bit framework while concurrently re-architecting to 64-bit framework. Increment 4 which encompasses 64-bit development requires complete software restructure to address memory limitations and system errors resulting in JMPS computer crashes. The transition from the current 32-bit architecture (4GB RAM) to a 64-bit architecture (196GB RAM) provides additional memory access, increased planning efficiencies; creating increased stability in the architecture resulting in fewer fleet memory crashes. Delaying JMPS 64-bit transition to the fleet will allow system crashes to continue.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: JMPS Framework (FW) & Common Components (CC) Development	10.551	18.358	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: Due to the end of Microsoft support for Windows XP in April 2014, JMPS framework (FW) is required to transition to Windows Operating System (OS) 7. FW Version 1.3.5 incorporates Windows OS 7 and provides additional capabilities for all naval aircraft to include air drop, air refueling and enhanced installation. Funding for FW will be used to support system engineering processes, management interface controls, software architectural analysis, requirements management and a centralized website for Mission Planning Environment (MPE) developers. FW 1.5 will be incorporated in future FW versions to address migration to .NET environment and to enable interoperability improvements through utilization of services. FW 64 bit development efforts commenced in FY14. If a transition to 64-Bit architecture is delayed or minimized, the fleet will experience					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>	Project (Number/Name) 2213 / <i>Mission Planning</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

increased mission planning interruptions (crashes) with future Mission Planning Environments (MPE) as a result of legacy and new 32-Bit applications shared utilization of the 4G RAM limitation associated with 32-bit operating system (64-Bit provides 192GB RAM). Additionally, as platform(s) requirements emerge for new and enhanced mission planning capabilities, the demand for more complex integrated applications and software products increases. Without this planned transition to a 64-Bit architecture, the volume of integrated mission planning capability for the fleet will be limited and restricted. Common Components software updates augment core mission planning capabilities across multiple T/M/S.

FY 2015 Accomplishments:

Initiation and development of the Joint Mission Planning System (JMPS) Increment 4 Framework 64-Bit transition development activities. The goal of this critical activity is to leverage the technical advantages of 64-bit technology in an effort to address current physical memory access and utilization limitations associated with the fielded Mission Planning Environment (MPE); thus eliminating systems interruptions (crashes) while increasing mission planning performance for the fleet. This effort will also specifically address continued obsolescence maintenance and cost issues associated with legacy 32-bit JMPS software and applications. The major events initiated under this activity include the re-coding of 2.38 million Source Lines of Code (SLOC) for the JMPS Framework Core (Basic Flight Planning Capabilities) and JMPS Framework Common Components for MPE/UPCs, including significant efforts for the F/A-18 A-F and E/A-18 G platforms.

FY 2016 Plans:

Continue the development of JMPS Increment 4 Core 64-bit Framework transition development activities. Major events include development of Cybersecurity safeguards, development of additional JMPS help features, and complex conversion of Source Lines of Code (SLOC) from Visual Basic to a newer .NET language for the JMPS Framework Core (Basic Flight Planning Capabilities) and JMPS Framework Common Components for MPE/UPCs, including significant efforts for the F/A-18 A-F platforms and E/A-18G. In addition, efforts include initiation of 64-bit transition development for JMPS Common Components used by multiple platforms. Common Components include Close-Air Support (CAS), Air Refueling, Air Drop, Intervisibility Mask (IVM), Global Positioning System (GPS) Crypto, and GPS Predictor capabilities. The transition of these Common Components is aligned to meet the platform(s) requirements for new and enhanced mission planning capabilities in a 64-bit environment. The Increment 4/64-bit transition is required to address current physical memory access and utilization limitations associated with the fielded Mission Planning Environment (MPE); thus eliminating system interruptions (crashes) while improving mission planning performance for the fleet.

FY 2017 Base Plans:

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p><i>(This area contains the detailed text from the previous blocks, which is truncated here for brevity in this table representation.)</i></p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>	Project (Number/Name) 2213 / <i>Mission Planning</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
FY 2017 OCO Plans: N/A					
Title: Joint Mission Planning System Expeditionary (JMPS-E)	0.740	0.660	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: JMPS Expeditionary (JMPS-E): The goal of the JMPS-E team is to produce a scalable, tailorable, mission planning and execution monitoring tool for Amphibious Squadron staffs. The primary focus of this system is to provide an automated capability to assist planners with mission analysis, course of action development and automated creation of doctrinal orders based on planning data in the system. Current expeditionary planning is done manually on paper charts. JMPS-E will provide a digital map enabling better response times to changing plans, easier distribution of planning artifacts and a reduction in human error during the planning process. The variety and geographically separated nature of forces involved with Ship to Shore Maneuver amplifies the need for web-based technologies to enable collaborative planning, improve overall situational awareness and enable the monitoring of mission execution from different locations. The primary outputs are tasking orders, route plans, battlespace geometries and decision briefs. The system will also incorporate modeling and simulation tools to rehearse and deconflict mission plans.					
FY 2015 Accomplishments: Develop, integrate and test JMPS-E MPE Versions 2.0.1 and 2.0.2.					
FY 2016 Plans: Complete development and intermediate testing of JMPS-E MPE Version 2.0.1. Development of JMPS-E MPE Version 2.1 (64-bit OS)					
FY 2017 Base Plans: N/A					
FY 2017 OCO Plans: N/A					
Title: Mission Planning Environment (MPE) Integration and Test	14.426	20.715	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: Mission Planning Environment (MPE) Integration and Test efforts support the Navy's developmental testing/operational testing, integration and system of system testing for MPE fielding. Efforts consist of integration of components provided by various developers into a platform-centric MPE and testing					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
of the integrated MPE. Life-cycle management, with MPE integration and testing results in a consistent and repeatable system configuration that enables stability and reliability. Due to the end of Microsoft support for Windows XP in April 2014, JMPS MPE's are currently in the process of transitioning to Windows Operating System (OS) 7; with custom support available for the transition of all remaining naval aircraft.					
<i>FY 2015 Accomplishments:</i> Integration and test of Mission Planning Environment (MPEs) in support of over 40 aircraft T/M/S and increased efforts associated with platform integration to meet Initial Operational Capability (IOC) which include Triton and CH-53K.					
<i>FY 2016 Plans:</i> Integration and test of MPEs in support of over 40 aircraft T/M/S. Triton and CH-53K platform integration to meet IOC. Initiation of efforts associated with JMPS 64-bit Framework segmentation efforts. Complete Joint Mission Planning System Windows 7 operating system transition for all platforms.					
<i>FY 2017 Base Plans:</i> N/A					
<i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	25.717	39.733	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPN/2876: <i>Naval Mission Planning Systems</i>	13.950	13.737	14.273	-	14.273	11.945	12.149	12.371	12.617	Continuing	Continuing
• RDTE/3858,5302,5380: <i>Air Force Mission Plng Systems</i>	60.679	55.835	78.323	-	78.323	75.567	75.113	87.771	0.000	Continuing	Continuing

Remarks

D. Acquisition Strategy

Engineering Manufacturing Development efforts: The strategy entails a two-phased evolutionary approach to acquire the initial Joint Mission Planning System (JMPS) development effort. Phase I was a combined United States Air Force (USAF) / United States Navy (USN) effort that obtained various studies, extensive joint requirements analysis, design to cost estimates, an architecture concept, and development statement of work. The Program's Phase I was planned to identify reduced

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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costs strategies through software reuse from both USN Tactical Automated Mission Planning Systems and USAF Air Force Mission Support Systems (AFMSS) legacy mission planning programs. Additionally, this phase provided a risk reduction plan by identifying the most effective migration of existing mission planning systems. Phase I was awarded to two contractors, Post Phase I during the down select process, one contractor was selected to develop the JMPS architecture work and Version 1.0 basic flight planning components. Phase II focused on strike planning requirements (i.e., support Precision Guided Missions and other tactical data load intensive missions) in order to migrate platforms from legacy mission planning systems to JMPS. The USAF continued development of JMPS Version 1.3 and has contractual control of the program which is facilitated via a Mission Planning Enterprise Contract. The USN continued limited development in JMPS Version 1.2 which was focused on helicopter platform migrations. USN integration and fielding strategy changed to support a Mission Planning Environment focus, where framework and common components are integrated as bundled packages and fielded by airwings. The completion of Phase II is targeted for Joint Mission Planning System (JMPS) Version 1.3.5, which focuses on a transition to Windows 7 that both the USAF and USN will use. As platforms plan their migration to JMPS, the acquisition strategy, plan, and baseline will be updated in order to drive the retirement of legacy mission planning systems.

E. Performance Metrics

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

Objective value is < 30 minutes average time to plan a flight that includes a MTR, routing to and from the MTR, kneeboard card production, IFR flight planning materials and a DTD Load.

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

Objective value is 100% of top level IERs will be satisfied.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary Software Development/Framework and Common Components (FW/CC 64 bit)	C/CPFF	GTRI : Atlanta, GA	0.000	3.900	Jan 2015	4.208	Feb 2016	0.000		-		0.000	0.000	8.108	8.108
Primary Software Development/Framework Common Comp	C/CPFF	Northrop Grumman : Long Beach, CA	0.000	4.500	Jul 2015	2.000	Apr 2016	0.000		-		0.000	0.000	6.500	6.500
Primary Software Development/Framework and Common Components (FW/CC 64 bit)	TBD	TBD : TBD	0.000	0.000		12.150	Feb 2016	0.000		-		0.000	0.000	12.150	12.150
Primary Software Development/Joint Mission Planning System Expeditionary (JMPS-E)	MIPR	USAF : Hanscom AFB, MA	5.762	0.150	Feb 2015	0.050	Feb 2016	0.000		-		0.000	0.000	5.962	5.962
Award Fees	MIPR	Various : Various	1.928	0.050	Feb 2015	0.019	Jan 2016	0.000		-		0.000	0.000	1.997	1.997
Primary Software Development	Various	Various : Various	25.867	2.101	Jan 2015	1.515	Jan 2016	0.000		-		0.000	0.000	29.483	29.483
Primary Software Development Mission Planning Systems FW(32/64-bit)	C/CPFF	American Electronic Warfare Associates : California, MD	2.899	0.000		0.000		0.000		-		0.000	0.000	2.899	2.899
Prior years Prod Dev No Longer Funded in FYDP	Various	Various : Various	105.870	0.000		0.000		0.000		-		0.000	0.000	105.870	-
Subtotal			142.326	10.701		19.942		0.000		-		0.000	0.000	172.969	-

Remarks
 FY15-16 Primary Software Development/Framework (FW/CC 64 bit) initiation and development of the JMPS Framework Core and Common Components 64-bit transition development activities. In FY16, the Primary Software Development contract will be a competitive award. The performing activity and location are currently TBD due to the competitive contracting strategy.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Integrated Logistics Support	WR	NAWCWD : Point Mugu, CA	1.852	0.454	Nov 2014	0.461	Nov 2015	0.000		-		0.000	0.000	2.767	-
Prior Years Support No Longer Funded in FYDP	Various	Various : Various	13.514	0.000		0.000		0.000		-		0.000	0.000	13.514	-
Subtotal			15.366	0.454		0.461		0.000		-		0.000	0.000	16.281	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
System Eng Integration & Test	WR	NAWCWD : Point Mugu, CA	94.456	10.866	Nov 2014	15.536	Nov 2015	0.000		-		0.000	0.000	120.858	-
Test & Evaluation	WR	COMOPTEVFOR : Norfolk, VA	4.467	0.948	Nov 2014	1.347	Nov 2015	0.000		-		0.000	0.000	6.762	-
Subtotal			98.923	11.814		16.883		0.000		-		0.000	0.000	127.620	-

Remarks
System Eng Integration & Test (NAWCWD) increase in FY16 to meet new platform (CH-53K and Triton) Initial Operational Capability (IOCs) and 64-bit development efforts.

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support and Travel	WR	NAWCAD : Patuxent River, MD	37.432	2.748	Nov 2014	2.447	Nov 2015	0.000		-		0.000	0.000	42.627	-
Subtotal			37.432	2.748		2.447		0.000		-		0.000	0.000	42.627	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			294.047	25.717	39.733	0.000	-	0.000	0.000	359.497	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>	Project (Number/Name) 2213 / <i>Mission Planning</i>
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Mission Planning	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestones																												
System Development																												
Software Development	FW 64 Bit Architecture Development																											
Test and Evaluation																												
Technical Evaluation	V1.3.5 MPE Integration/Validation																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>	Project (Number/Name) 2213 / <i>Mission Planning</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Mission Planning</i>				
System Development: Software Development: JMPS FW 64 Bit Architecture Development	1	2015	4	2016
Test and Evaluation: Technical Evaluation: JMPS V1.3.5 Mission-Planning Environment (MPE) Integration/Validation	1	2015	4	2016

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>				Project (Number/Name) 3032 / <i>NTCSS (Naval Tactical Command Spt Sys)</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3032: <i>NTCSS (Naval Tactical Command Spt Sys)</i>	69.107	4.216	8.157	13.610	-	13.610	14.618	12.431	4.849	4.961	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Project budget increase from FY 2016 to FY 2017 is necessary to conduct Developmental Testing (DT) of Beyond Capability of Maintenance (BCM) Interdiction and Global Individual Component Repair List (Global-ICRL) and to conduct DT and Operational Testing (OT) for Operational Supply (O-Supply) to include Table Of Allowance & Personal Gear Issue TOA/PGI; and Total Material Visibility & Requisition Management (TMV/RM).

A. Mission Description and Budget Item Justification

The Naval Tactical Command Support System (NTCSS) is a multi-function program designed to provide standard tactical support information systems to various afloat and associated shore-based fleet activities. The mission is to provide the Navy and Marine Corps with an integrated, scalable system that supports the management of logistical information, personnel, material and funds required to maintain and operate ships, submarines, and aircraft. FY2017 Funding:

- (1) Provides for the design, development, and testing of NTCSS OA development efforts to include: Global Individual Component Repair List (Global-ICRL); Beyond Capability of Maintenance Interdiction (BCM-I); Operational Supply (O-Supply) to include Table Of Allowance & Personal Gear Issue TOA/PGI; and Total Material Visibility & Requisition Management (TMV/RM).
- (2) Provides for the transition of the current, client-server architecture to a service-oriented architecture (SOA) and web-based services (NTCSS OA). This will align with the initiative to bring Navy systems into a common computing environment afloat, interface with Navy Enterprise Resource Planning (ERP) ashore, and provide a more flexible system platform with greater responsiveness to security, information assurance, functional, and system requirements and with greater speed to capability.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: NTCSS (Naval Tactical Command Spt Sys)	4.216	8.157	13.610	0.000	13.610
Articles:	-	-	-	-	-
Description: Maintenance and Supply Management Capability					
FY 2015 Accomplishments:					
Continued design, development, and testing efforts for NTCSS Open Architecture (OA), to include Global Individual Component Repair List (Global-ICRL); Beyond Capability of Maintenance (BCM) Interdiction; Operational Supply (O-Supply) to include Table Of Allowance & Personal Gear Issue TOA/PGI; and Total Material Visibility & Requisition Management (TMV/RM), and software code conversion of NTCSS legacy					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
software code to a modern JAVA-based system. Conducted pre-acquisition activities for open architecture follow-on efforts.					
<i>FY 2016 Plans:</i> Complete development of Beyond Capability of Maintenance (BCM) Interdiction design, continue design, development, and testing efforts for NTCSS Open Architecture (OA), to include Global Individual Component Repair List (Global-ICRL); Operational Supply (O-Supply) to include Table Of Allowance & Personal Gear Issue TOA/PGI; and Total Material Visibility & Requisition Management (TMV/RM), and software code conversion of NTCSS legacy software code to a modern JAVA-based system. Conduct pre-acquisition activities for open architecture follow-on efforts.					
<i>FY 2017 Base Plans:</i> Conduct Developmental Testing (DT) of Beyond Capability of Maintenance (BCM) Interdiction and Global Individual Component Repair List (Global-ICRL). Conduct DT and Operational Testing (OT) for Operational Supply (O-Supply) to include Table Of Allowance & Personal Gear Issue TOA/PGI; and Total Material Visibility & Requisition Management (TMV/RM). Continue software code conversion of the Relational Supply (RSupply) application and the Relational Administrative Data Management (R-ADM) software applications. Commence software conversion efforts for Optimized Intermediate Maintenance Activity (OIMA) and Optimized Organizational Maintenance Activity (OOMA) Naval Aviation Logistics Command Management Information System (NALCOMIS) applications, converting six million lines of NTCSS legacy software code to a modern JAVA-based system providing a more flexible system platform with greater responsiveness to security, information assurance, functional, and system requirements and with greater speed to capability. Conduct pre-acquisition activities for open architecture follow-on efforts.					
<i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	4.216	8.157	13.610	0.000	13.610

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPN/2611: <i>Naval Tactical Command Support System</i>	8.066	14.416	12.336	-	12.336	10.519	9.764	17.563	17.934	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

D. Acquisition Strategy

NTCSS Open Architecture (OA) Interim Solutions (Global Individual Component Repair List (G-ICRL), Beyond Capability of Maintenance Interdiction (BCM-I), Table Of Allowance (TOA), Personal Gear Issue (PGI), Total Material Visibility (TMV), and Requisition Management (RM) serve as the initial steps toward achieving the NTCSS OA "End-State" by introducing web-enabled technology, promoting data sharing with operational fleet forces, and utilization of Navy Data Centers to expose data and move workload ashore. Additionally, the software code conversion efforts will start the modernization of legacy code-based applications into a more modern JAVA code-base incorporating current Information Technology (IT) best practices and eliminating current IA vulnerabilities experienced with a client/server system. This strategy provides the foundation for NTCSS programs to migrate to a full Service Oriented Architecture (SOA) based enterprise system.

E. Performance Metrics

NTCSS Open Architecture (OA) Interim Solutions (G-ICRL/BCM-I) eliminate documentation inefficiencies at the Fleet Readiness Centers (FRCs). Interim Solutions (TOA/PGI & TMV/RM) provide centralized and standardized management of PGI and TOA material through the utilization of Navy Data Centers, while at the same time preventing millions of dollars in Operational Forces obligation losses through improved Requisition Management. Additionally the software code conversion efforts will lay the foundation for migration to a Service-Oriented Architecture (SOA) for NTCSS lowering system maintenance costs when compared to maintaining the current, client-server architecture.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary Hardware Development	WR	SSC : North Charleston, SC	0.668	0.000		0.000		0.000		-		0.000	0.000	0.668	0.668
Systems Engineering	C/CPFF	SeaPort : San Diego, CA	2.763	0.275	Nov 2014	0.280	Nov 2015	0.430	Nov 2016	-		0.430	Continuing	Continuing	Continuing
Licenses	Various	SSC : San Diego, CA	0.700	0.000		0.000		0.000		-		0.000	0.000	0.700	0.700
Software Development	C/CPFF	SSC : SSC: Norfolk, VA	58.787	3.219	Jan 2015	2.396	Feb 2016	4.100	Feb 2017	-		4.100	Continuing	Continuing	Continuing
Software Development	C/CPFF	TBD : San Diego, CA	0.000	0.000		4.713	Mar 2016	8.230	Feb 2017	-		8.230	Continuing	Continuing	Continuing
Integrated Logistics Support	C/CPFF	SeaPort : San Diego, CA	0.986	0.165	Nov 2014	0.204	Nov 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Configuration Management	WR	SSC : San Diego, CA	0.460	0.000		0.000		0.000		-		0.000	0.000	0.460	0.460
Technical Data	WR	SSC : San Diego, CA	0.200	0.000		0.000		0.000		-		0.000	0.000	0.200	0.200
Subtotal			64.564	3.659		7.593		12.760		-		12.760	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental Test & Evaluation	WR	NAWC : Patuxent River, MD	1.003	0.132	Jan 2015	0.120	Jan 2016	0.120	Nov 2016	-		0.120	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	SPAWAR FRD : San Diego, CA	0.000	0.000		0.000		0.420	Nov 2016	-		0.420	0.000	0.420	-
Operational Test & Evaluation	C/CPIF	COTF : Norfolk, VA	0.935	0.244	Jan 2015	0.244	Dec 2015	0.110	Nov 2016	-		0.110	Continuing	Continuing	Continuing
Subtotal			1.938	0.376		0.364		0.650		-		0.650	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

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Fiscal Year	2015				2016				2017				2018				2019				2020				2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones											Rel 1/2 FD △	Rel 3/4 FD △																
NTCSS Open Architecture (OA)																												
Engineering Milestones																												
NTCSS OA Release 1 BCM-Interdiction		PDR/CDR △		TRR △																								
NTCSS OA Release 2 Global ICRL		PDR/CDR △				TRR △	RRR △																					
NTCSS OA Release 3 Operational Supply (TOA/PGI)	SFR △		PDR/CDR △																									
NTCSS OA Release 4 Operational Supply (TMV/RM)			SFR △			PDR/CDR △		TRR △		RRR △																		
NTCSS Web-Enabled (RADM/RSUP/OIMA/OOMA)															RADM RRR △	RSUP RRR △							OIMA/OOMA RRR △					
Test & Evaluation Milestones											Rel 1/2 DT △	Rel 3/4 DT △	R-3/4OT △															
NTCSS OA																												
Software Deliveries																												
NTCSS OA											Rel 1/2 △	Rel 3/4 △																
NTCSS Web-Enabled																	RADM △	RSUP △							OIMA/OOMA △			

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>	Project (Number/Name) 3032 / <i>NTCSS (Naval Tactical Command Spt Sys)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3032				
NTCSS OA Build 1 - Preliminary Technical Review (PDR) / Critical Design Review (CDR)	2	2015	2	2015
NTCSS OA Build 1 - Test Readiness Review (TRR)	4	2015	4	2015
NTCSS OA Build 1 - Release Readiness Review (RRR)	3	2016	3	2016
NTCSS OA Build 1 - Development Test (DT)	4	2016	4	2016
NTCSS OA Build 1 - Software Delivery	3	2017	3	2017
NTCSS OA Build 2 - Preliminary Technical Review (PDR) / Critical Design Review (CDR)	2	2015	2	2015
NTCSS OA Build 2 - Test Readiness Review (TRR)	2	2016	2	2016
NTCSS OA Build 2 - Release Readiness Review (RRR)	3	2016	3	2016
NTCSS OA Build 2 - Development Test (DT)	4	2016	4	2016
NTCSS OA Build 2 - Software Delivery	3	2017	3	2017
NTCSS OA Build 3 - System Functional Review (SFR)	1	2015	1	2015
NTCSS OA Build 3 - Preliminary Technical Review (PDR) / Critical Design Review (CDR)	3	2015	3	2015
NTCSS OA Build 3 - Test Readiness Review (TRR)	3	2016	3	2016
NTCSS OA Build 3 - Release Readiness Review (RRR)	4	2016	4	2016
NTCSS OA Build 3 - Development Test (DT)	1	2017	1	2017
NTCSS OA Build 3 - Operational Test (OT)	2	2017	2	2017
NTCSS OA Build 3 - Software Delivery	4	2017	4	2017
NTCSS OA Build 4 - System Functional Review (SFR)	3	2015	3	2015

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>	Project (Number/Name) 3032 / <i>NTCSS (Naval Tactical Command Spt Sys)</i>

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
NTCSS OA Build 4 - Preliminary Technical Review (PDR) / Critical Design Review (CDR)	1	2016	1	2016
NTCSS OA Build 4 - Test Readiness Review (TRR)	3	2016	3	2016
NTCSS OA Build 4 - Release Readiness Review (RRR)	4	2016	4	2016
NTCSS OA Build 4 - Development Test (DT)	1	2017	1	2017
NTCSS OA Build 4 - Operational Test (OT)	2	2017	2	2017
NTCSS OA Build 4 - Software Delivery	4	2017	4	2017
NTCSS Web-Enabled RADM - Release Readiness Review (RRR)	1	2019	1	2019
NTCSS Web-Enabled RADM - Software Delivery	2	2019	2	2019
NTCSS Web-Enabled RSUP - Release Readiness Review (RRR)	2	2019	2	2019
NTCSS Web-Enabled RSUP - Software Delivery	3	2019	3	2019
NTCSS Web-Enabled OIMA/OOMA - Release Readiness Review (RRR)	2	2020	2	2020
NTCSS Web-Enabled OIMA/OOMA - Software Delivery	3	2020	3	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>				Project (Number/Name) 3320 / <i>TRIDENT Warrior</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3320: <i>TRIDENT Warrior</i>	9.087	2.218	2.205	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	13.510
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Trident Warrior (TW) was transferred from 0604231N to 0606355N from FY17 forward.

A. Mission Description and Budget Item Justification

TW enables early delivery of Information Dominance (ID) capabilities to the warfighter via Fleet-directed TW operational events. Integrates stand-alone systems and efforts to achieve substantially enhanced capability, demonstrates/tests these capabilities in both laboratory and operational environments, and evaluates their effectiveness. Develops supporting concepts and Concept of Operations to improve warfighting effectiveness. Coordinates ID efforts with other Service/Joint/Department of Defense/National efforts to ensure Joint/Interagency/Allied/Coalition applicability and interoperability.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Trident Warrior	2.218	2.205	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					
-Finalized analysis of TW 14 executed experiment in order to determine recommended next steps for Naval Warfare Development Center (NWDC).					
-Explored TW 15 in Fleet Forces Command Area of Responsibility (AOR) using Carrier Strike Group/ Expeditionary Strike Group (CSG/ESG) units with possible Allied/Coalition presence.					
-Coordinated TW participant efforts with specific goal identification, risk identification, and experiment plans to include data requirements and collection, on schedule and in accordance with standardized procedures derived from experimentation best practices.					
-Coordinated TW participant efforts to achieve required installation and security certifications, accreditations and approvals.					
-Provided subject matter experts (SMEs) for core ship services during the experimentation period.					
-Provided independent experts to coordinate the establishment of, and compliance with, experiment plans and to lead analysis effort and provided unbiased assessment to decision makers for initiatives designated by NWDC.					
-Provided results to government sponsors to support the program's Planning, Programming, Budgeting, and Execution Process (PPBE) and engineering recommendations.					
-Planned and executed TW 15 operational events to accelerate the transition of ID capability to the Fleet.					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>	Project (Number/Name) 3320 / <i>TRIDENT Warrior</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>-Solicited participation for Trident Warrior (TW) 16 and recommended inclusion of technologies responsive to identified Naval Capability Gaps. Selected technologies for participation in numbers supportable within resources.</p> <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> -Conduct analysis of TW 15 executed experiments in order to determine recommended next steps for Naval Warfare Development Center (NWDC). -In accordance with standardized procedures derived from experimentation best practices, coordinate TW participant efforts with specific goal identification, risk identification, and experiment plans to include data requirements and collection. -Coordinate TW participant efforts to achieve required installation and security certifications, accreditations and approvals. -Provide subject matter experts (SMEs) for core ship services during the experimentation period. -Provide independent experts to coordinate the establishment of, and compliance with, experiment plans and to lead analysis effort and provide unbiased assessment to decision makers for initiatives designated by NWDC. -Provide results to government sponsors to support the program's Planning, Programming, Budgeting, and Execution Process (PPBE) and engineering recommendations. -Plan and execute TW 16 operational events to accelerate the transition of Information Dominance (ID) capability to the Fleet. -Solicit participation for TW 17 and recommend inclusion of technologies responsive to identified Naval Capability Gaps. -Provide subject matter expertise, analysis, and recommendations in order help select technologies for participation in numbers supportable within resources. <p>FY 2017 Base Plans: TW was transferred from 0604231N to 0606355N from FY17 forward.</p> <p>FY 2017 OCO Plans: N/A</p>					
Accomplishments/Planned Programs Subtotals	2.218	2.205	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)
N/A

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>	Project (Number/Name) 3320 / <i>TRIDENT Warrior</i>
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D. Acquisition Strategy

TW is an annual operational experiment covering an 18-month process and is not associated with acquisition efforts.

E. Performance Metrics

Confirmation of Fleet and Joint Interoperability with technology candidates, Information Assurance Certification and Accreditation, and alignment with United States Fleet Forces (USFF) Commander's Guidance, and Systems Command (SYSCOM) Chief Engineer (CHENG) as well as related Program Executive Office (PEO) objectives and projected architectures.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>	Project (Number/Name) 3320 / <i>TRIDENT Warrior</i>
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Trident Warrior (TW)	WR	Fleet Forces Command : San Diego, CA	0.122	0.000		0.000		0.000		-		0.000	0.000	0.122	-
Trident Warrior (TW)	WR	Naval Postgraduate School : Monterey, CA	3.038	0.909	Nov 2014	0.000		0.000		-		0.000	0.000	3.947	-
Trident Warrior (TW)	WR	SSC Atlantic : Charleston, SC	0.736	0.045	Jan 2015	0.000		0.000		-		0.000	0.000	0.781	-
Trident Warrior (TW)	WR	SSC Pacific : San Diego, CA	1.342	0.333	Nov 2014	0.331	Nov 2015	0.000		-		0.000	2.006	4.012	-
Trident Warrior (TW)	C/CPFF	AUSGAR Technologies Inc. : San Diego, CA	3.849	0.931	Apr 2015	1.301	Apr 2016	0.000		-		0.000	6.082	12.163	-
Trident Warrior (TW)	WR	NSWC Corona : Corona, CA	0.000	0.000		0.295	Nov 2015	0.000		-		0.000	0.295	0.590	-
Trident Warrior (TW)	C/CPFF	Pacific Science & Engineering Group, Inc. : San Diego, CA	0.000	0.000		0.108	Nov 2015	0.000		-		0.000	0.108	0.216	-
Trident Warrior (TW)	C/CPFF	Science Applications International Corp : McLean, VA	0.000	0.000		0.170	Dec 2015	0.000		-		0.000	0.170	0.340	-
Subtotal			9.087	2.218		2.205		0.000		-		0.000	8.661	22.171	-
Project Cost Totals			9.087	2.218		2.205		0.000		-		0.000	8.661	22.171	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy

Date: February 2016

Appropriation/Budget Activity
1319 / 5

R-1 Program Element (Number/Name)
PE 0604231N / *Tactical Command System*

Project (Number/Name)
3320 / *TRIDENT Warrior*

Fiscal Year	2015				2016				2017				2018				2019				2020				2021			
	QTR	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4			
Trident Warrior (TW)																												
TW [CFY] Execution		▲	▲	▲				△	△																			
TW Land Based E2C Experiments	▲		▲			▲		△	△																			
TW [CFY+1] Concept Development Conferences		▲						△																				
TW [CFY +1] Data Calls & CAA		▲						△																				
TW [CFY +1] Initial Planning Conferences				▲					△																			
TW [CFY] Mid Term Planning Conferences	▲				▲																							
TW [CFY] Final Planning Conferences		▲						△																				
TW [CFY] Military Utility Assessment				▲					△																			

Note: CFY: Current Fiscal Year

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>	Project (Number/Name) 3320 / <i>TRIDENT Warrior</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3320				
Trident Warrior (TW) Execution 2015	2	2015	3	2015
Trident Warrior (TW) Execution 2016	2	2016	3	2016
TW Land Based E2C Experiments 2015 Q1	1	2015	1	2015
TW Land Based E2C Experiments 2015 Q3	3	2015	3	2015
TW Land Based E2C Experiments 2016 Q1	1	2016	1	2016
TW Land Based E2C Experiments 2016 Q3	3	2016	3	2016
TW Concept Development Conferences 2015	2	2015	2	2015
TW Concept Development Conferences 2016	2	2016	2	2016
TW Data Calls & CAA 2015	2	2015	2	2015
TW Data Calls & CAA 2016	2	2016	2	2016
TW Initial Planning Conferences 2015	4	2015	4	2015
TW Initial Planning Conferences 2016	4	2016	4	2016
TW Mid-Term Planning Conferences 2015	1	2015	1	2015
TW Mid-Term Planning Conferences 2016	1	2016	1	2016
TW Final Planning Conferences 2015	2	2015	2	2015
TW Final Planning Conferences 2016	2	2016	2	2016
TW Military Utility Assessment 2015	4	2015	4	2015
TW Military Utility Assessment 2016	4	2016	4	2016

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>				Project (Number/Name) 3323 / <i>Maritime Tactical Command & Control (MTC2)</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3323: <i>Maritime Tactical Command & Control (MTC2)</i>	18.998	11.859	15.262	14.293	-	14.293	22.557	21.113	21.528	21.966	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Maritime Tactical Command and Control (MTC2) is a software program which will provide tactical command and control capabilities and maritime unique operational level of war capabilities not supported by the joint C2 effort. MTC2 will align with the Navy Tactical Cloud (NTC) when available and leverage Consolidated Afloat Network Enterprise Service (CANES), Agile Core Services (ACS), and legacy Integrated Shipboard Network System (ISNS) in order to field to all echelons of command (afloat and ashore) within the Navy. The program's objective is to provide a suite of maritime applications that enable enhanced situational awareness, planning, execution, monitoring, and assessment in support of operational and tactical level of war requirements. MTC2 will field maritime applications designed to provide automated and structured support for tactical and operational planning, decision-making, and execution.

Global Force Management - Data Initiative (GFM-DI) is the Department-wide enterprise solution that enables visibility/accessibility/sharing of data applicable to the entire DoD force structure. MTC2 will be the program that fulfills a portion of the Navy's GFM-DI requirements.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Maritime Tactical Command and Control (MTC2)	9.962	13.382	12.860	0.000	12.860
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					
Completed Information Systems - Capability Development Document (IS-CDD) and Capability Drop 1 requirements documents (capabilities defined in Capability Drop 1 will be fielded in FY 2018 as MTC2 Build 1 (B1)). Completed MTC2 B0 software development for alignment to the FY 2016 Navy Tactical Command (NTC) test event.					
FY 2016 Plans:					
Begin pre-acquisition documentation in support of Milestone B for Build 1 (B1) and Build 2 (B2) in FY 2017. Complete Information Assurance (IA) certification and accreditation to support NTC test event. Conduct testing in support of MTC2 NTC risk reduction activities.					
FY 2017 Base Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>	Project (Number/Name) 3323 / <i>Maritime Tactical Command & Control (MTC2)</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Continue risk reduction activities and finalize pre-acquisition documentation in support of Milestone B for B1 and B2. Award contract and B1 delivery order to begin MTC2 software development. Initiate Tactical Decision Aids and Planning Tools design and development. Begin development of MTC2 capabilities for Ballistic Missile Defense Tracks Situation Awareness and AEGIS interfaces. FY 2017 OCO Plans: N/A					
Title: Global Force Management - Data Initiative (GFM-DI) FY 2015 Accomplishments: Mapped MTC2 requirements to GFM-DI. Received approval for GFM-DI Implementation Plan. FY 2016 Plans: Conduct integration and testing of designated GFM-DI capabilities for translation into the MTC2 Build 1 (B1) software baseline. FY 2017 Base Plans: Continue integration and testing of designated GFM-DI capabilities for translation into the MTC2 B1 software baseline, which will be part of the capabilities being developed for MTC2 in the B1 Final Architecture and Milestone B decision. FY 2017 OCO Plans: N/A	1.897	1.880	1.433	0.000	1.433
Articles:	-	-	-	-	-
Accomplishments/Planned Programs Subtotals	11.859	15.262	14.293	0.000	14.293

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

MTC2 acquisition strategy will align to DoDI 5000.02 Model 3 Incrementally Deployed Software Intensive Program. MTC2 will execute a rapid software development acquisition strategy that is responsive to the fleet needs. Software development will be comprised of multiple builds defined by Capability Drops (CDs) of increasing levels of net-centric services capability. MTC2 will remain in the Risk Reduction prototype phase until Milestone B scheduled in FY 2017. MTC2 will be software only requiring the information technology infrastructure network and hardware provided by other network centric programs. MTC2's primary contracting method for software

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>	Project (Number/Name) 3323 / <i>Maritime Tactical Command & Control (MTC2)</i>

development will utilize SPAWARSSYSCOM contracts. SPAWAR Systems Center - Pacific (SSC-PAC), San Diego, CA will be the Lead System Integrator as the designated Software Support Activity (SSA).

E. Performance Metrics

MTC2 performance metrics will be defined and approved during Milestone B scheduled for FY 2017.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
1319 / 5				PE 0604231N / Tactical Command System				3323 / Maritime Tactical Command & Control (MTC2)							
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	SSC : Norfolk, VA/ San Diego, CA	3.809	1.265	Dec 2014	1.618	Dec 2015	3.776	Dec 2016	-		3.776	Continuing	Continuing	Continuing
Training Development	WR	SSC : San Diego, CA	0.828	0.424	Dec 2014	0.543	Dec 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Integration, Assembly & Test	WR	SSC : San Diego, CA	8.412	5.517	Dec 2014	7.146	Dec 2015	2.288	Dec 2016	-		2.288	Continuing	Continuing	Continuing
Studies & Design	MIPR	Various : Various	1.764	0.000		0.000		0.000		-		0.000	0.000	1.764	1.764
Systems Engineering	C/CPFF	Various : San Diego, CA	1.523	3.516	Mar 2015	4.504	Mar 2016	2.132	Dec 2016	-		2.132	Continuing	Continuing	Continuing
Software Development	C/CPIF	TBD : TBD	0.000	0.000		0.000		3.639	Mar 2017	-		3.639	Continuing	Continuing	Continuing
Software Development	WR	SSC : San Diego, CA	0.000	0.000		0.000		0.695	Dec 2016	-		0.695	0.000	0.695	-
Subtotal			16.336	10.722		13.811		12.530		-		12.530	-	-	-
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics Support	WR	SSC : Norfolk, VA/ San Diego, CA	0.047	0.000		0.000		0.127	Dec 2016	-		0.127	Continuing	Continuing	Continuing
Subtotal			0.047	0.000		0.000		0.127		-		0.127	-	-	-
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support	WR	SSC : San Diego, CA	0.459	0.226	Dec 2014	0.289	Dec 2015	0.000		-		0.000	0.000	0.974	0.974
Contractor Engineering Support	C/CPFF	SeaPort : San Diego, CA	0.476	0.000		0.000		0.225	Dec 2016	-		0.225	Continuing	Continuing	Continuing
Program Management Support	C/CPFF	SeaPort : San Diego, CA	1.642	0.911	Dec 2014	1.162	Dec 2015	0.855	Dec 2016	-		0.855	Continuing	Continuing	Continuing

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>	Project (Number/Name) 3323 / <i>Maritime Tactical Command & Control (MTC2)</i>

Fiscal Year	2015				2016				2017				2018				2019				2020				2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones				IS-CDD △						MS B △																		
Engineering Milestones						MTC2-B0 Final Architecture/Design △				MTC2-B1 Final Architecture △																		
Software Deliveries						MTC2-B0 Drop △																						
Test & Evaluation Milestones																												
Navy Tactical Cloud Events								NTC Test △																				

EXHIBIT R-4, Schedule Profile

Legend: B - Build IS-CDD - Information Systems - Capability Development Document LFD - Limited Field Decision MTC2 - Maritime Tactical Command and Control	MTC2 B0 - NTC Software NTC - Navy Tactical Cloud OT - Operational Test RFP - Request for Proposal
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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>	Project (Number/Name) 3323 / <i>Maritime Tactical Command & Control (MTC2)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3323				
Information Systems - Capability Development Document (IS-CDD)	4	2015	4	2015
MTC2 Build 0 (B0) Drop	1	2016	1	2016
MTC2 B0 Final Architecture/Design	2	2016	2	2016
Naval Tactical Cloud (NTC) Test	4	2016	4	2016
MTC2 Build 1 (B1) Final Architecture	2	2017	2	2017
Milestone B (MS B)	2	2017	2	2017
Request For Proposal (RFP) Award	2	2017	2	2017
MTC2 B1 Drop	3	2018	3	2018
B1 Operational Test (OT)	2	2019	2	2019
MTC2 Build 2 (B2) Drop	2	2019	2	2019
B1 Limited Fielding Decision (LFD)	2	2019	2	2019
B2 OT	1	2020	1	2020
B2 LFD	1	2020	1	2020
MTC2 Build 3 (B3) Drop	3	2020	3	2020
B3 LFD	3	2021	3	2021
B3 OT	3	2021	3	2021
MTC2 Build 4 (B4) Drop	4	2021	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>				Project (Number/Name) 3324 / <i>Navy Air Operations Command and Control (NAOC2)</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3324: <i>Navy Air Operations Command and Control (NAOC2)</i>	10.496	1.784	0.801	0.999	-	0.999	1.043	1.010	1.028	1.050	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Navy Air Operations Command and Control (NAOC2) integrates and tests Air Force program of record systems that provide an integrated and scalable planning system for standardized, secure, and automated decision support for Air Force, Joint, and Allied commanders worldwide. These programs provide automated air operations planning, execution management and intelligence capabilities at the Force level to include fleet commanders, numbered fleet commanders, Commander Carrier Strike Groups, Commander Expeditionary Strike Groups, Commander Landing Forces, and Joint Task Force Commanders. NAOC2 includes Theater Battle Management Core System (TBMCS) and Command and Control Air and Space Operations Suite - Command and Control Information Services (C2AOS-C2IS). C2AOS-C2IS is being developed as a Service Oriented Architecture (SOA) service to allow for scalability and integration with Common Computing Environments (CCE). Continuation of these efforts will significantly enhance the Joint Force Air Component Commander and Combined Air Operations Center personnel to plan daily air operations including strike, airlift, offensive/defensive air, and refueling missions in support of combat operations, addressing the requirement of war fighter distributed planning and execution processes along with significantly improving Joint interoperability. TBMCS continues a hardware transition to CCEs such as Consolidated Afloat Networks and Enterprise Services (CANES). Currently, TBMCS is the key system that is used to conduct real world air planning in the Joint and Navy environments. C2AOS-C2IS will replace TBMCS in a SOA environment while bringing more flexibility to the war fighter. In FY2017, the program will continue Navy integration and testing for Air Force developed C2AOS-C2IS, with focus on testing of two planned Capability Packages.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Command and Control Air and Space Operations Suite - Command and Control Information Services (C2AOS-C2IS) Integration and Testing	1.784	0.801	0.999	0.000	0.999
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Continued integration and testing of Capability Package 1 (CP1) Air Tasking Order Management System (ATOMS), CP1 Request Information Services for Command and Control (RISC2), Capability Package 2 (CP2) Airspace Management Application/Airspace Information Service (ASMA/ASIS) and initial integration and testing of CP2 Integrated Air and Missile Defense (IAMD) Planner and other Capability Package 3 (CP3) capabilities as part of Air Force developed Command and Control Air Operations Suite - Command and Control Information Services (C2AOS-C2IS) to confirm full functionality on Navy infrastructure to include Consolidated Afloat					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>	Project (Number/Name) 3324 / <i>Navy Air Operations Command and Control (NAOC2)</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Networks and Enterprise Services (CANES) ensuring increased Joint interoperability and enhanced capability including theater level air planning with distributed re-planning and execution processes.</p> <p>FY 2016 Plans: Conduct final integration and Developmental Test, and Operational Test of initial Command and Control Air Operations Suite - Command and Control Information Services (C2AOS-C2IS) modules to include Capability Package 1 (CP1) Air Tasking Order Management System (ATOMS), CP1 Request Information Services for Command and Control (RISC2), Capability Package 2 (CP2) Airspace Management Application/Airspace Information Service (ASMA/ASIS), and CP2 Integrated Air and Missile Defense (IAMD) Planner.</p> <p>FY 2017 Base Plans: Conduct Operational Test of initial C2AOS-C2IS modules to include CP1 ATOMS, CP1 Request Information Services for Command and Control (RISC2), CP2 Airspace Management Application/Airspace Information Service (ASMA/ASIS), and CP2 Integrated Air and Missile Defense (IAMD) Planner. Begin integration and testing of Capability Package 3 (CP3) Air eXecution Information Systems (AXIS), and begin integration and validation of the consolidated CP1/CP2/CP3 capabilities to confirm full functionality on Navy infrastructure to include Consolidated Afloat Networks and Enterprise Services (CANES), ensuring increased Joint interoperability and enhanced capability including theater level air planning with distributed re-planning and execution processes.</p> <p>FY 2017 OCO Plans: N/A</p>					
Accomplishments/Planned Programs Subtotals	1.784	0.801	0.999	0.000	0.999

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

Theater Battle Management Core System (TBMCS) is designed, developed, and delivered by the Air Force and will be integrated for a Navy Common Computing Environment (CCE) such as Consolidated Afloat Network and Enterprise Services (CANES). As a Joint interest program, this approach satisfies the current validated requirements, supports the accelerated retirement of legacy hardware, and reduces overall risk to the program.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>	Project (Number/Name) 3324 / <i>Navy Air Operations Command and Control (NAOC2)</i>

E. Performance Metrics

TBMCS and C2AOS-C2IS are designed, developed, and delivered by the Air Force. This leverage greatly reduces the integration and testing costs associated with each capability module. The solutions will reside on CCE/CANES architecture. These software-only solutions eliminate hardware procurement, installation, and reduce sustainment costs.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy											Date: February 2016				
Appropriation/Budget Activity 1319 / 5						R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>					Project (Number/Name) 3324 / <i>Navy Air Operations Command and Control (NAOC2)</i>				

Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Systems Engineering/ Training Development/ Configuration Management	WR	SSC Pacific : San Diego, CA	3.766	0.000		0.000		0.000		-		0.000	0.000	3.766	3.362
Licenses/Government Furnished Equipment (GFE)/Technical Data	WR	VARIOUS : VARIOUS	2.342	0.000		0.000		0.000		-		0.000	0.000	2.342	0.488
Systems Engineering	MIPR	MITRE : San Diego, CA	0.000	0.170	Dec 2014	0.000		0.000		-		0.000	0.000	0.170	0.170
Integration and Testing	WR	VARIOUS : VARIOUS	0.000	0.000		0.000		0.924	May 2017	-		0.924	Continuing	Continuing	Continuing
Subtotal			6.108	0.170		0.000		0.924		-		0.924	-	-	-

Remarks
GFE supports integration efforts, not for fielding.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Development Support	WR	SSC Pacific : San Diego, CA	0.180	0.000		0.000		0.000		-		0.000	0.000	0.180	0.180
Integrated Logistics Support	WR	SSC Atlantic : Charleston, SC	0.358	0.000		0.000		0.000		-		0.000	0.000	0.358	0.358
Subtotal			0.538	0.000		0.000		0.000		-		0.000	0.000	0.538	0.538

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Operational Test & Evaluation	MIPR	COMOPTEVFOR : Norfolk, VA	0.294	0.000		0.075	Mar 2016	0.075	Mar 2017	-		0.075	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>	Project (Number/Name) 3324 / <i>Navy Air Operations Command and Control (NAOC2)</i>
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental Test & Evaluation	WR	SSC Pacific : San Diego, CA	2.651	0.000		0.000		0.000		-		0.000	0.000	2.651	2.651
Integration and Testing	WR	VARIOUS : VARIOUS	0.000	1.614	Jul 2015	0.726	Jul 2016	0.000		-		0.000	0.000	2.340	2.345
Subtotal			2.945	1.614		0.801		0.075		-		0.075	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Contractor Engineering Support	C/CPFF	Sentek : San Diego, CA	0.651	0.000		0.000		0.000		-		0.000	0.000	0.651	0.651
Program Management Support	C/CPFF	Booz Allen : San Diego, CA	0.254	0.000		0.000		0.000		-		0.000	0.000	0.254	0.254
Subtotal			0.905	0.000		0.000		0.000		-		0.000	0.000	0.905	0.905

Project Cost Totals	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
	10.496	1.784	0.801	0.999	-	0.999	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy																				Date: February 2016				
Appropriation/Budget Activity 1319 / 5										R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>										Project (Number/Name) 3324 / <i>Navy Air Operations Command and Control (NAOC2)</i>				

Fiscal Year	2015				2016				2017				2018				2019				2020				2021																			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4																
	Acquisition Milestones												△												△																			
ATOMS	Rel 2	Rel 3: Integration & Testing on Navy Systems							CANES Integration of Navy Consolidated Product																																			
RISC2	Integration & Testing on Navy Systems																																											
IAMD Planner		Rel 2: Integration & Testing on Navy Systems																																										
ASMA/ASIS	Integration & Testing on Navy Systems																																											
AXIS													Integration & Testing																															
Capability Package 4																	Integration & Testing		CANES Integration																									
Capability Package 5																					Integration & Testing on Navy Systems				CANES Integration																			

C2AOS-C2IS - Command and Control Air Operations Suite - Command and Control Information Services
 ATOMS - Air Tasking Order Management System
 RISC2 - Request Information Services for Command and Control
 ASMA/ASIS - Airspace Management Application/Airspace Information service
 IAMD - Intergrated Air and Missile Defense
 CANES - Consolidated Afloat Network and Enterprise Services

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>	Project (Number/Name) 3324 / <i>Navy Air Operations Command and Control (NAOC2)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3324				
Air Tasking Order Management System (ATOMS) Capability Package (CP) 1 Rel 2 Integration and Testing	1	2015	1	2015
ATOMS CP1 Rel 3 Integration and Testing	2	2015	1	2016
Request information Services (RISC2) CP1 Integration and Testing	1	2015	1	2016
Air Space Management Application (ASMA) / Air Space Information Services (ASIS) Integration and Testing	1	2015	1	2016
Integrated Air and Missile Defense (IAMD) Planner CP2 Rel 2 Integration and Testing	3	2015	1	2016
CP3 Integration and Testing	2	2016	2	2017
CANES Integration of Navy CP1-CP2 Consolidated C2AOS-C2IS Product	2	2016	3	2016
Navy C2AOS-C2IS Operational Test CP1-CP2	2	2017	2	2017
CP4 Integration and Testing	3	2017	3	2018
CANES Integration of Navy CP3 Consolidated C2AOS-C2IS Product	3	2017	1	2018
Navy C2AOS-C2IS Operational Test CP3	4	2018	4	2018
CANES Integration of Navy CP4 Consolidated C2AOS-C2IS Product	4	2018	2	2019
CP5 Integration and Testing	4	2018	4	2019
Navy C2AOS-C2IS Operational Test CP4	1	2020	1	2020
CANES Integration of Navy CP5 Consolidated C2AOS-C2IS Product	1	2020	3	2020
Navy C2AOS-C2IS Operational Test CP5	1	2021	1	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>				Project (Number/Name) 9123 / <i>FORCEnet</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
9123: <i>FORCEnet</i>	232.335	2.355	2.359	2.177	-	2.177	2.409	2.245	2.288	2.335	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

FORCEnet is the Navy and Marine Corps initiative to deliver Information Dominance and achieve Department of the Navy (DoN)/Department of Defense (DoD) Transformation, Joint/Allied/Coalition Interoperability, implementing Maritime Domain Awareness (MDA), and Net-Centric Operations/Warfare (NCO/W). Chief of Naval Operations Information Dominance effort focuses prioritization and organizational responsibility for information dominance, cyber, intelligence and sensors resulting in increased scope of systems, platforms and mission areas. FORCEnet is a foundation of Sea Power 21, Naval Power 21, the Naval Operating Concept for Joint Operations, and the DoN's Naval Transformation Roadmap.

The FORCEnet project line funds the following efforts:

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

(2) Information Dominance Portfolio Health Assessment (PHA): Funding supports Portfolio Health Assessments of Navy mission areas and identifies gaps in Information Dominance capabilities in the context of assessed mission areas. Funds support vignettes, technical baselines, architecture products, and briefings developed to support sponsor decision making processes.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: FORCEnet	2.355	2.359	2.177	0.000	2.177
Articles:	-	-	-	-	-
FY 2015 Accomplishments: DoN Command, C4ISR Transformation/Strategic Planning within DoN/Joint/DoD Framework: Within the DoD, Joint Staff, and Combatant Commander management of Joint Capability Portfolios, continued to assess existing and emerging capabilities in selected operating environments, developed integration plans, executed system engineering reviews and investment strategies, accelerated innovation, technology insertion, and incorporation of material and non-material solutions for enhanced Joint operational capabilities in NCO/W.					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>	Project (Number/Name) 9123 / <i>FORCEnet</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>-Continued to support Navy implementation of MDA, Standing Joint Force Headquarters, MOC, and Coalition/ Allied operations.</p> <p>Information Dominance Portfolio Health Assessment (PHA): Utilized and studied Navy mission areas in support of systems of systems engineering assessments used to inform sponsor. These assessments identified integration and interoperability gaps, trades, and solutions for sponsor related equities.</p> <p>-Identified Navy mission area gaps in Information Dominance capabilities to prioritize Science and Technology efforts for future budget decisions.</p> <p>-Assessed tradespace and solutions, ensuring Force level capability and systems of systems integration and interoperability in studied mission areas.</p> <p>-Packaged assessments to support sponsor's decision making processes.</p> <p><i>FY 2016 Plans:</i> Information Dominance PHA: Continue to utilize and study Navy mission areas in support of systems of systems engineering assessments used to inform sponsor. These assessments identify integration and interoperability gaps, trades, and solutions for sponsor related equities.</p> <p>-Provide analytical support to ensure that cybersecurity risk assessments and engineering activities are informed by Navy Cybersecurity Situational Awareness (NCSA) capabilities as addressed by the PHA. Identify critical architectural dependencies to enable mission situational awareness, which is a key component of the PHAs.</p> <p>-Continue to identify Navy mission area gaps in Information Dominance capabilities to prioritize Science and Technology efforts for future budget decisions.</p> <p>-Continue to assess tradespace and solutions, ensuring Force level capability and systems of systems integration and interoperability in studied mission areas.</p> <p>-Continue to package assessments to support sponsor decision-making processes.</p> <p><i>FY 2017 Base Plans:</i> Information Dominance PHA: Continue to utilize and study Navy mission areas in support of systems of systems engineering assessments used to inform sponsor. These assessments identify integration and interoperability gaps, trades, and solutions for sponsor related equities.</p> <p>-Continue to provide analytical support to ensure that cybersecurity risk assessments and engineering activities are informed by NCSA capabilities as addressed by the PHA. Continue to identify critical architectural dependencies that enable mission situational awareness, which is a key component of the PHAs.</p> <p>-Continue to identify Navy mission area gaps in Information Dominance capabilities to prioritize Science and Technology efforts for future budget decisions.</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>	Project (Number/Name) 9123 / <i>FORCEnet</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
-Continue to assess tradespace and solutions, ensuring Force level capability and systems of systems integration and interoperability in studied mission areas. -Continue to package assessments to support sponsor decision-making processes. FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	2.355	2.359	2.177	0.000	2.177

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

FORCEnet is a non-acquisition effort that informs and matures Navy decisions, which in turn impacts acquisition programs. Activities include acquiring intellectual capital in emerging technical areas through contracts providing technical engineering expertise and surge capacity for emerging tasks.

E. Performance Metrics

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

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>	Project (Number/Name) 9123 / <i>FORCEnet</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary Hardware Development DLB/RCD	Various	Various : Various	1.196	0.000		0.000		0.000		-		0.000	0.000	1.196	-
Systems Engineering-DLB/RCD	Various	Various : Various	0.600	0.000		0.000		0.000		-		0.000	0.000	0.600	-
Ship Integration	Various	Various : Various	0.935	0.000		0.000		0.000		-		0.000	0.000	0.935	-
Systems Engineering	Various	Various : Various	1.600	0.000		0.000		0.000		-		0.000	0.000	1.600	-
Subtotal			4.331	0.000		0.000		0.000		-		0.000	0.000	4.331	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Integrated Logistics Support DLB/RCD	Various	Various : Various	0.250	0.000		0.000		0.000		-		0.000	0.000	0.250	-
Configuration Management DLB/RCD	Various	Various : Various	0.115	0.000		0.000		0.000		-		0.000	0.000	0.115	-
Development Support DLB/RCD	Various	Various : Various	0.250	0.000		0.000		0.000		-		0.000	0.000	0.250	-
Software Development DLB/RCD	Various	Various : Various	1.971	0.000		0.000		0.000		-		0.000	0.000	1.971	-
Development Support	Various	Various : Various	2.700	0.000		0.000		0.000		-		0.000	0.000	2.700	-
Software Support	Various	Various : Various	2.900	0.000		0.000		0.000		-		0.000	0.000	2.900	-
Sys Req Analysis/Sys Eng	Various	Various : Various	15.094	0.000		0.000		0.000		-		0.000	0.000	15.094	-
S/W Develop,Integ,Demo, Field - MDA Prototypes	Various	Various : Various	108.910	0.000		0.000		0.000		-		0.000	0.000	108.910	-
Sys Req Analysis/Sys Eng	WR	SSC PAC : San Diego, CA	1.157	0.000		0.000		0.000		-		0.000	0.000	1.157	-
Sys Req Analysis/Sys Eng	WR	SSC LANT : Charleston, SC	1.306	0.000		0.000		0.000		-		0.000	0.000	1.306	-
DoN Transformation (Strategic Planning)	WR	NSWC Dahlgren : Dahlgren, MD	1.069	0.054	Jan 2015	0.000		0.000		-		0.000	0.000	1.123	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>	Project (Number/Name) 9123 / <i>FORCEnet</i>
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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Information Dominance Roadmaps and Analysis	C/CPFF	METRON : Reston, VA	1.066	0.000		0.000		0.000		-		0.000	0.000	1.066	-
Information Dominance Roadmaps and Analysis	C/CPFF	SAIC : McLean, VA	4.911	1.877	Jan 2015	1.784	Mar 2016	1.633	Mar 2017	-		1.633	Continuing	Continuing	Continuing
Information Dominance Roadmaps and Analysis	WR	SSC LANT : Charleston, NC	1.352	0.424	Jan 2015	0.355	Mar 2016	0.324	Mar 2017	-		0.324	Continuing	Continuing	Continuing
Information Dominance Roadmaps and Analysis	C/CPFF	BAH : McLean, VA	0.000	0.000		0.220	Mar 2016	0.220	Mar 2017	-		0.220	Continuing	Continuing	Continuing
Subtotal			143.051	2.355		2.359		2.177		-		2.177	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental Test & Evaluation	Various	Various : Various	1.300	0.000		0.000		0.000		-		0.000	0.000	1.300	-
Accelerating Joint Warfighting Capability (TW)	Various	Various : Various	30.736	0.000		0.000		0.000		-		0.000	0.000	30.736	-
Accelerating Joint Warfighting Capability (TW)	WR	Fleet Forces Command : San Diego, CA	0.095	0.000		0.000		0.000		-		0.000	0.000	0.095	-
Accelerating Joint Warfighting Capability (TW)	WR	Naval Postgraduate School : Monterey, CA	0.978	0.000		0.000		0.000		-		0.000	0.000	0.978	-
Accelerating Joint Warfighting Capability (TW)	WR	SSC Atlantic : Charleston, SC	0.445	0.000		0.000		0.000		-		0.000	0.000	0.445	-
Accelerating Joint Warfighting Capability (TW)	WR	SSC Pacific : San Diego, CA	1.069	0.000		0.000		0.000		-		0.000	0.000	1.069	-
Accelerating Joint Warfighting Capability (TW)	C/CPFF	AUSGAR Technologies Inc. : San Diego, CA	1.489	0.000		0.000		0.000		-		0.000	0.000	1.489	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>	Project (Number/Name) 9123 / <i>FORCEnet</i>
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Imp FORCEnet Req (Fn Comp)	Various	Various : Various	17.144	0.000		0.000		0.000		-		0.000	0.000	17.144	-
Developmental Test & Evaluation DLB/RCD	Various	Various : Various	0.500	0.000		0.000		0.000		-		0.000	0.000	0.500	-
DoN Transformation (Strategic Planning)	Various	Various : Various	20.521	0.000		0.000		0.000		-		0.000	0.000	20.521	-
DoN Transformation (Strategic Planning)	WR	NUWC : Newport, RI	0.959	0.000		0.000		0.000		-		0.000	0.000	0.959	-
DoN Transformation (Strategic Planning)	WR	NPGS : Monterey, CA	1.686	0.000		0.000		0.000		-		0.000	0.000	1.686	-
DoN Transformation (Strategic Planning)	C/CPFF	NGIT : Herndon, VA	0.349	0.000		0.000		0.000		-		0.000	0.000	0.349	-
DoN Transformation (Strategic Planning)	C/CPFF	Unknown : Unknown	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Subtotal			77.271	0.000		0.000		0.000		-		0.000	0.000	77.271	-

Remarks
Accelerating Joint Warfighting Capability (Trident Warrior) (TW), was transferred from Project 9123 into new Project 3320 from FY12 forward.

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Technical Support	Various	Various : Various	2.124	0.000		0.000		0.000		-		0.000	0.000	2.124	-
Government Engineering Support	Various	Various : Various	3.899	0.000		0.000		0.000		-		0.000	0.000	3.899	-
Program Management Support DLB/RCD	Various	Various : Various	0.250	0.000		0.000		0.000		-		0.000	0.000	0.250	-
Travel DLB/RCD	Various	Various : Various	0.145	0.000		0.000		0.000		-		0.000	0.000	0.145	-
Program Management Support	Various	Various : Various	0.800	0.000		0.000		0.000		-		0.000	0.000	0.800	-
Travel	Various	Various : Various	0.299	0.000		0.000		0.000		-		0.000	0.000	0.299	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>	Project (Number/Name) 9123 / <i>FORCEnet</i>
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Acquisition Workforce	Various	Various : Various	0.165	0.000		0.000		0.000		-		0.000	0.000	0.165	-
Subtotal			7.682	0.000		0.000		0.000		-		0.000	0.000	7.682	-
Project Cost Totals			232.335	2.355		2.359		2.177		-		2.177	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>	Project (Number/Name) 9123 / <i>FORCEnet</i>
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FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Proj 9123	
Naval Information Dominance Enterprise	

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604231N / <i>Tactical Command System</i>	Project (Number/Name) 9123 / <i>FORCEnet</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Proj 9123</i>				
Naval Information Dominance Enterprise	1	2015	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604234N / <i>Advanced Hawkeye</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	4,216.010	171.189	217.645	363.792	-	363.792	290.359	216.934	185.379	168.737	31.300	5,861.345
3051: <i>E-2D Adv Hawkeye</i>	4,216.010	171.189	209.145	363.792	-	363.792	290.359	216.934	185.379	168.737	31.300	5,852.845
9999: <i>Congressional Adds</i>	0.000	0.000	8.500	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	8.500

Program MDAP/MAIS Code: 364

A. Mission Description and Budget Item Justification

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

The Navy declared IOC for the E-2D in October 2014 with the first operational deployment in FY15. The System Development and Demonstration contract completed in FY15 as the program transitions into the production, deployment, and sustainment phase. Throughout the development of the E-2D, the threat has continued to evolve increasing in both capability and capacity. The E-2D Research, Development, Test and Evaluation budget after IOC reflects the Navy's further investment into the E-2D to ensure that carrier based command and control continues to pace the FY2020 and beyond threat in support of Navy and Joint operations around the world.

The program will be aligning the capability development in areas where there are interwoven technologies that leverage each other to provide the most efficient and cost effective means of delivering these capabilities to the warfighters. The program will deliver these capabilities to the Fleet users on approximately a 24 month release cycle as part of combined Delta System/Software Configuration (DSSC) builds. The baseline IOC configuration is named DSSC build 1 (DSSC-1). The DSSC build schedule is outlined along with the capabilities that are planned to comprise each DSSC build. If a capability is delayed or accelerated it will move between DSSC builds which will be reflected in updates to this budget.

DSSC-2 is planned for operational test and Fleet release in FY16. DSSC-2 incorporates several technologies developed under the System Development and Demonstration phase which include Dual Transmit Satellite Communications and an IFF technology refresh in preparation for Mode 5 and Mode S.

DSSC-3 is planned for operational test and Fleet release in FY19. DSSC-3 is comprised of the following capabilities:

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604234N / <i>Advanced Hawkeye</i>
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E-2D Accelerated Mid-Term Interoperability Improvement Program (AMIIP), NIFC-CA enhancements, Automatic Identification System and the Embedded National Tactical Receiver.

DSSC-3AR is planned for operational test and Fleet release in FY19. DSSC-3AR is comprised of all capabilities listed in DSSC-3 plus Aerial Refueling (AR).

DSSC-4 is planned for operational test in FY21 and Fleet release in FY21. DSSC-4 provides critical capabilities needed to pace the 2020 threat and enabling components of NIFC-CA increment 3. DSSC-4 is comprised of the following capabilities: E-2D Multifunctional Information Distribution System/Joint Tactical Radio System (MIDS/JTRS), Tactical Targeting Networking Technology (TTNT), Secret Internet Protocol Router (SIPR)Chat, Data Fusion, Fighter to Fighter Backlink, E-2D Navigation Warfare (NAVWAR) and E-2D Counter Electronic Attack (CEA).

DSSC-5 is planned for operational test in FY23 and Fleet release in FY23. DSSC-5 provides the capabilities necessary for E-2D to meet NIFC-CA increment 3 requirements and is comprised of the following: Sensor Netting, Stores Performance Assessment Requested Quality (SPARQ), and E-2D AN/ALQ-217 Electronic Support Measures (ESM).

This program is funded under SYSTEM DEVELOPMENT AND DEMONSTRATION because it includes those projects that have passed Milestone B approval and are conducting engineering and manufacturing development tasks aimed at meeting validated requirement prior to full-rate production decision.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	176.700	272.149	317.185	-	317.185
Current President's Budget	171.189	217.645	363.792	-	363.792
Total Adjustments	-5.511	-54.504	46.607	-	46.607
• Congressional General Reductions	-	-0.004			
• Congressional Directed Reductions	-	-63.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	8.500			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-5.511	0.000			
• Program Adjustments	0.000	0.000	55.448	-	55.448
• Rate/Misc Adjustments	0.000	0.000	-8.841	-	-8.841

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 9999: *Congressional Adds*

Congressional Add: *Adv Radar Innovation Fund - Air (Cong)*

	FY 2015	FY 2016
	0.000	8.500

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604234N / <i>Advanced Hawkeye</i>
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Congressional Add Details (\$ in Millions, and Includes General Reductions)

	FY 2015	FY 2016
Congressional Add Subtotals for Project: 9999	0.000	8.500
Congressional Add Totals for all Projects	0.000	8.500

Change Summary Explanation

Technical: N/A

Schedule:

Updated Advanced Hawkeye schedule for the Test and Evaluation section to show the Delta System/Software Configuration (DSSC) Build plan since the program will be aligning the capability development in areas where there are interwoven technologies that leverage each other to provide the most efficient and cost effective means of delivering these capabilities to the warfighter. The program will be delivering capabilities to the Fleet as part of combined DSSC builds.

Updated program schedules to reflect FY16 President Budget control adjustments.

Increase in FY17 primarily associated with several new efforts, Crypto Modernization/Frequency Remapping and ALQ-217 Electronic Support Measures (ESM).

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604234N / <i>Advanced Hawkeye</i>				Project (Number/Name) 3051 / <i>E-2D Adv Hawkeye</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3051: <i>E-2D Adv Hawkeye</i>	4,216.010	171.189	209.145	363.792	-	363.792	290.359	216.934	185.379	168.737	31.300	5,852.845
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

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

The Navy declared IOC for the E-2D in October 2014 with the first operational deployment in FY15. The System Development and Demonstration contract completed in FY15 as the program transitions into the production, deployment, and sustainment phase. Throughout the development of the E-2D, the threat has continued to evolve increasing in both capability and capacity. The E-2D Research, Development, Test and Evaluation budget after IOC reflects the Navy's further investment into the E-2D to ensure that carrier based command and control continues to pace the 2020 and beyond threat in support of Navy and Joint operations around the world.

The program will be aligning the capability development in areas where there are interwoven technologies that leverage each other to provide the most efficient and cost effective means of delivering these capabilities to the warfighters. The program will deliver these capabilities to the Fleet users on an approximately 24 month release cycle as part of combined Delta System/Software Configuration (DSSC) builds. The baseline IOC configuration is named DSSC build 1 (DSSC-1). The DSSC build schedule is outlined below along with the capabilities that are planned to comprise each DSSC build. If a capability is delayed or accelerated it will move between DSSC builds which will be reflected in updates to this budget.

DSSC-2 is planned for operational test and Fleet release in FY16. DSSC-2 incorporates several technologies developed under the System Development and Demonstration phase which include Dual Transmit Satellite Communications and an IFF technology refresh in preparation for Mode 5 and Mode S.

DSSC-3 is planned for operational test and Fleet release in FY19. DSSC-3 is comprised of the following capabilities:

1. The E-2D Accelerated Mid-Term Interoperability Improvement Program (AMIIP) will address the most severe Cooperative Engagement Capability and data link related interoperability issues. This capability will significantly improve the quality of the tactical surveillance picture across all participants, reduce the possibility of track mis-identification and mitigate Blue on Blue engagements. AMIIP provides stable sensor fusion foundation to support sensor/weapon coordination requirements.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604234N / <i>Advanced Hawkeye</i>	Project (Number/Name) 3051 / <i>E-2D Adv Hawkeye</i>

2. NIFC-CA enhancements will incorporate weapon system software improvements to implement capabilities and performance improvements needed to meet NIFC-CA increment 2 requirements. These capabilities come from software development in both the E-2D Classified and NIFC-CA Enhancement and Testing lines.

DSSC-3AR is planned for operational test and Fleet release in FY19. DSSC-3AR is comprised of all capabilities listed in DSSC-3 plus Aerial Refueling (AR).

1. An Aerial Refueling (AR) capability will allow the E-2D AHE to receive fuel from various organic and non-organic tanker aircraft. It provides Expanded Battle Space Surveillance and Targeting through significantly enhanced persistence and increased flexibility (range & endurance). AR will better enable the E-2D AHE to fully support current Carrier Strike Group /Joint 24/7 Theater Operations by providing more versatile stationing and/or forward basing options. Previous domestic E-2 concept demonstration effort successfully established the feasibility of tanking behind the F/A-18E/F and KC-130 aircraft under E-2 Squadrons, PE 0204152N.

DSSC-4 is planned for operational test in FY21 and Fleet release in FY21. DSSC-4 provides critical capabilities needed to pace the 2020 threat and enabling components of NIFC-CA increment 3. DSSC-4 is comprised of the following capabilities:

1. The E-2D Multifunctional Information Distribution System/Joint Tactical Radio System (MIDS/JTRS) Tactical Targeting Networking Technology (TTNT) integrates Advanced Tactical Data Link functionality into the E-2D. This effort includes replacing the Multifunctional Information Distribution System - Low Volume Terminal (MIDS LVT) radio with MIDS/JTRS that has incorporated Link-16 concurrent Multi-netting (CMN-4) and TTNT. MIDS/JTRS TTNT is a key enabler for E-2D sensor netting capability in support of the NIFC-CA mission.

2. The E-2D Secret Internet Protocol Router (SIPR) Chat capability will support integration of current collaboration tools including tactical "chat" (text) communications, real-time tasking, and Air Tasking Order distribution. Recent real world operations have demonstrated a migration of Command and Control communications from voice to Internet protocol based networks.

3. FY17 start: E-2D Data Fusion provides a fusion engine to blend off-board tactical data (e.g. Electronic Surveillance and Satellite Receiver System (SRS) data) with already blended radar, Identify Friend or Foe (IFF) and Cooperative Engagement Capability (CEC) track-files, greatly enhancing situational awareness and tactical decision making. Successful E-2D NIFC-CA engagements depend on a clear/unambiguous tactical picture and the shortest possible decision timeline.

4. FY17 start: E-2D Fighter to Fighter backlink implements Link-16 Network Participation Group 20 messages for Fighter-to-Fighter backlink capability in E-2D. This functionality improves interoperability between E-2D and participating US Navy fighters, including 5th generation aircraft, enhancing combat effectiveness of E-2D, increases situational awareness (SA), and shortens kill-chain timelines (including NIFC-CA).

5. FY17 start: E-2D Navigation Warfare (NAVWAR) prevents loss of Global Positioning System (GPS) by using a Controlled Reception Pattern Antenna (CRPA) and antenna electronics (AE) unit which will function to provide GPS access in an Electronic Attack (EA) environment. NAVWAR significantly reduces the likelihood of loss of critical GPS Position, Navigation and Timing functionality that is fundamental to E-2D battlespace awareness and its contributions to multiple link networks.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604234N / <i>Advanced Hawkeye</i>	Project (Number/Name) 3051 / <i>E-2D Adv Hawkeye</i>
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6. The E-2D Counter Electronic Attack (CEA) capability will allow the E-2D radar system to maintain performance in an advanced hostile intentional electromagnetic interference environment. The E-2D CEA program will ensure E-2D effectiveness is maintained in an Electronic Attack environment supporting the NIFC-CA capability and overall Navy and Joint Integrated Air and Missile Defense strategy.

DSSC-5 is planned for operational test in FY23 and Fleet release in FY23. DSSC-5 provides the capabilities necessary for E-2D to meet NIFC-CA increment 3 requirements and is comprised of the following capabilities:

1. FY17 start: E-2D Sensor Netting provides fusion of data from off-board sources via a high bandwidth network that will allow E-2D to support the second spiral of performance improvement for NIFC-CA capability. Additional details are classified.
2. FY17 start: E-2D Stores Performance Assessment Requested Quality (SPARQ) establishes real-time requirements for E-2D sensor contribution to system of system NIFC-CA solutions. SPARQ expands and optimizes operational employment envelopes, improving Air Wing ability to take advantage of System of System capabilities of NIFC-CA, reducing kill chain timelines.
3. FY17 start: E-2D AN/ALQ-217 Electronic Support Measures (ESM) Combat Identification (CID) upgrades integrates digital receiver and processing technology, enables E-2 multi-ship geo-location and Time Difference Of Arrival with other sensors across L-16 and Tactical Targeting Networking Technology (TTNT), and provides a precision internal clock source to enable netted detection of advanced threat radar systems. Connectivity to Electronic Warfare (EW) netted sensors will provide multiple nodes, real time, enhanced CID capabilities.
4. FY17 start: Crypto modernization/Frequency remapping: The E-2D Multifunctional Information Distribution System/Joint Tactical Radio System (MIDS/JTRS) with concurrent Multi-netting will be integrated into the E-2D. This effort includes replacing the Multifunctional Information Distribution System-Low Volume Terminal (MIDS LVT) radio with MIDS/JTRS that has incorporated Link-16 concurrent Multi-netting (CMN-4) and replacing the JTIDS High Power Amplifier Group with a Link-16 High Power Amplifier which will address Crypto Modernization and Frequency Remapping.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: System Development and Demonstration	1.664	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: Northrop Grumman Corporation System Development and Demonstration (SDD), Pilot Production efforts for the E-2D Advanced Hawkeye (AHE) Program.					
FY 2015 Accomplishments: Funds provided to complete deliverables under SDD contract.					
FY 2016 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604234N / <i>Advanced Hawkeye</i>	Project (Number/Name) 3051 / <i>E-2D Adv Hawkeye</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
FY 2017 Base Plans: N/A					
FY 2017 OCO Plans: N/A					
Title: Full Scale Fatigue Test	9.815	25.731	19.333	0.000	19.333
Articles:	-	-	-	-	-
Description: Full Scale Fatigue Test efforts for the E-2D Advanced Hawkeye (AHE) Program. The USN requires that a fatigue test be conducted on the E-2D aircraft to determine the design service life of the airframe. Durability testing is being performed on a test article that is representative of production aircraft. The objective of the 20,000 equivalent flight hours fatigue test is to identify fatigue critical locations, substantiate the 10,000 flight hours service life for the E-2D airframe fuselage and horizontal stabilizer, and demonstrate that the E-2D aircraft structure satisfies the program service life requirement.					
FY 2015 Accomplishments: The Fatigue Test Article has accumulated 4800 effective flight hours. The test article developed an upper rib crack at WS83. Repair was made and test article was returned to test. Additional data points were added to the scope of test in support of wing center section cracks. This required the installation of additional instrumentation.					
FY 2016 Plans: Funds provided for continued support of Full Scale Fatigue Tests. Inspections and analysis will be performed at 500 effective flight hour intervals beginning with the 500 hour inspection and continuing through approximately 10,000 effective flight hours. Configure and instrument Outer Wing Panels that are projected to reach the end of service life.					
FY 2017 Base Plans: Funds provided for continued support of Full Scale Fatigue Tests. Inspections will be performed at 500 effective flight hour intervals beginning with the 10,500 hour inspection and continuing through approximately 15,000 effective flight hours. Perform repairs of the test article as required.					
FY 2017 OCO Plans: N/A					
Title: Delta System/Software Configuration (DSSC) Integration and Test	15.448	11.172	13.411	0.000	13.411
Articles:	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604234N / <i>Advanced Hawkeye</i>	Project (Number/Name) 3051 / <i>E-2D Adv Hawkeye</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Description: Funds integration, engineering, risk reduction efforts, developmental and operational test of E-2D.</p> <p>FY 2015 Accomplishments: Funded the continuation of Follow-On Test & Evaluation and Developmental Testing Support.</p> <p>FY 2016 Plans: Funding provided for the continuation of DSSC 2 integration, developmental test and operational test.</p> <p>FY 2017 Base Plans: Funds provided for risk reduction integration and engineering test to support DSSC 3.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: E-2D Classified Programs</p> <p align="right">Articles:</p> <p>Description: Provides support for the E-2D Advanced Hawkeye (AHE) Classified Development efforts. Development and Integration of E-2D specific NIFC-CA Increment 2-3 improvements.</p> <p>FY 2015 Accomplishments: Funded the continuation of E-2D AHE Classified Development efforts.</p> <p>FY 2016 Plans: Funding provides for the continuation of E-2D AHE Classified Development efforts.</p> <p>FY 2017 Base Plans: Funds provided for the continuation of E-2D AHE Classified Development efforts. Conduct test and evaluation and integrate capability into DSSC-3 baseline. FY17 increase is due to significant test requirements to validate capability.</p> <p>FY 2017 OCO Plans: N/A</p>	3.025	7.299	19.833	0.000	19.833
	-	-	-	-	-
<p>Title: Mode 5/S</p> <p align="right">Articles:</p> <p>Description: Mode 5/S is the replacement/upgrade to the existing Identification Friend or Foe (IFF) Interrogator system.</p>	1.812	0.225	0.225	0.000	0.225
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604234N / <i>Advanced Hawkeye</i>	Project (Number/Name) 3051 / <i>E-2D Adv Hawkeye</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p><i>FY 2015 Accomplishments:</i> Funded APX-122A operational testing.</p> <p><i>FY 2016 Plans:</i> Continue APX-122A system test and evaluation.</p> <p><i>FY 2017 Base Plans:</i> Funds provided for resumption of Mode 5/S flight test to identify software deficiencies and Weapon System Specification compliance. Continue APX-122A system test and evaluation.</p> <p><i>FY 2017 OCO Plans:</i> N/A</p>					
<p><i>Title:</i> Aerial Refueling</p> <p align="right"><i>Articles:</i></p> <p><i>Description:</i> Funds the system development and testing to support the incorporation of Aerial Refueling (AR) capability into the E-2D AHE aircraft. Emphasis during system development is on system redesign, air vehicle design, human systems integration and design, including interior/lighting modifications and seat replacement. Flight testing is required to evaluate fuel systems changes, aerial refueling capability, field of view, thermal and aerodynamic loads, kinematic performance, and handling qualities. Planned for DSSC-3AR</p> <p><i>FY 2015 Accomplishments:</i> Funded the continuation of Engineering and Manufacturing Development (E&MD) of AR, System Integration Laboratory (SIL) testing, Fuel Rig Testing, Integrated Program Review, Critical Design Review and installation, instrumentation and flight test planning activities. Funding also provided to ramp up subcontractor support that was slowed down due to the mark in FY 2014.</p> <p><i>FY 2016 Plans:</i> Funding provided for continued E&MD of AR, continued SIL testing, Probe Static Test and instrumentation and installation of an aerial refueling capability on the first developmental test aircraft and the start of the second developmental test aircraft. Additionally, funding provided for flight test planning activities.</p> <p><i>FY 2017 Base Plans:</i> Funding provided for completion of the instrumentation and installation of an aerial refueling capability on the second developmental test aircraft and the installation of an aerial refueling capability on the first production</p>	66.343	57.070	81.486	0.000	81.486
	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
representative operational test aircraft. Funding provided for test readiness review and production readiness review, developmental flight test and operational assessment. FY 2017 OCO Plans: N/A					
Title: E-2D Counter Electronic Attack Description: Funds the mission system development and testing of the capability to counter advanced radar electronic attack threats. The E&MD effort will focus on integration of capabilities in the radar and mission computer display systems that include system integration, and laboratory and flight test validation. Planned for DSSC-4. FY 2015 Accomplishments: Funded the Change Request drafts for the E-2D Weapons System Specification (WSS) and conducted analysis for expanding the CEA capability. Funding includes Congressional Add for Radar improvements. FY 2016 Plans: Funds provided for the continuation of the software development of the radar and mission computer systems that will provide the capabilities to counter advanced radar electronic attack threats. Funding provided for System Requirements Review (SRR). FY 2017 Base Plans: Funds provided for the continuation of software development, mission computer and radar system development to provide the Counter Electronic Attack (CEA) solution. Program will conduct Preliminary Design Review and Critical Design Review. FY 2017 OCO Plans: N/A	10.898	20.685	28.512	0.000	28.512
Articles:	-	-	-	-	-
Title: Multifunctional Information Distribution System/Joint Tactical Radio System (MIDS/JTRS) Tactical Targeting Networking Technology (TTNT) Description: Multifunctional Information Distribution System/Joint Tactical Radio System (MIDS/JTRS) Tactical Targeting Networking Technology (TTNT) provides Advanced Tactical Data Link functionality into the E-2D. This effort includes replacing the Multifunctional Information Distribution System - Low Volume Terminal (MIDS LVT) radio with MIDS/JTRS that has incorporated Link-16 concurrent Multi-netting (CMN-4) and TTNT. MIDS/JTRS	34.220	34.804	41.734	0.000	41.734
Articles:	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>TTNT is a key enabler for E-2D sensor netting capability in support of the Naval Integrated Fire Control-Counter Air mission. Planned for DSSC-4.</p> <p>FY 2015 Accomplishments: Funded the continuation of Design, Development, hardware and software associated with MIDS/JTRS/ Concurrent Multiple Network (CMN04) integration and lab testing. Funding is provided for System Requirements Review 1 and 2.</p> <p>FY 2016 Plans: Funding provides for continued Design, Development, hardware, software, Preliminary Design and Critical Design Reviews for phase I associated with MIDS/JTRS/CMN-4 integration.</p> <p>FY 2017 Base Plans: Funds provided for continued Design and Development. PDR and CDR for Phase II aircraft integration.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: SIPR Chat</p> <p align="right">Articles:</p> <p>Description: The E-2D Secret Internet Protocol Router (SIPR) Chat capability will support integration of current collaboration tools including tactical "chat" (text) communications, real-time tasking, and Air Tasking Order distribution. Recent real world operations have demonstrated a migration of Command and Control communications from voice to Internet protocol based networks. Planned for DSSC-4.</p> <p>FY 2015 Accomplishments: Funded the start of System Development & Design, Software and Router Integration.</p> <p>FY 2016 Plans: Funds provided for continued System Development & Design, Software and Router Aircraft Integration.</p> <p>FY 2017 Base Plans: Funds provided for continued System Development & Design, Software and Router Aircraft Integration, Preliminary Design Review and Critical Design Review. Decrease funding due to completion of software aircraft integration.</p> <p>FY 2017 OCO Plans:</p>	9.893	18.505	15.000	0.000	15.000
	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
<p>Title: Naval Integrated Fire Control - Counter Air Testing (NIFC-CA)</p> <p align="right">Articles:</p> <p>Description: NIFC-CA requires System of Systems level testing. CNO-mandate to address Naval weapon systems' Command, Control, Communications, Computer, Intelligence, Surveillance and Reconnaissance gaps. Planned for DSSC-3.</p> <p>FY 2015 Accomplishments: Funded the continuation of software development support and developmental flight tests.</p> <p>FY 2016 Plans: Funds provided for continued software development support and developmental flight tests. NIFC-CA includes increased flights for E-2D participation NIFC-CA increment 1 developmental and operational systems of systems testing.</p> <p>FY 2017 Base Plans: Funds provided for continued NIFC-CA program support and flight testing. NIFC-CA requires increased E-2D participation in NIFC-CA increment 1-3 developmental and operational systems of systems ground, simulation, and flight testing. Trainer and training development so the fleet can fully train to NIFC-CA capabilities.</p> <p>FY 2017 OCO Plans: N/A</p>	9.289	18.474	37.588	0.000	37.588
<p align="right">Articles:</p> <p align="right">-</p>	-	-	-	-	-
<p>Title: Accelerated Mid-Term Interoperability Improvement Program (AMIIP)</p> <p align="right">Articles:</p> <p>Description: Address the most severe data link related interoperability issues. This capability will significantly improve the quality of the tactical surveillance picture, reduce the possibility of leakers, mitigate Blue on Blue engagements and mid-identification of tracks. Provides stable sensor fusion foundation to support sensor/ weapon coordination requirements. Planned for DSSC-3.</p> <p>FY 2015 Accomplishments: Funded the continuation of software development support and developmental flight tests.</p> <p>FY 2016 Plans:</p>	8.782	15.180	11.988	0.000	11.988
<p align="right">Articles:</p> <p align="right">-</p>	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Funds provided for continued systems engineering, systems development support, software integration, Functional and Flight testing, Preliminary Design Review, Critical Design Review and Test Readiness Review.</p> <p>FY 2017 Base Plans: Funds provided for finishing integration of software into DSSC-3 build. Fleet Readiness Review. Completing developmental flight test of software changes.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Sensor Netting</p> <p align="right">Articles:</p> <p>Description: Provides fusion of data from off-board sources via a high bandwidth network that will allow E-2D to support second spiral of performance improvements for Naval Integrated Fire Control-Counter Air Testing (NIFC-CA) capabilities. Additional details are classified. Planned for DSSC-5.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans: FY17 New Start: Funds provided for development of System Requirements at the Weapon System Specification level. The program will begin the System Engineering Technical Review (SETR) process with the vendor.</p> <p>FY 2017 OCO Plans: N/A</p>	0.000 -	0.000 -	11.349 -	0.000 -	11.349 -
<p>Title: Data Fusion</p> <p align="right">Articles:</p> <p>Description: E-2D Data Fusion provides a fusion engine to blend off-board tactical data (e.g. Electronic Surveillance and Satellite Receiver System (SRS) data) with already blended radar, Identify Friend or Foe (IFF) and Cooperative Engagement Capability (CEC) track-files, greatly enhancing Situational Awareness and tactical decision making. Successful E-2D NIFC-CA engagements depend on a clear/unambiguous tactical picture and the shortest possible decision timeline. Planned for DSSC-4.</p>	0.000 -	0.000 -	15.847 -	0.000 -	15.847 -

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p><i>FY 2015 Accomplishments:</i> N/A</p> <p><i>FY 2016 Plans:</i> N/A</p> <p><i>FY 2017 Base Plans:</i> FY17 New Start: Funds provided for requirements assessment of E-2D Data Fusion program, and to conduct trade studies for the system integration development.</p> <p><i>FY 2017 OCO Plans:</i> N/A</p>					
<p><i>Title:</i> Fighter to Fighter Backlink</p> <p align="right"><i>Articles:</i></p> <p><i>Description:</i> Fighter to Fighter backlink implements Link-16 Network Participation Group 20 messages for Fighter-to-Fighter backlink capability in E-2D. This functionality improves interoperability between E-2D and participating US Navy fighters, including 5th generation aircraft, enhancing combat effectiveness of E-2D, increases Situational Awareness (SA), and shortens kill-chain timelines (including NIFC-CA).</p> <p><i>FY 2015 Accomplishments:</i> N/A</p> <p><i>FY 2016 Plans:</i> N/A</p> <p><i>FY 2017 Base Plans:</i> FY17 New Start: Funds provided for requirements assessment of the E-2D Fighter to Fighter backlink program, and to conduct trade studies for the system integration development.</p> <p><i>FY 2017 OCO Plans:</i> N/A</p>	0.000 -	0.000 -	9.777 -	0.000 -	9.777 -
<p><i>Title:</i> Navigation Warfare (NAVWAR)</p> <p align="right"><i>Articles:</i></p> <p><i>Description:</i> E-2D Navigation Warfare (NAVWAR) prevents loss of Global Positioning System (GPS) by using a Controlled Reception Pattern Antenna (CRPA) and Antenna Electronics (AE) unit which will function to provide</p>	0.000 -	0.000 -	6.883 -	0.000 -	6.883 -

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>GPS access in an Electronic Attack (EA) environment. NAVWAR significantly reduces the likelihood of loss of critical GPS Position, Navigation and Timing functionality that is fundamental to E-2D battlespace awareness and its contributions to multiple link networks. Without NAVWAR capability, the E-2D AHE will be unable to provides its services in GPS contested airspace, putting Navy units at unacceptable risk and hindering Joint operational flexibility. NAVWAR capability will allow the E-2D AHE to operate in areas where signal disruption and jamming would prohibit unprotected GPS reception. With this new capability, the E-2D AHE will be able to provide continuous operations in a degraded GPS environment for mission areas that depend on GPS for precise position, navigation, and timing. Planned for DSSC-4.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans: FY17 New Start: Funds provided for System Engineering and integration development and Government Furnished Hardware contract award.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Stores Performance Assessment Requested Quality (SPARQ)</p> <p align="right">Articles:</p> <p>Description: E-2D Stores Performance Assessment Requested Quality (SPARQ) establishes real-time requirements for E-2D sensor contribution to system of system Naval Integrated Fire Control-Counter Air (NIFC-CA) solutions. SPARQ expands and optimizes operational employment envelopes, improving Air Wing ability to take advantage of System of System capabilities of NIFC-CA, reduces operational workload and latency of execution. Planned for DSSC-5.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans:</p>	0.000 -	0.000 -	7.595 -	0.000 -	7.595 -

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>FY17 New Start: Funds provided for development of System Requirements at the Weapon System Specification level. The program will begin the System Engineering Technical Review (SETR) process with the vendor.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: ALQ-217 Electronic Support Measures Upgrade</p> <p align="right">Articles:</p> <p>Description: ALQ-217 digital upgrade greatly enhances Combat Identification (CID), battle space awareness, and effectiveness of blue forces. Combat Identification (#3) requirements and networked sensor systems are specifically called out on COMACCLOGWING's FY15 E-2D Naval Aviation Readiness Group (NARG). Planned for DSSC-5.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans: FY17 New Start - Funds provided for development of System Requirements at the Weapon System Specification level. The program will begin the System Engineering Technical Review (SETR) process with the vendor. System Requirements Review and System Functional Review. Stand up Software Support Activity capability to develop and integrate the ESM software into the Mission Computer. Also procures two RDT&E ALQ-217 development and test assets.</p> <p>FY 2017 OCO Plans: N/A</p>	0.000	0.000	27.799	0.000	27.799
	-	-	-	-	-
<p>Title: Crypto Modernization/Frequency Remapping</p> <p align="right">Articles:</p> <p>Description: The E-2D Multifunctional Information Distribution System/Joint Tactical Radio System (MIDS/JTRS) with concurrent Multi-netting will be integrated into the E-2D. This effort includes replacing the Multifunctional Information Distribution System-Low Volume Terminal (MIDS LVT) radio with MIDS/JTRS that has incorporated Link-16 concurrent Multi-netting (CMN-4) and replacing the JTIDS High Power Amplifier Group</p>	0.000	0.000	15.432	0.000	15.432
	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
with a Link-16 High Power Amplifier which will address Crypto Modernization and Frequency Remapping. Planned for DSSC-4.					
<i>FY 2015 Accomplishments:</i> N/A					
<i>FY 2016 Plans:</i> N/A					
<i>FY 2017 Base Plans:</i> FY17 New Start - Funds are provided to begin System Engineering Technical Review process which will facilitate requirements updates, required changes to technical drawings and other relevant documentation in order to develop an Engineering Change Proposal that incorporates MIDS JTRS CMN-4. System Requirements Review and Preliminary Design Review.					
<i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	171.189	209.145	363.792	0.000	363.792

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APN/0195: <i>E-2D AHE</i>	1,044.691	1,023.831	1,154.569	-	1,154.569	1,009.223	780.195	987.798	1,156.603	4,490.306	20,507.428
• APN/0605: <i>Initial Spares - E-2</i>	11.635	7.786	20.371	-	20.371	14.039	17.703	11.900	7.797	24.778	477.110
• APN/0544: <i>E-2 Series</i>	21.059	19.113	32.949	-	32.949	100.925	101.608	133.694	138.149	356.359	2,332.404

Remarks

D. Acquisition Strategy

Milestone C Acquisition Strategy was approved by Milestone Decision Authority, Under Secretary of Defense for Acquisition, Technology and Logistics (USD(AT&L)) on 29 Dec 2008. Milestone C approval to proceed into Production and Deployment was given 11 June 2009 by USD (AT&L). Certification for entrance into Initial Operational Test & Evaluation was received on 06 Feb 2012. Full Rate Production Acquisition Strategy approved on 20 August 2012. Initial Operational Test & Evaluation concluded 1 October 2012. Successfully held a Defense Acquisition Board for Full Rate Production. Received a successful decision to enter into Full Rate Production (FRP) on 01 March 2013. Initial Operational Capability (IOC) achieved on 10 October 2014.

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E. Performance Metrics

Successfully met the Delta System/Software Configuration (DSSC) milestones.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary Hardware Development	SS/CPAF	Northrop Grumman Corporation (NGC) : Melbourne, FL	2,928.409	5.657	Nov 2014	0.225	Nov 2015	15.023	Nov 2016	-		15.023	0.000	2,949.314	2,949.314
Primary Hardware-Fatigue	C/CPFF	Northrop Grumman Corporation (NGC) : Melbourne, FL	7.526	0.017	Mar 2015	18.625	Mar 2016	17.491	Mar 2017	-		17.491	69.082	112.741	112.741
Primary Hardware Development-SIPRChat	C/CPIF	Northrop Grumman Corporation (NGC) : Melbourne, FL	0.392	5.036	Apr 2015	9.668	Nov 2015	6.521	Nov 2016	-		6.521	14.310	35.927	35.927
Primary Hardware Development-TTNT	C/CPIF	Northrop Grumman Corporation (NGC) : Melbourne, FL	7.502	22.200	Apr 2015	18.264	Nov 2015	14.364	Nov 2016	-		14.364	46.975	109.305	109.305
Primary Hardware Development-TTNT	SS/FFP	Data Link Solutions : Cedar Rapids, IA	1.005	9.451	Dec 2014	4.346	Dec 2015	7.753	Dec 2016	-		7.753	0.000	22.555	22.555
Primary Hardware Development-NAVWAR	SS/CPFF	Northrop Grumman Corporation (NGC) : Melbourne, FL	0.000	0.000		0.000		1.247	Feb 2017	-		1.247	17.140	18.387	18.387
Primary Hardware-Aerial Refueling	SS/CPIF	Northrop Grumman Corporation (NGC) : Melbourne, FL	69.588	63.799	Oct 2014	51.799	Nov 2015	66.604	Nov 2016	-		66.604	45.042	296.832	296.832
Training Development	SS/FFP	Rockwell Collins : Cedar Rapids, IA	0.000	1.580	Dec 2014	1.889	Feb 2016	17.028	Feb 2017	-		17.028	49.677	70.174	70.174
GFE	Various	Various : Various	33.726	0.000		4.913	Feb 2016	2.452	Feb 2017	-		2.452	0.000	41.091	-
Primary Software Development	Various	Navy Syst Mgt Activity : Arlington, VA	0.000	0.000		18.559	Nov 2015	11.925	Dec 2016	-		11.925	1.699	32.183	-
Prior Year Prod Dev costs no longer funded in FYDP	Various	Various : Various	625.308	0.000		0.000		0.000		-		0.000	0.000	625.308	-
Subtotal			3,673.456	107.740		128.288		160.408		-		160.408	243.925	4,313.817	-

Remarks
 Totals may not add due to rounding.
 Award Fee for SDD contract N00019-03-C-0057:
 Period 1 FY04 - 90% Period 7 FY08 - 94% Period 13 FY13 - 93%
 Period 2 FY04 - 91% Period 8 FY09 - 93% Period 14 FY14 - 97%

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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Period 3 FY05 - 80%	Period 9 FY09 - 95%														
Period 4 FY06 - 94%	Period 10 FY10 - 100%														
Period 5 FY06 - 100%	Period 11 FY11 - 95%														
Period 6 FY07 - 95%	Period 12 FY12 - 95%														

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Software Development	Various	Navy Syst Mgt Activity : Arlington, VA	13.019	9.589	Apr 2015	4.059	Nov 2015	35.402	Nov 2016	-		35.402	14.639	76.708	-
Software Development-SN	Various	Navy Syst Mgt Activity : Arlington, VA	0.000	0.000		0.000		6.260	Mar 2017	-		6.260	95.484	101.744	-
Software Development-Data Fusion	Various	Navy Syst Mgt Activity : Arlington, VA	0.000	0.000		0.000		12.549	Mar 2017	-		12.549	21.224	33.773	-
Software Development-CEA	Various	Navy Syst Mgt Activity : Arlington, VA	0.200	1.170	Apr 2015	6.362	Mar 2016	28.601	Mar 2017	-		28.601	88.793	125.126	-
Software Development-SIPRChat	SS/CPIF	Northrop Grumman Corporation (NGC) : Melbourne, FL	1.720	2.758	Jan 2015	4.512	Dec 2015	2.600	Dec 2016	-		2.600	0.000	11.590	11.590
Software Development-AMIIP	SS/CPIF	Northrop Grumman Corporation (NGC) : Melbourne, FL	0.493	4.500	Dec 2014	9.196	Dec 2015	2.855	Dec 2016	-		2.855	1.987	19.031	19.031
Software Development-TTNT	SS/CPIF	Northrop Grumman Corporation (NGC) : Melbourne, FL	0.000	0.200	Jan 2015	3.391	Dec 2015	6.667	Dec 2016	-		6.667	11.266	21.524	21.524
Software Development-F2F	SS/CPIF	Northrop Grumman Corporation (NGC) : Melbourne, FL	0.000	0.000		0.000		5.649	Mar 2017	-		5.649	23.601	29.250	29.250

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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Software Development-NAVWAR	SS/CPPIF	Northrop Grumman Corporation (NGC) : Melbourne, FL	0.000	0.000		0.000		0.210	Mar 2017	-		0.210	1.418	1.628	1.628
Government Engineering Support	WR	Naval Air Warfare Center Aircraft Division (NAWCAD) : Pax River, MD	88.569	8.185	Nov 2014	17.029	Nov 2015	24.611	Nov 2016	-		24.611	71.230	209.624	-
Government Engineering Support	WR	Naval Air Warfare Center Training Systems Division : Orlando, FL	11.352	0.194	Dec 2014	0.000		0.000		-		0.000	0.622	12.168	-
Government Engineering Support	Various	Various : Various	12.118	3.008	Nov 2014	0.539	Nov 2015	0.000		-		0.000	0.000	15.665	-
Integrated Logistics Support	Various	Various : Various	8.270	1.397	Nov 2014	4.049	Nov 2015	4.058	Nov 2016	-		4.058	11.048	28.822	-
Contractor Engineering Support ETS	C/CPFF	Imagine One : Colonial Beach, VA	3.376	1.773	Jan 2015	1.525	Jan 2016	3.000	Jan 2017	-		3.000	4.707	14.381	14.381
Technical Data	Various	Various : Various	0.994	0.550	Dec 2014	0.560	Dec 2015	0.310	Dec 2016	-		0.310	0.843	3.257	-
Configuration Management	Various	Various : Various	0.252	0.100	Dec 2014	0.102	Dec 2015	0.103	Dec 2016	-		0.103	0.339	0.896	-
Prior Year Support costs no longer funded in FYDP	Various	Various : Various	95.380	0.000		0.000		0.000		-		0.000	0.000	95.380	-
Subtotal			235.743	33.424		51.324		132.875		-		132.875	347.201	800.567	-

Remarks
 Totals may not add due to rounding.
 Integrated Logistics Support, Government Engineering Support, Contractor Engineering Support, Technical Data and Configuration Management - various contractors and award dates throughout the fiscal year.

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental T&E	WR	NAWCAD : Pax River, MD	95.440	19.591	Nov 2014	5.675	Nov 2015	35.652	Nov 2016	-		35.652	185.927	342.285	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604234N / <i>Advanced Hawkeye</i>	Project (Number/Name) 3051 / <i>E-2D Adv Hawkeye</i>
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental T&E 1	Various	Various : Various	35.703	0.000		4.245	Dec 2015	4.189	Nov 2016	-		4.189	4.751	48.888	-
Developmental T&E	WR	Various : Various	18.189	0.000		9.123	Dec 2015	9.075	Nov 2016	-		9.075	23.099	59.486	-
Developmental T&E	C/CPFF	Wyle Labs - ESTEL : Huntsville, AL	5.473	0.000		1.500	Jan 2016	0.000		-		0.000	0.000	6.973	6.973
Developmental T&E-ROR	SS/CPFF	Northrop Grumman Corporation (NGC) : Melbourne, FL	0.500	1.500	Mar 2015	2.252	Mar 2016	4.840	Mar 2017	-		4.840	24.687	33.779	33.779
Developmental T&E ETS	Various	Various : Various	7.166	5.236	Jun 2015	0.275	Dec 2015	0.000		-		0.000	0.000	12.677	-
Developmental T&E ETS	C/CPFF	JF Taylor Inc : Lexington Park, MD	5.693	2.551	Feb 2015	2.942	Feb 2016	2.409	Feb 2017	-		2.409	11.379	24.974	24.974
Operational T&E	WR	NAWCAD : Pax River, MD	22.954	0.895	Nov 2014	0.900	Nov 2015	1.041	Nov 2016	-		1.041	38.941	64.731	-
Operational T&E	Various	Various : Various	5.032	0.000		0.400	Nov 2015	0.050	Nov 2016	-		0.050	0.100	5.582	-
Test Assets	Various	Various : Various	3.900	0.000		1.688	Nov 2015	13.081	Nov 2016	-		13.081	9.199	27.868	-
Prior Year T&E costs no longer funded in FYDP	Various	Various : Various	37.778	0.000		0.000		0.000		-		0.000	0.000	37.778	-
Subtotal			237.828	29.773		29.000		70.337		-		70.337	298.083	665.021	-

Remarks
 Totals may not add due to rounding.
 Developmental Test & Evaluation (T&E), Developmental T&E, Engineering & Technical Services and Operational T&E - various contractors and award dates throughout the fiscal year.

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Prog Management Supp	Various	Various : Various	2.370	0.080	Nov 2014	0.036	Nov 2015	0.037	Nov 2016	-		0.037	0.163	2.686	-
Travel	Various	Various : Various	2.449	0.172	Oct 2014	0.497	Oct 2015	0.135	Oct 2016	-		0.135	3.337	6.590	-
Prior Year Mgmt costs no longer funded in FYDP	Various	Various : Various	64.164	0.000		0.000		0.000		-		0.000	0.000	64.164	-
Subtotal			68.983	0.252		0.533		0.172		-		0.172	3.500	73.440	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604234N / <i>Advanced Hawkeye</i>	Project (Number/Name) 3051 / <i>E-2D Adv Hawkeye</i>
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks
 Totals may not add due to rounding.
 Contractor Engineering Support, Government Engineering Support, Program Support and Travel - various contractors and/or award dates throughout the fiscal year.

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	4,216.010	171.189	209.145	363.792	-	363.792	892.709	5,852.845	-

Remarks
 Totals may not add due to rounding.

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604234N / <i>Advanced Hawkeye</i>	Project (Number/Name) 3051 / <i>E-2D Adv Hawkeye</i>
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E-2D Adv Hawkeye	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021														
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q											
Acquisition Milestones																																							
Milestones	IOC ▲																																						
Test & Evaluation																																							
DSSC 2 Dev & Test	DSSC 2 Dev & Test																																						
DSSC 2 SW Merge					DSSC 2 SW Merge ▼																																		
DSSC 3 SW Merge																												DSSC 3 SW Merge ▼											
DSSC 3 Dev & Test																												DSSC 3 Dev & Test											
DSSC 4 Dev & Test																																DSSC 4 Dev & Test							
DSSC 4 SW Merge																																DSSC 4 SW Merge ▼							
Operational Evaluation																																							
DSSC 2 OT					DSSC 2 OT																																		
DSSC 2 Fleet Release					DSSC 2 Fleet Release ▼																																		
DSSC 3 OT																												DSSC 3 OT											
DSSC 3 Fleet Release																																DSSC 3 Fleet Release ▼							
DSSC 4 OT																																DSSC 4 OT							
DSSC 4 Fleet Release																																DSSC 4 Fleet Release ▼							
Production Milestones																																							
Contract Awards	FRP Lot III CA ●																																						
FRP Lot IV CA					FRP Lot IV CA ●																																		
FRP Lot V CA																												FRP Lot V CA ●											
FRP Lot VI CA																																FRP Lot VI CA ●							
FRP Lot VII CA																																FRP Lot VII CA ●							
FRP Lot VIII CA																																FRP Lot VIII CA ●							
FRP Lot IX CA																																FRP Lot IX CA ●							
Deliveries																																							
LRIP 4 - 5 A/C APN	LRIP 4 - 5 A/C APN																																						
FRP I - 5 A/C					FRP I - 5 A/C																																		
FRP II - 5 A/C																												FRP II - 5 A/C											
FRP III - 5 A/C																																FRP III - 5 A/C							
FRP IV - 5 A/C																																FRP IV - 5 A/C							
FRP V - 6 A/C																																FRP V - 6 A/C							
FRP VI - 5 A/C																																FRP VI - 5 A/C							

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604234N / <i>Advanced Hawkeye</i>	Project (Number/Name) 3051 / <i>E-2D Adv Hawkeye</i>
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E-2D Counter Electronic Attack	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	
System Development																													
Software Development			SW Development						SIL Integration																				
							SRR ■			PDR ■			CDR ■							TRR/FRR ■									
Test & Evaluation																													
Developmental T&E														Dev T&E															
Operational T&E																													

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604234N / <i>Advanced Hawkeye</i>	Project (Number/Name) 3051 / <i>E-2D Adv Hawkeye</i>
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E-2D MIDS/JTRS Tactical Targeting Networking Technology (TTNT)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	
System Development & Design																													
TTNT HPA Development & Design	SRR ■			SRR ■	PDR ■					CDR ■				TRR ■															
	Hdw/SW Development & Integration																												
TTNT MIDS/JTRS TTNT Integration						SRR ■	PDR ■			CDR ■	TRR ■		FRR ■																
	Hdw/SW Development & Design																												
Test & Evaluation																													
MIDS/JTRS TTNT Developmental Test/Operational Test																													
																	DT/OA				DSSC 4 DT				DSSC 4 OT				

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604234N / <i>Advanced Hawkeye</i>	Project (Number/Name) 3051 / <i>E-2D Adv Hawkeye</i>
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E-2D SIPRChat	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestones																												
Milestones																												
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">PDR ■</div> <div style="text-align: center;">CDR ■</div> <div style="text-align: center;">TRR ■</div> <div style="text-align: center;">FRR ■</div> </div>																												
System Development																												
<div style="display: flex; justify-content: center; align-items: center;"> <div style="border-bottom: 2px solid black; width: 80%;"></div> <div style="margin: 0 10px;">Hdw/SW Development & Integration</div> </div>																												
Test & Evaluation																												
Developmental Test/Operational Test																												
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">DT —</div> <div style="text-align: center;">DSSC 4 DT —</div> <div style="text-align: center;">DSSC 4 OT —</div> </div>																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604234N / <i>Advanced Hawkeye</i>	Project (Number/Name) 3051 / <i>E-2D Adv Hawkeye</i>
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Sensor Netting	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
Acquisition Milestones																																
Development & Design																																
Test & Evaluaiton																																
Acquisition Milestones																																

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604234N / <i>Advanced Hawkeye</i>	Project (Number/Name) 3051 / <i>E-2D Adv Hawkeye</i>
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Data Fusion	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021															
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q												
													SRR ■	PDR ■		CDR ■					TRR ■				FRR ■								OTRR ■							
Development & Design									Requirements Development								Sys Engineering & Integration																							
																					SIL Test																			
Test & Evaluation																																								

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604234N / <i>Advanced Hawkeye</i>	Project (Number/Name) 3051 / <i>E-2D Adv Hawkeye</i>
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Fighter to Fighter Backlink	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021											
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q								
Acquisition Milestones													SRR ■	PDR ■		CDR ■		TRR ■		FRR ■									OTRR ■							
Development & Design									Requirements Development				Sys Engineering & Integration				SIL Test																			
Test & Evaluation																																				

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604234N / <i>Advanced Hawkeye</i>	Project (Number/Name) 3051 / <i>E-2D Adv Hawkeye</i>
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NAVWAR	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
Acquisition Milestones													■	■	■																	
Development & Design													Systems Engineering & Integration																			
													HW Development																			
													SW Development																			
															SIL Test																	
Test & Evaluation																			DT								DSSC 4 DT				DSSC 4 OT	

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604234N / <i>Advanced Hawkeye</i>	Project (Number/Name) 3051 / <i>E-2D Adv Hawkeye</i>
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SPARQ	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
Acquisition Milestones																																
Development & Design																																
Test & Evaluation																																

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604234N / <i>Advanced Hawkeye</i>	Project (Number/Name) 3051 / <i>E-2D Adv Hawkeye</i>
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ALQ-217 Electronic Support Measures (ESM)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021											
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q								
Acquisition Milestones												SRR/SFR ■				PDR ■				CDR ■								TRR ■				FRR ■				
Development & Design									Requirements Development				Hdw/SW Development & Integration																							
Test & Evaluation																					SIL Test				DT											

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604234N / <i>Advanced Hawkeye</i>	Project (Number/Name) 3051 / <i>E-2D Adv Hawkeye</i>
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E-2D Crypto Modernization/Frequency Remapping	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestones											SRR	PDR			CDR	TRR			FRR									
Development & Design									Hdw/SW Development & Integration																			
Test & Evaluation																	SIL Test											
																					DT							

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604234N / <i>Advanced Hawkeye</i>	Project (Number/Name) 3051 / <i>E-2D Adv Hawkeye</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
E-2D Adv Hawkeye				
Acquistion Milestones: Milestones: Acquistion Milestones - Initial Operational Capabilities	1	2015	1	2015
Test & Evaluation: DSSC 2 Capability Dev & Testing	1	2015	4	2015
Test & Evaluation: Software Merge DSSC 2	3	2015	3	2015
Test & Evaluation: DSSC 3 Capability Dev & Testing	3	2018	4	2018
Test & Evaluation: Software Merge - DSSC 3	2	2018	2	2018
Test & Evaluation: DSSC 4 Capability Dev & Testing	3	2020	4	2020
Test & Evaluation: Software Merge DSSC 4	3	2020	3	2020
Test & Evaluation: Operational Evaluation: DSSC 2 Operational Test	2	2016	3	2016
Test & Evaluation: Operational Evaluation: DSSC 2 Fleet Release	4	2016	4	2016
Test & Evaluation: Operational Evaluation: DSSC 3 Operational Test	2	2019	3	2019
Test & Evaluation: Operational Evaluation: DSSC 3 Fleeet Release	4	2019	4	2019
Test & Evaluation: Operational Evaluation: DSSC 4 Operational Test	2	2021	3	2021
Test & Evaluation: Operational Evaluation: DSSC 4 Fleet Release	4	2021	4	2021
Production Milestones: Contract Awards: Production Milestones - FRP Lot III CA	2	2015	2	2015
Production Milestones: Contract Awards: Production Milestones - FRP Lot IV CA	2	2016	2	2016
Production Milestones: Contract Awards: Production Milestones - FRP Lot V CA	2	2017	2	2017
Production Milestones: Contract Awards: Production Milestones - FRP Lot VI CA	2	2018	2	2018
Production Milestones: Contract Awards: Production Milestones - FRP Lot VII CA	2	2019	2	2019
Production Milestones: Contract Awards: Production Milestones - FRP Lot VIII CA	2	2020	2	2020
Production Milestones: Contract Awards: Production Milestones - FRP Lot IX CA	2	2021	2	2021
Deliveries: Production Deliveries - LRIP IV (5 A/C APN)	1	2015	4	2015

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604234N / <i>Advanced Hawkeye</i>	Project (Number/Name) 3051 / <i>E-2D Adv Hawkeye</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Deliveries: Production Deliveries - FRP I (5 A/C)	1	2016	3	2016
Deliveries: Production Deliveries - FRP II (5 A/C)	4	2016	4	2017
Deliveries: Production Deliveries - FRP III (5 A/C)	1	2018	4	2018
Deliveries: Production Deliveries - FRP IV (5 A/C)	4	2018	4	2019
Deliveries: Production Deliveries - FRP V (6 A/C)	1	2020	4	2020
Deliveries: Production Deliveries - FRP VI (5 A/C)	1	2021	4	2021
<i>E-2D Adv Hawkeye Aerial Refueling</i>				
System Development: Hardware/Software Development: Aerial Refueling - Engineering & Manufacturing Development	1	2015	4	2020
System Development: Reviews: Aerial Refueling - Critical Design Review	4	2015	4	2015
System Development: Reviews: Aerial Refueling - Test Readiness Review	1	2017	1	2017
System Development: Reviews: Aerial Refueling - Production Readiness Review	3	2017	3	2017
System Development: Reviews: Aerial Refueling - Operational Test Readiness Review	1	2019	1	2019
System Development: Reviews: Aerial Refueling - Initial Operational Capability	2	2020	2	2020
Test & Evaluation: Aerial Refueling - Fuel Rig Test	3	2015	4	2015
Test & Evaluation: Aerial Refueling - Probe Static Test	1	2016	2	2016
Test & Evaluation: Aerial Refueling - Aircraft Installation	1	2016	3	2017
Test & Evaluation: Aerial Refueling - First Flight	1	2017	1	2017
Test & Evaluation: Developmental Flight Test: Developmental Flight Test	1	2017	3	2018
Test & Evaluation: Developmental Flight Test: Developmental Test	4	2018	4	2018
Test & Evaluation: Developmental Flight Test: Operational Flight Test	2	2019	3	2019
<i>E-2D Counter Electronic Attack</i>				
System Development: Software Development: Counter Electronic Attack - SW Development	3	2015	1	2017
System Development: Software Development: Counter Electronic Attack - SIL Integration	2	2017	4	2018

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604234N / <i>Advanced Hawkeye</i>	Project (Number/Name) 3051 / <i>E-2D Adv Hawkeye</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
System Development: Software Development: Counter Electronic Attack - System Requirements Review	3	2016	3	2016
System Development: Software Development: Counter Electronic Attack - Preliminary Design Review	1	2017	1	2017
System Development: Software Development: Counter Electronic Attack - Critical Design Review	3	2017	3	2017
System Development: Software Development: Counter Electronic Attack - TRR/FRR	4	2018	4	2018
Test & Evaluation: Developmental T&E: Counter Electronic Attack - DT&E Tech Evaluation	4	2018	2	2019
Test & Evaluation: Operational T&E: Developmental Test	3	2020	4	2020
Test & Evaluation: Operational T&E: Operational Test	2	2021	3	2021
<i>E-2D MIDS/JTRS Tactical Targeting Networking Technology (TTNT)</i>				
System Development & Design: TTNT HPA Development & Design: TTNT - System Requirements Review 1	1	2015	1	2015
System Development & Design: TTNT HPA Development & Design: TTNT - System Requirements Review 2	4	2015	4	2015
System Development & Design: TTNT HPA Development & Design: TTNT High Power Amplifier Preliminary Design Review	1	2016	1	2016
System Development & Design: TTNT HPA Development & Design: TTNT High Power Amplifier Critical Design Review	2	2017	2	2017
System Development & Design: TTNT HPA Development & Design: TTNT High Power Amplifier Test Readiness Review	2	2018	2	2018
System Development & Design: TTNT HPA Development & Design: System Development & Design	1	2015	1	2019
System Development & Design: TTNT MIDS/JTRS TTNT Integration: TTNT - System Requirements Review	3	2016	3	2016
System Development & Design: TTNT MIDS/JTRS TTNT Integration: TTNT - Preliminary Design Review	1	2017	1	2017

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604234N / <i>Advanced Hawkeye</i>	Project (Number/Name) 3051 / <i>E-2D Adv Hawkeye</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
System Development & Design: TTNT MIDS/JTRS TTNT Integration: TTNT - Critical Design Review	4	2017	4	2017
System Development & Design: TTNT MIDS/JTRS TTNT Integration: TTNT -Test Readiness Review	1	2018	1	2018
System Development & Design: TTNT MIDS/JTRS TTNT Integration: TTNT - Functional Readiness Review	3	2018	3	2018
System Development & Design: TTNT MIDS/JTRS TTNT Integration: System Development & Design	2	2016	1	2019
Test & Evaluation: MIDS/JTRS TTNT Developmental Test/Operational Test: MIDS/ JTRS/TTNT - Developmental Test	3	2018	4	2018
Test & Evaluation: MIDS/JTRS TTNT Developmental Test/Operational Test: MIDS/ JTRS/TTNT - Developmental Test DSSC 4	3	2020	4	2020
Test & Evaluation: MIDS/JTRS TTNT Developmental Test/Operational Test: MIDS/ JTRS/TTNT Operational Test DSSC 4	2	2021	3	2021
<i>E-2D SIPRChat</i>				
Acquisition Milestones: Milestones: SIPRChat - Preliminary Design Review	1	2017	1	2017
Acquisition Milestones: Milestones: SIPRChat - Critical Design Review	4	2017	4	2017
Acquisition Milestones: Milestones: SIPRChat -Test Readiness Review	1	2018	1	2018
Acquisition Milestones: Milestones: Functional Readiness Review	3	2018	3	2018
System Development: Hardware & Software Integration	3	2015	4	2019
Test & Evaluation: Developmental Test/Operational Test: Developmental Test	3	2018	4	2018
Test & Evaluation: Developmental Test/Operational Test: Developmental Test DSSC 4	3	2020	4	2020
Test & Evaluation: Developmental Test/Operational Test: Operational Test	2	2021	3	2021
<i>Accelerated Mid-Term Interoperability Improvement Program (AMIIP)</i>				
Acquisition Milestones: Milestones: System Requirements Review	4	2015	4	2015
Acquisition Milestones: Milestones: Preliminary Design Review	1	2016	1	2016
Acquisition Milestones: Milestones: Critical Design Review	3	2016	3	2016
Acquisition Milestones: Milestones: Test Readiness Review	4	2016	4	2016

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604234N / <i>Advanced Hawkeye</i>	Project (Number/Name) 3051 / <i>E-2D Adv Hawkeye</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Acquisition Milestones: Milestones: Fleet Readiness Review	1	2017	1	2017
Systems Development: Software Integration	3	2015	2	2018
Test & Evaluation: Technical Evaluation: Developmental Test	1	2017	3	2017
Test & Evaluation: Technical Evaluation: Developmental Test DSSC 3	3	2018	4	2018
Test & Evaluation: Technical Evaluation: Operational Test DSSC 3	2	2019	3	2019
Sensor Netting				
Acquisition Milestones: System Requirements Review	2	2018	2	2018
Acquisition Milestones: Preliminary Design Review	2	2019	2	2019
Acquisition Milestones: Critical Design Review	1	2020	1	2020
Acquisition Milestones: Functional Readiness Review	1	2021	1	2021
Acquisition Milestones: Test Readiness Review	3	2020	3	2020
Development & Design: Requirement Development	2	2017	4	2018
Development & Design: Software Development	4	2018	2	2020
Test & Evaluation: System Integration Lab Test	3	2020	2	2021
Test & Evaluation: Developmental Test & Evaluation	2	2021	4	2021
Data Fusion				
System Requirements Review	1	2018	1	2018
Preliminary Design Review	2	2018	2	2018
Critical Design Review	4	2018	4	2018
Test Readiness Review	2	2019	2	2019
Functional Readiness Review	4	2019	4	2019
Operational Test Readiness Review	1	2021	1	2021
Development & Design: Development & Integration	2	2017	2	2018
Development & Design: Systems Engineering & Integration	2	2018	1	2021
Development & Design: System Integration Lab Test	2	2019	4	2019
Test & Evaluation: Developmental Testing	4	2019	2	2020

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604234N / <i>Advanced Hawkeye</i>	Project (Number/Name) 3051 / <i>E-2D Adv Hawkeye</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Test & Evaluation: Dev Test - Software Release	3	2020	4	2020
Test & Evaluation: Operational Test & Evaluation	2	2021	3	2021
<i>Fighter to Fighter Backlink</i>				
Acquisition Milestones: System Requirements Review	1	2018	1	2018
Acquisition Milestones: Preliminary Design Review	2	2018	2	2018
Acquisition Milestones: Critical Design Review	4	2018	4	2018
Acquisition Milestones: Test Readiness Review	2	2019	2	2019
Acquisition Milestones: Functional Readiness Review	4	2019	4	2019
Acquisition Milestones: Operational Test Readiness Review	1	2021	1	2021
Development & Design: Development & Integration	2	2017	2	2018
Development & Design: Systems Engineering & Integration	2	2018	1	2021
Development & Design: System Integration Lab Test	2	2019	4	2019
Test & Evaluation: Developmental Test & Evaluation	4	2019	2	2020
Test & Evaluation: Dev Test - Software Release	3	2020	4	2020
Test & Evaluation: Operational Test & Evaluation	2	2021	3	2021
<i>NAVWAR</i>				
Acquisition Milestones: System Rquirements Review	1	2018	1	2018
Acquisition Milestones: Preliminary Design Review/Critical Design Review	2	2018	2	2018
Acquisition Milestones: Test Readiness Reivew/Functional Readiness Review	3	2018	3	2018
Development & Design: Systems Engineering & Integration	4	2017	4	2019
Development & Design: Hardware Development	2	2018	3	2018
Development & Design: Software Development	2	2018	3	2018
Development & Design: System Integration Lab Test	3	2018	4	2018
Test & Evaluation: Developmental Test	1	2019	2	2019
Test & Evaluation: Developmental Test DSSC 4	3	2020	4	2020
Test & Evaluation: Operational Testing DSSC 4	2	2021	3	2021

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604234N / <i>Advanced Hawkeye</i>	Project (Number/Name) 3051 / <i>E-2D Adv Hawkeye</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
SPARQ				
Acquisition Milestones: System Requirements Review	2	2018	2	2018
Acquisition Milestones: Preliminary Design Review	2	2019	2	2019
Acquisition Milestones: Critical Design Review	1	2020	1	2020
Acquisition Milestones: Functional Readiness Review	1	2021	1	2021
Acquisition Milestones: Test Readiness Review	3	2020	3	2020
Development & Design: Requirement Development	2	2017	4	2018
Development & Design: Software Development	4	2018	4	2021
Test & Evaluation: System Integration Lab Test	3	2020	2	2021
Test & Evaluation: Developmental Test & Evaluation	2	2021	4	2021
ALQ-217 Electronic Support Measures (ESM)				
Acquisition Milestones: System Requirements Review 2/System Functional Review	4	2017	4	2017
Acquisition Milestones: Preliminary Design Review	2	2018	2	2018
Acquisition Milestones: Critical Design Review	4	2018	4	2018
Acquisition Milestones: Test Readiness Review	2	2019	2	2019
Acquisition Milestones: Functional Readiness Review	1	2020	1	2020
Development & Design: Requirements Development	2	2017	1	2018
Development & Design: Software Integration	1	2018	4	2019
Test & Evaluation: Software Integration Lab	2	2019	4	2019
Test & Evaluation: Developmental Test	1	2020	2	2021
E-2D Crypto Modernization/Frequency Remapping				
Acquisition Milestones: System Requirements Review	3	2017	3	2017
Acquisition Milestones: Preliminary Design Review	4	2017	4	2017
Acquisition Milestones: Critical Design Review	2	2018	2	2018
Acquisition Milestones: Test Readiness Review	3	2018	3	2018
Acquisition Milestones: Functional Readiness Review	1	2019	1	2019

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604234N / <i>Advanced Hawkeye</i>	Project (Number/Name) 3051 / <i>E-2D Adv Hawkeye</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Development & Design: Developmental Test	2	2017	4	2019
Development & Design: SIL Test	3	2018	1	2019
Test & Evaluation: Developmental Test	1	2019	4	2019

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604234N / <i>Advanced Hawkeye</i>				Project (Number/Name) 9999 / <i>Congressional Adds</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
9999: <i>Congressional Adds</i>	0.000	0.000	8.500	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	8.500
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Program increase for E-2D Advanced Hawkeye (AHE) radar development.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016
Congressional Add: Adv Radar Innovation Fund - Air (Cong)	0.000	8.500
FY 2015 Accomplishments: N/A		
FY 2016 Plans: N/A		
Congressional Adds Subtotals	0.000	8.500

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604234N / <i>Advanced Hawkeye</i>	Project (Number/Name) 9999 / <i>Congressional Adds</i>
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Advanced Radar Congressional Add	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
Systems Development																																
									Systems Requirements																							

2017PB - 0604234N - 9999

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604234N / <i>Advanced Hawkeye</i>	Project (Number/Name) 9999 / <i>Congressional Adds</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Advanced Radar Congressional Add</i>				
Systems Development: Systems Requirements	2	2016	4	2017

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>					R-1 Program Element (Number/Name) PE 0604245N / H-1 Upgrades							
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	48.994	43.469	27.235	27.441	-	27.441	32.625	33.339	34.261	37.359	Continuing	Continuing
3359: <i>H-1 Improvements</i>	48.994	43.469	27.235	27.441	-	27.441	32.625	33.339	34.261	37.359	Continuing	Continuing

A. Mission Description and Budget Item Justification

The mission of the AH-1 attack helicopter is to provide rotary wing close air support, anti-armor, armed escort, armed/visual reconnaissance, survivability enhancements, and fire support coordination capabilities under day/night and adverse weather conditions. The mission of the UH-1 utility helicopter is to provide command and control and combat assault support under day/night and adverse weather conditions and special operations support; supporting arms coordination and aeromedical evacuation. Major modifications for both aircraft include 37 AH-1Ws converted to AH-1Zs, build 152 new AH-1Zs, remanufacture ten (10) H-1N helicopters and build 150 new UH-1Y models. AH-1Z and UH-1Y models include a 4-bladed, composite rotor system with semi-automatic blade fold, performance-matched transmissions, T700 Engine Digital Electronic Control Units, 4-bladed tail rotors and drive systems, more effective stabilizers, upgraded landing gear, and common, fully integrated cockpits and avionics systems. These upgrades will add 10,000 flight hours to AH-1Z/UH-1Y airframes. The fully integrated cockpits reduce operator workload and improve situational awareness, thus increasing safety and reducing the rate of aircraft attrition. They will provide considerable growth potential for future weapon systems and avionics, which will significantly increase mission effectiveness and survivability. The cockpits will also include integration of onboard mission planning, communications, digital fire control, self-navigation, night navigation/targeting, air-to-ground missile and air-launched intercept missile weapon systems management in nearly identical crew stations, which significantly reduces training requirements. These upgrades maximize commonality between the two aircraft and provide needed improvements in crew and passenger survivability, payload, power available, endurance, range, airspeed, maneuverability and supportability.

This budget is required for follow-on improvements to H-1 aircraft via integration of sensors and weapons, avionics, and air vehicle components that will address deficiencies, systems safety, obsolescence, reliability, supportability, relevance in the battlespace, and cost growth issues. Improvements will include all associated System Configuration Set (SCS) updates as well as integration and testing related to the aircraft platforms.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	44.115	27.235	27.020	-	27.020
Current President's Budget	43.469	27.235	27.441	-	27.441
Total Adjustments	-0.646	0.000	0.421	-	0.421
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.646	0.000			
• Program Adjustments	0.000	0.000	3.012	-	3.012

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604245N / <i>H-1 Upgrades</i>
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• Rate/Misc Adjustments	0.000	0.000	-2.591	-	-2.591
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Change Summary Explanation

The FY 2017 funding request was reduced by \$2.719M to account for the availability of prior year execution balances.

Technical & Schedule: In order to maintain fleet fielding schedule, SCS 8.2 functionality has been further parsed out into smaller delivery packages, SCS 8.3, 8.4, and 8.5.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604245N / H-1 Upgrades				Project (Number/Name) 3359 / H-1 Improvements			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3359: H-1 Improvements	48.994	43.469	27.235	27.441	-	27.441	32.625	33.339	34.261	37.359	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The objective of H-1 Improvements is to provide follow-on Research, Development, Test and Evaluation efforts in support of all H-1 aircraft.

H-1 Improvements include System Configuration Set (SCS) development and testing. SCS involves the integration of the entire set of airborne electronics connected via the 1553 data bus and includes much of the electronic hardware and software described in air vehicle, avionics, and sensors and weapons below. This includes correction of hardware and software deficiencies as identified through test and/or due to obsolescence issues.

Air Vehicle and Engine improvements include analysis of structural data to formulate Damage Limits and Tolerances for structural components to reduce life cycle costs and maintenance workload; and redesign of structural components and drive system components to minimize excessive and premature wear, increase reliability, and improve existing design deficiencies. Additional air vehicle upgrades include: redesign of the aircraft power-generating components (generators, inverters, wiring) to support power requirements for existing and future systems (avionics, sensors, and weapons) and to reduce aircraft weight, redesign of the Environmental Control System /Thermal Redesign to support cooling of Technology Refresh Mission Computer and other avionics, and redesign to add an aerial refueling capability.

Avionics improvements target digital inter-operability, integrated avionics, safety & survivability, and situational awareness for both the pilot and aircrew safety. This includes integrating Blue Force Tracking, Joint Battle Command-Platform (JBC-P), Full Motion Video (FMV), Degraded Visual Environment (DVE), Helmet Mounted Display improvements, cockpit displays, precision and GPS non-precision landing capability, Crash Survivable Flight Incident Recorder, collision avoidance, improved Embedded Global Positioning System (EGI), Inertial Navigation System (INS), targeting sensor systems and mission computer. H-1 capability improvements include improved Aircraft Survivability Equipment (ASE), digital operations & transfer of data, digital interoperability, digital video recording, video and data networking, and information integration with aviation combat elements and Marine Air Ground Task Force elements. Mandated capability efforts include CNS/ATM, Required Navigation Performance/Area Navigation (RNP/RNAV), GPS Selective Availability Anti-Spoofing Module (SAASM), Automatic Dependent Surveillance - Broadcast (ADS-B), Crash Survivable Flight Incident Recorder, development efforts required for Depot standup and incorporation of technology and information protection/Information Assurance in critical avionics and sensor systems. In addition, the goal is to reduce total ownership cost for H-1 aircraft and related support systems by improving reliability and maintainability of critical flight and avionics systems along with associated peculiar avionics support equipment and incorporating fact-of-life obsolescence solutions.

Sensors and Weapons improvements include upgrades and reliability initiatives, hardware and infrared improvements for the Targeting Sight System and BRITE Star Sensors. These enhancements will provide upgraded performance, improve overall design, producibility and maintainability. In addition, several aircraft stores integration efforts are being performed. The AN/ALQ-231 (V) Intrepid Tiger II Electronic Warfare Pod will be integrated to provide a new Electronic Warfare capability. The Joint Air-to-Ground Missile (JAGM) and AGM-114 Romeo Hellfire missiles began integration efforts starting in FY14. These missiles will provide new interfaces to the aircraft that allow for better targeting capabilities with a new millimeter wave sensor (JAGM), provide enhanced lethality with greater fuze functionality and incorporate a new multi-effects warhead. Continued improvements to aircraft armament systems and ordnance systems will continue with additional operational testing of Advanced Precision Kill Weapons (APKWS), and M299 Launcher improvements.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604245N / H-1 Upgrades	Project (Number/Name) 3359 / H-1 Improvements

These improvements will provide considerable growth potential for future weapon systems, air vehicle improvements, software improvements, and avionics upgrades, which will significantly increase mission effectiveness & survivability, while potentially reducing life cycle costs. The cockpits will also include integration of onboard mission planning, communications, digital fire control, self-navigation, night navigation/targeting, precision guided munitions, and air-launched intercept missile weapon systems management in nearly identical crew stations, which significantly reduce training requirements. These upgrades maximize commonality between all H-1 Type/Model/Series aircraft and provide needed improvements in crew and passenger reliability, survivability, payload, power available, endurance, range, airspeed, maneuverability and supportability.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: System Configuration Set Development	19.192	17.371	13.486	0.000	13.486
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					
FY 2015 plans - SCS 8.0 - Correction of hardware and software deficiencies as identified through test and/or due to obsolescence issues. SCS 8.0 is planned in two increments, SCS 8.1 and SCS 8.2, and will address key avionics and sensors obsolescence issues that affect Aircraft Production Lots. SCS 8.1 will continue development and flight test of Tech Refresh Mission Computer (avionics obsolescence issue required to support delivery of production aircraft beginning with Lot 11/FY 2014), Target Sight System (TSS) Turret Electronics Unit (TEU) (electro-optical sensor obsolescence issue required to support production aircraft beginning with Lot 13/ FY 2016), and the associated System Security Engineering (SSE) improvements required as DoD mandates for both updated avionics and updated sensor electronics. SCS 8.2 will continue the design and development of Radar Warning Set AN/APR-39 D(V)2 (sensor/avionics obsolescence issue required to support Lot 14/FY 2017), the Advanced Data Transfer System (ADTS) needed for digital map data to meet Terrain Awareness Warning System (TAWS) mandate, and Airborne Network Switch (ANS) needed to switch multiple devices to communicate with the TRMC via ethernet.					
FY 2016 Plans:					
SCS 8.1 development completion. Continue SCS 8.2 with the design and development of Radar Warning Set AN/APR-39 D(V)2 (sensor/avionics) to correct obsolescence issue required to support Lot 14/FY 2017. Integrate the Advanced Data Transfer System (ADTS) needed for digital map data to meet Terrain Awareness Warning System (TAWS) mandate, and Airborne Network Switch (ANS) needed to switch multiple devices to communicate with the Tech Refresh Mission Computer (TRMC) via Ethernet. Integrate and test AN/ALE-47 Dispensing System software upgrades to increase the survivability of platforms against Infrared (IR) threats. Integrate Target Sight System (TSS) Laser Spot Tracker (LST) to increase platform target acquisition capability.					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604245N / H-1 Upgrades	Project (Number/Name) 3359 / H-1 Improvements
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Complete Developmental Test (DT) and Operation Testing (OT) for SCS 8.2. Commence SCS 8.3 ANS/ADTS software design, development, and integration.</p> <p>FY 2017 Base Plans: Continue SCS 8.3 ANS/ADTS software design, development, and integration. SCS 8.3 is completed with DT and OT planned for end of FY17 for digital map data to support follow on TAWS integration and multiple device communication within the platform to the TRMC. Commence SCS 8.4 software development for integration of JAGM and establish requirements for SCS 8.5 TAWS software development and integrations.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Weapons and Sensors Testing and Integration</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: Develop, test and integrate hardware, software changes to address parts obsolescence and deficiencies identified in test for aircraft sensors; Target Sight Systems (TSS) and the BRITE Star II. Begin software integration of Joint Air to Ground Missile and AGM-114 Romeo Missile to test functionality and compatibility with aircraft software. Collect flight test data, to include captive carriage noise and vibration as well conduct safe separation analysis. Continue to refine rocket boresight and launch profiles to improve effectively of the Advanced Precision Kill System (APKWS). Conduct captive carriage and development/operational testing of the AN/ALQ-231 Intrepid Tiger, to include conducting feasibility studies as well as operational evaluations.</p> <p>FY 2016 Plans: Flight testing of TSS Laser Spot Tracker/HDTV/1K Forward Looking Infra Red (FLIR) Software and Hardware improvements as well as begin conducting captive carriage and development testing of the Joint Air-to-Ground Missile as part of SCS 8.2 or later version.</p> <p>FY 2017 Base Plans: FY17 - Continue flight testing of TSS Laser Spot Tracker/HDTV/1K FLIR software and hardware improvements (including -80 turret) as well as TSS TEU re-design testing. Continue captive carriage testing of the JAGM.</p> <p>FY 2017 OCO Plans: N/A</p>	6.105	0.986	1.046	0.000	1.046
Articles:	-	-	-	-	-
<p>Title: Air Vehicle and Engines Improvements</p> <p align="right">Articles:</p>	15.455	5.426	9.250	0.000	9.250
Articles:	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604245N / H-1 Upgrades	Project (Number/Name) 3359 / H-1 Improvements

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p><i>FY 2015 Accomplishments:</i> Complete aircraft flight load survey and conduct analysis of structural data to formulate Damage Limits and Tolerances for rotor components to reduce life cycle costs, and maintenance workload; continue redesign of structural components to minimize excessive and premature wear, increase reliability, and improve existing design deficiencies. Initiate redesign of the auxiliary fuel system, and initiate aerial refueling capability. Initiate component fatigue testing to increase component life limits (Tailboom, rotor system components). Continue air vehicle and engine improvements upgrades to include redesign of the aircraft power-generating components (generator, inverters, wiring) to support power requirements for existing and future systems (avionics, sensors and weapons) and to reduce aircraft weight. Continue redesign of structural components including UH-1Y floor boards, attach beams/belly access panels, the elevator, the landing gear skid tubes, UH-1Y cargo doors, and the Improved Defensive Armament System; continue Environmental Control System/Thermal Redesign to support cooling of Tech Refresh Mission Computer/Mission Computer and other avionics. Continue redesign of the drive system components (rotor brake/slip ring/standpipe/gearboxes/drive shaft & couplers/chip detectors) to increase reliability and reduce high cost and/or failure deficiencies.</p> <p><i>FY 2016 Plans:</i> Continue redesign of structural components to minimize excessive and premature wear, increase reliability, and improve existing design deficiencies. Initiate redesign of the auxiliary fuel system, and initiate aerial refueling capability. Continue air vehicle and engine improvements upgrades to include redesign of the aircraft power-generating components (generator, inverters, wiring) to support power requirements for existing and future systems (avionics, sensors and weapons) and to reduce aircraft weight. Continue Environmental Control System/Thermal Redesign to support other avionics on the UH-1Y/AH-1Z.</p> <p><i>FY 2017 Base Plans:</i> Continue redesign of structural components to minimize excessive and premature wear, increase reliability, and improve existing design deficiencies. Continue redesign of the auxiliary fuel system. Continue air vehicle and engine improvements upgrades to include redesign of the aircraft power-generating components (generator, inverters, wiring) to support power requirements for existing and future systems (avionics, sensors and weapons) and to reduce aircraft weight. Continue Environmental Control System/Thermal Redesign to support other avionics on the UH-1Y/AH-1Z. Initiate survivability upgrades (canted forward chaff buckets, blast frag canopy, opaque armor, self-sealing fuel tanks, sump and backing board.)</p> <p><i>FY 2017 OCO Plans:</i> N/A</p> <p><i>Title:</i> Avionics Improvements</p>					
	2.717	3.452	3.659	0.000	3.659

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604245N / H-1 Upgrades	Project (Number/Name) 3359 / H-1 Improvements
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<i>Articles:</i>	-	-	-	-	-
<p><i>FY 2015 Accomplishments:</i> Continue avionics development & testing on Digital Map and data storage capability, digital video recording, digital systems upgrades, avionics components obsolescence and regression testing; continue development efforts on Terrain Awareness Warning System. Continue enhanced digital capability efforts, Aircraft Survivability Equipment improvements, Helmet Mounted Display improvements, avionics systems obsolescence mitigation efforts, development of peculiar avionics support equipment, and development of automatic test equipment. Continue Full Motion Video design/development and digital interoperability efforts to receive and send video imagery for situational awareness and to reduce the kill chain while complying with rules of engagement for targeting accuracy, maintaining positive ID, and for timely Battle Damage Assessment.</p> <p><i>FY 2016 Plans:</i> Continue avionics development & testing on Digital Map and data storage capabilities, digital video recording, avionics components obsolescence and regression testing; continue development efforts on Terrain Awareness Warning System (TAWs). Continue enhanced digital capability efforts, Aircraft Survivability Equipment (ASE) improvements, Helmet Mounted Display improvements, avionics systems obsolescence mitigation efforts, development of peculiar avionics support equipment, and development of automatic test equipment. Continue Full Motion Video (FMV) design/development and digital interoperability efforts. Initiate development efforts on Wireless Intercommunication Systems (WICS), Joint Battlefield Command - Platform (JBC-P), Mobile User Objective System (MUOS) for over the horizon communication, Degraded Visual Environment and collision avoidance capability. Initiate Embedded Global Positioning System/Inertial Navigation System (EGI) upgrade for Aircraft Dependent Surveillance Broadcast (ADS-B), Selective Availability Anti-Spoofing Module (SAASM), GPS non-precision approach capability and Navigation Warfare (NAVWAR) GPS signal protection efforts. Also initiate UH-1Y aft cabin display for situational awareness and portable tablet Marine Air-Ground Task Force (MAGTF) digital interoperability coordination capability along with digital helmet mounted display capabilities. Initiate integration of Crash Survivable Flight Incident Recorder and Improved Vehicle Health and Monitoring System.</p> <p><i>FY 2017 Base Plans:</i> Initiate avionics development & testing on ASE ALE-47 Electronic Warfare and APR-39D(V)2; Aircraft Network Switch (ANS)/Advanced Data Transfer System and Satellite Communications. Continue avionics development & testing on Digital Map and data storage capabilities, digital video recording, avionics components obsolescence and regression testing; continue development efforts on TAWs; enhanced digital capability efforts, other ASE improvements, Helmet Mounted Display improvements, avionics systems obsolescence mitigation efforts,</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604245N / H-1 Upgrades	Project (Number/Name) 3359 / H-1 Improvements

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
development of peculiar avionics support equipment, and development of automatic test equipment; digital interoperability efforts, development efforts on WICS, JBC-P, MUOS for over the horizon communication, Degraded Visual Environment and collision avoidance capability, EGI upgrade for ADS-B, SAASM, GPS non-precision approach capability and NAVWAR GPS signal protection efforts; UH-1Y aft cabin display for situational awareness and portable tablet MAGTF digital interoperability coordination capability; additional waveform functionality; along with digital helmet mounted display capabilities, and integration of Crash Survivable Flight Incident Recorder and Improved Vehicle Health and Monitoring System.					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	43.469	27.235	27.441	0.000	27.441

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APN/0178: UH-1Y/AH-1Z APN1	835.141	783.954	759.778	-	759.778	829.415	908.711	5.966	6.038	17.574	10,107.473
• APN/0178C: UH-1Y/AH-1Z APN1 Advance Procurement	63.354	56.168	57.232	-	57.232	58.324	0.000	0.000	0.000	0.000	524.758

Remarks

D. Acquisition Strategy
Both UH-1Y and AH-1Z are currently in the follow-on test and evaluation period. Planning and testing has begun to evaluate enhancements such as incorporating improvements to address critical reliability deficiencies, avionics upgrades to improve existing capability including sending/receiving data in battlefield conditions, additional weapons and sensor capabilities, and Engineering Change Proposals as they are funded and approved. Test and Evaluation Master Plan revisions will be developed in support of testing for future enhancements. Future engineering changes will be funded to correct deficiencies as identified by test and fleet usage. Additional upgrades to the aircraft will be completed incrementally as requirements are defined and funded.

E. Performance Metrics
System Configuration Set (SCS) 7.0 software delivery 3Q FY 2015. SCS 8.1 software delivery 4Q FY 2016. SCS 8.2 software delivery 1Q FY 2018. SCS 8.3 software delivery 1Q FY 2019. SCS 8.4 software delivery 1Q FY 2020. SCS 8.5 software delivery 1Q FY 2021. Successfully complete Developmental Test and Operational Test for H-1 Improvements.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604245N / H-1 Upgrades	Project (Number/Name) 3359 / H-1 Improvements
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary Hardware Development	SS/CPFF	BHTI : Amarillo, TX	8.866	6.906	Jan 2015	1.237	Jan 2016	5.140	Jan 2017	-		5.140	30.235	52.384	52.384
Primary Hardware Development	SS/CPFF	Northrup Grumman : Woodland Hills, CA	0.000	2.066	Nov 2014	0.648	Nov 2015	0.000		-		0.000	0.000	2.714	2.714
Systems Engineering	WR	NAWCAD : Patuxent River, MD	0.951	0.962	Nov 2014	0.519	Nov 2015	0.525	Nov 2016	-		0.525	2.160	5.117	-
Subtotal			9.817	9.934		2.404		5.665		-		5.665	32.395	60.215	-

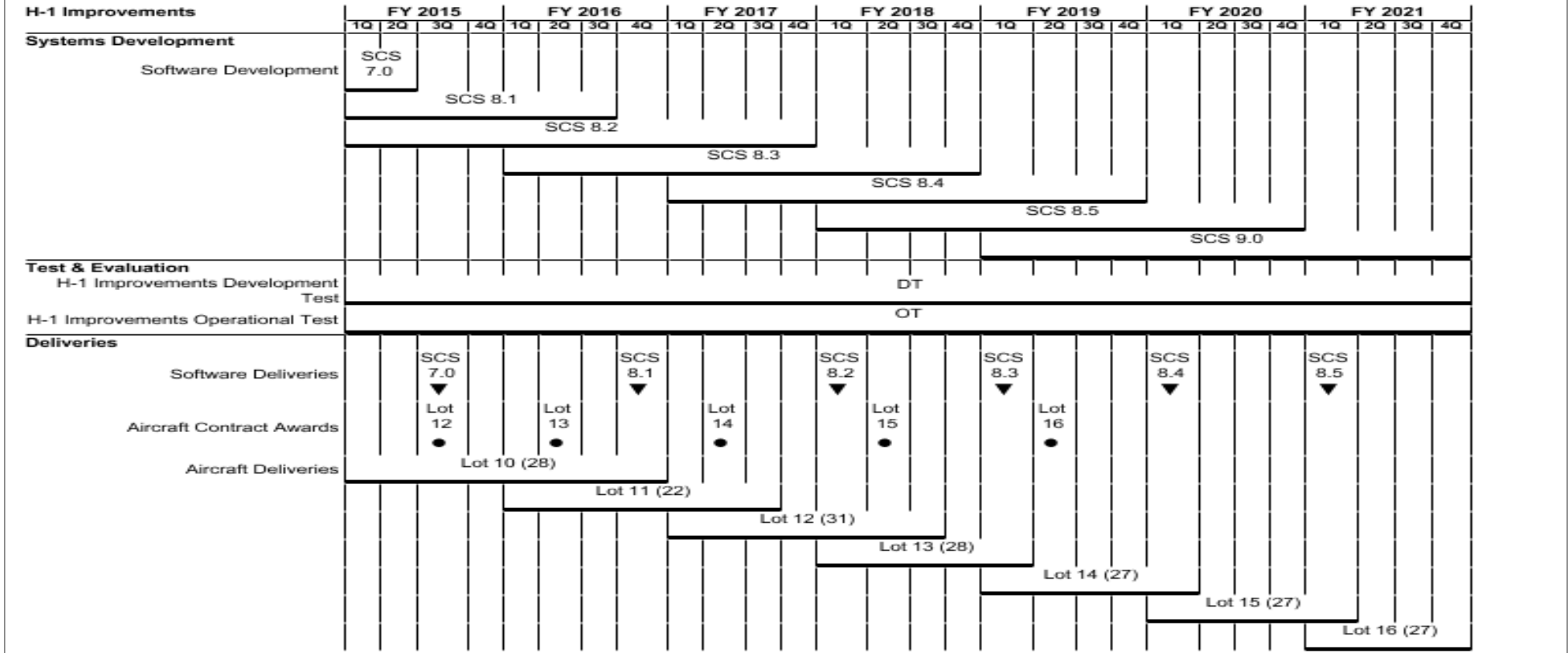
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Software Development	SS/CPFF	BHTI : Amarillo, TX	13.941	6.257	Feb 2015	8.198	Feb 2016	5.061	Feb 2017	-		5.061	33.880	67.337	67.337
Software Development	SS/FP	Northrup Grumman : Woodland Hills, CA	0.000	3.201	Nov 2014	1.814	Nov 2015	1.664	Nov 2016	-		1.664	6.948	13.627	13.627
Software Development	WR	NAWCWD : China Lake, CA	11.885	9.760	Nov 2014	7.359	Nov 2015	6.761	Nov 2016	-		6.761	28.780	64.545	-
Subtotal			25.826	19.218		17.371		13.486		-		13.486	69.608	145.509	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Operational Test and Evaluation	WR	COMOPTVEVFOR : Norfolk, VA	2.163	2.189	Nov 2014	0.802	Nov 2015	0.810	Nov 2016	-		0.810	3.297	9.261	-
Development Test and Evaluation	WR	NAWCAD : Patuxent River, MD	9.990	10.712	Nov 2014	5.418	Nov 2015	6.225	Nov 2016	-		6.225	27.405	59.750	-
Subtotal			12.153	12.901		6.220		7.035		-		7.035	30.702	69.011	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604245N / H-1 Upgrades	Project (Number/Name) 3359 / H-1 Improvements
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2017OSD - 0604245N - 3359

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604245N / H-1 Upgrades	Project (Number/Name) 3359 / H-1 Improvements
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
H-1 Improvements				
Systems Development: Software Development: SCS 7.0 Software Development	1	2015	2	2015
Systems Development: Software Development: SCS 8.1 Software Development	1	2015	3	2016
Systems Development: Software Development: SCS 8.2 Software Development	1	2015	4	2017
Systems Development: Software Development: SCS 8.3 Software Development	1	2016	4	2018
Systems Development: Software Development: SCS 8.4 Software Development	1	2017	4	2019
Systems Development: Software Development: SCS 8.5 Software Development	1	2018	4	2020
Systems Development: Software Development: SCS 9.0 Software Development	1	2019	4	2021
Test & Evaluation: H-1 Improvements Development Test: H-1 Improvements Development Test	1	2015	4	2021
Test & Evaluation: H-1 Improvements Operational Test: H-1 Improvements Operational Test	1	2015	4	2021
Deliveries: Software Deliveries: SCS 7.0	3	2015	3	2015
Deliveries: Software Deliveries: SCS 8.1	4	2016	4	2016
Deliveries: Software Deliveries: SCS 8.2	1	2018	1	2018
Deliveries: Software Deliveries: SCS 8.3	1	2019	1	2019
Deliveries: Software Deliveries: SCS 8.4	1	2020	1	2020
Deliveries: Software Deliveries: SCS 8.5	1	2021	1	2021
Deliveries: Aircraft Contract Awards: Lot 12	3	2015	3	2015
Deliveries: Aircraft Contract Awards: Lot 13	2	2016	2	2016
Deliveries: Aircraft Contract Awards: Lot 14	2	2017	2	2017
Deliveries: Aircraft Contract Awards: Lot 15	2	2018	2	2018
Deliveries: Aircraft Contract Awards: Lot 16	2	2019	2	2019

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604245N / H-1 Upgrades	Project (Number/Name) 3359 / H-1 Improvements
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Deliveries: Aircraft Deliveries: Lot 10 FRP Y + Z	1	2015	4	2016
Deliveries: Aircraft Deliveries: Lot 11 FRP Y + Z	1	2016	3	2017
Deliveries: Aircraft Deliveries: Lot 12 FRP Y + Z	1	2017	3	2018
Deliveries: Aircraft Deliveries: Lot 13 FRP Y + Z	1	2018	1	2019
Deliveries: Aircraft Deliveries: Lot 14 FRP Y + Z	1	2019	1	2020
Deliveries: Aircraft Deliveries: Lot 15 FRP Y + Z	1	2020	1	2021
Deliveries: Aircraft Deliveries: Lot 16 FRP Y + Z	1	2021	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604261N / <i>Acoustic Search Sensors</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	431.873	24.395	31.235	34.525	-	34.525	37.696	29.322	48.292	49.288	Continuing	Continuing
0480: <i>ASW Sensors & Proc</i>	334.355	17.354	22.378	29.967	-	29.967	33.755	25.327	44.213	45.126	Continuing	Continuing
3224: <i>High Altitude ASW</i>	97.518	7.041	8.857	4.558	-	4.558	3.941	3.995	4.079	4.162	Continuing	Continuing

A. Mission Description and Budget Item Justification

Includes RDT&E funds for engineering development and operational test and evaluation of acoustic search sensors/systems and complementary equipment for Anti-Submarine Warfare (ASW) aircraft.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under SYSTEM DEVELOPMENT AND DEMONSTRATION because it includes those projects that have passed Milestone B approval and are conducting engineering and manufacturing development tasks aimed at meeting validated requirement prior to full-rate production decision.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	23.214	35.763	38.014	-	38.014
Current President's Budget	24.395	31.235	34.525	-	34.525
Total Adjustments	1.181	-4.528	-3.489	-	-3.489
• Congressional General Reductions	-	-0.028	-	-	-
• Congressional Directed Reductions	-	-4.500	-	-	-
• Congressional Rescissions	-	-	-	-	-
• Congressional Adds	-	-	-	-	-
• Congressional Directed Transfers	-	-	-	-	-
• Reprogrammings	1.650	0.000	-	-	-
• SBIR/STTR Transfer	-0.469	0.000	-	-	-
• Program Adjustments	0.000	0.000	1.184	-	1.184
• Rate/Misc Adjustments	0.000	0.000	-4.673	-	-4.673

Change Summary Explanation

Decrease in Acoustic Search Sensors by \$1.5 million as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

Technical: Not applicable.

Schedule:

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604261N / <i>Acoustic Search Sensors</i>	
<p>0480 Schedule 1. Received technical correction for MAC Enhancements (MAC-E) with funding in FY16-FY21. MAC-E schedule events added accordingly. Acquisition milestones adjusted to align with P-8A. SSQ-125A EDM delivery moved from 3Q/15 to 1Q/17 due to program delays which pushed SSQ-125A test start to 3Q/17. SSQ-125A contract award moved from 2Q/17 to 1Q/18 to align with P-8A schedule. MAC-E FOT&E moved to FY22 to align with P-8A increment 3 integrated master schedule.</p> <p>0480 Schedule 2. RCI (2) Flt Rel moved from 2Q/18 to 4Q/19. RCI (2) SQT moved from 3Q/17 to 3Q/18.</p> <p>H0480 Schedule 3. Theater ASW schedule added as appropriate. Theater ASW prototype development added in 4Q/15 thru 4Q/16 to support the 1Q/17 demonstration. Advanced Theater ASW prototype development added in 4Q/16 thru 4Q/17 to initiate concept exploration.</p> <p>3224. Inc 2 Operational testing moved from 2Q/15 to 3Q/16. P-8A Inc 2 ECP 2 IOC moved from 1Q/16 to 1Q/17. Moved Digital Telemetry Contract Award from 2Q/17 to 4Q/16 to reflect a more accurate schedule.</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604261N / <i>Acoustic Search Sensors</i>				Project (Number/Name) 0480 / <i>ASW Sensors & Proc</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
0480: <i>ASW Sensors & Proc</i>	334.355	17.354	22.378	29.967	-	29.967	33.755	25.327	44.213	45.126	Continuing	Continuing
Quantity of RDT&E Articles		200	200	200	-	200	75	100	200	200		

A. Mission Description and Budget Item Justification

The Anti-Submarine Warfare (ASW) Sensors and Processing project provides the tools and methods necessary to maintain naval superiority by preventing threat submarines from disrupting the U.S. Navy's ability to control the sea lines of communication and completing their hostile missions. This project encompasses the Engineering & Manufacturing Development phase and the follow on Production and Deployment Phase of sensor systems to improve the mission effectiveness of airborne ASW platforms in cueing, searching, localizing, tracking, and attacking subsurface targets. Smaller and quieter threat submarines drive the requirement for continued advancement in ASW sensor capabilities for both blue water and littoral environments. The littoral regions of the world create an additional ASW challenge to overcome the increase in background clutter caused by the shallow water depth, high volume of shipping, and commercial radio frequency interference. Project 0480 provides funding to the multi-static active ASW family of systems for the engineering development of solutions that detect, classify, and track threat submarines. The Multi-Static Active Coherent (MAC) program encompasses modifications to the active coherent (electronic) source sonobuoy and the Air Deployable Active Receiver sonobuoy and development, integration, and test of aircraft software. It also provides upgrades to the Multi-static mission planning tool, the tactical crew trainers and the tactical ground replay system. This program includes MAC Enhancements that will shorten the ASW kill chain by enabling the warfighter to search larger areas in less time with more precision. Project 0480 also provides funding for the Advanced Processing Builds (APB) program which provides software enhancements for signal processing improvements, clutter reduction, automation, improved displays and controls, as well as improved communication links for reduced operator workload resulting in increased target detection and classification capabilities and interoperability. APB also includes an Air ASW Engineering Measurement Program that collects ASW system data and identifies areas where beneficial improvements can be made and provides common software and hardware solutions across all Air ASW platforms. The sonobuoy test articles in FY14-FY20 will support software and hardware integration flight tests and Technical Evaluation/Follow-On Test & Evaluation for the MAC program. Additionally, this project funds an urgent effort in support of the Navy's Theater Anti-Submarine Warfare offset strategy. Funding supports the rapid development, fielding and evaluation of a prototype distributed and netted undersea sensor system to meet an urgent combatant commanders' (U.S. European Command, U.S. Northern Command, U.S. Strategic Command) requirement for additional maritime Intelligence, Surveillance and Reconnaissance (ISR) capabilities.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: APB System Qualification Test/Fleet Release for P-3C. Rapid Capability Insertion (RCI)/Fleet Release for P-8A	11.830	8.378	6.317	0.000	6.317
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Released Advanced Processing Builds (3) software to Fleet; final APB release for P-3. Commenced software development/Engineering Measurement Program (EMP) for P-8A RCI(2). Continued system Fleet Introduction Training (FIT) for P-8A squadrons.					
FY 2016 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604261N / <i>Acoustic Search Sensors</i>	Project (Number/Name) 0480 / <i>ASW Sensors & Proc</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Continue software development/Engineering Measurement Program (EMP) for P-8A RCI (2). Continue system Fleet Introduction Training.</p> <p>FY 2017 Base Plans: Continue software development/EMP for P-8A RCI (2). Continue MAC FITs for P-8A squadrons.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Multi-static Active Coherent (MAC)</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: Continue SSQ-125A ECP. Awarded SSQ-125 Full Rate Production (FRP) contract development.</p> <p>FY 2016 Plans: Complete Hardware development for the SSQ-125A. Funding for MAC-E in FY15 and prior were executed under Program Element (PE) 0605500N. Continue MAC-E Software development under PE 0604261N.</p> <p>FY 2017 Base Plans: Continue MAC-E Software development. Deliver SSQ-125A EDM units. Conduct SSQ-125A test.</p> <p>FY 2017 OCO Plans: N/A</p>	3.874 200	14.000 200	21.825 200	0.000 -	21.825 200
<p>Title: Navy Theater ASW Offset Strategy</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: Provided theater ASW initial development.</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans: Execute Theater ASW demonstration. Continue Advanced Theater ASW technology development.</p> <p>FY 2017 OCO Plans: N/A</p>	1.650 -	0.000 -	1.825 -	0.000 -	1.825 -
Accomplishments/Planned Programs Subtotals	17.354	22.378	29.967	0.000	29.967

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604261N / <i>Acoustic Search Sensors</i>	Project (Number/Name) 0480 / <i>ASW Sensors & Proc</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPN/4048: <i>Sonobuoys - All Types</i>	79.682	0.000	34.821	-	34.821	49.008	50.606	49.904	56.344	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Multistatic Active Coherent (MAC) ASW system and associated sonobuoys are fully integrated on the P-3C and P-8A ASW platforms. MAC Enhancements (MAC-E) is a development program associated with P-8A increment 3 that will significantly increase the wide area search capability through Engineering Change Proposals (ECPs) to the sonobuoys, aircraft software modifications to reduce clutter and improve processing, and OMI improvements to reduce operator workload. S&T and early R&D ASW improvement programs are matured through the APB process for periodic Fleet software releases.

E. Performance Metrics

High level operational system requirements are documented in the MAC Capability Production Document (CPD). Cost, schedule, and performance metrics are tracked throughout the development phase of the program to ensure the operational requirements will be met or exceeded during an extensive DT/OT cycle.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604261N / <i>Acoustic Search Sensors</i>	Project (Number/Name) 0480 / <i>ASW Sensors & Proc</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary Hdw Development	SS/CPIF	ERAPSCO : FT. WAYNE IN	13.549	5.256	Dec 2014	0.000		2.060	Dec 2016	-		2.060	17.500	38.365	39.865
Prior year Prod Dev no longer funded in the FYDP	Various	VARIOUS : VARIOUS	19.905	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			33.454	5.256		0.000		2.060		-		2.060	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Software Development	WR	NAWCAD : PATUXENT RIVER, MD	22.204	0.500	Nov 2014	5.600	Dec 2015	5.436	Dec 2016	-		5.436	Continuing	Continuing	Continuing
Software Development	SS/CPIF	LOCKHEED MARTIN : MANASSAS VA	8.000	1.329	Nov 2014	1.000	Dec 2015	1.373	Dec 2016	-		1.373	3.727	15.429	15.429
Software Development	Various	VARIOUS : VARIOUS	9.288	1.950	Nov 2014	3.584	Dec 2015	6.869	Dec 2016	-		6.869	Continuing	Continuing	Continuing
Studies & Analysis	WR	NAWCAD : PATUXENT RIVER, MD	14.602	1.000	Nov 2014	2.973	Dec 2015	2.519	Dec 2016	-		2.519	Continuing	Continuing	Continuing
Technical Data	WR	NAWCAD : PATUXENT RIVER, MD	15.359	0.300	Oct 2015	0.372	Dec 2015	0.343	Dec 2016	-		0.343	Continuing	Continuing	Continuing
Training	WR	NAWCAD : PATUXENT RIVER, MD	0.000	0.000		2.114	Dec 2015	2.095	Dec 2016	-		2.095	Continuing	Continuing	Continuing
Subtotal			69.453	5.079		15.643		18.635		-		18.635	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604261N / <i>Acoustic Search Sensors</i>	Project (Number/Name) 0480 / <i>ASW Sensors & Proc</i>
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test & Eval	WR	NAWCAD : PATUXENT RIVER, MD	25.492	1.625	Nov 2014	2.518	Dec 2015	2.591	Dec 2016	-		2.591	Continuing	Continuing	Continuing
Subtotal			25.492	1.625		2.518		2.591		-		2.591	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Contractor Eng Spt	Various	VARIOUS :	38.609	2.360	Nov 2014	1.630	Dec 2015	3.434	Dec 2016	-		3.434	Continuing	Continuing	Continuing
Contractor Eng Spt	C/CPFF	NAVMAR APPLIED SCIENCES CORP : WARMINSTER, PA	4.337	1.712	Nov 2014	0.500	Dec 2015	1.030	Dec 2016	-		1.030	2.810	10.389	10.004
Government Eng Spt	WR	NAWCAD : PATUXENT RIVER, MD	96.553	0.707	Nov 2014	0.726	Dec 2015	0.500	Dec 2016	-		0.500	Continuing	Continuing	Continuing
Eng & Tech Spt Srvc (NON-FFRDC)	Various	VARIOUS :	55.571	0.615	Nov 2014	1.361	Dec 2015	1.717	Dec 2016	-		1.717	Continuing	Continuing	Continuing
Mgt & Prof SptT Srvc (FFRDC)	Various	VARIOUS :	10.018	0.000	Nov 2014	0.000	Dec 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Prior Years Mgmt Svcs no longer funded in the FYDP	Various	VARIOUS :	0.868	0.000		0.000		0.000		-		0.000	0.000	0.868	-
Subtotal			205.956	5.394		4.217		6.681		-		6.681	-	-	-

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	334.355	17.354	22.378	29.967	-	29.967	-	-	-

Remarks
The support growth in FY16 results from the realignment, via technical correction, of \$14.0 million Multistatic Active Coherent Enhancements (MAC-E) funding from Program Element (PE) 0605500N to PE 0604261N.

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604261N / <i>Acoustic Search Sensors</i>	Project (Number/Name) 0480 / <i>ASW Sensors & Proc</i>
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Proj: 0480 ASW Sensors & Processors - Multistatic Active Coherent	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestones																												
Milestones																												
System Development																												
Hardware Development					ECP																							
EDM Delivery																												
Software Development																												
Software Integration Delivery																												
Test & Evaluation																												
Technical Evaluation																												
Development Test																												
Operational Evaluation																												
Production Milestones																												
Contract Awards																												
Deliveries																												

2017PB - 0604261N - 0480

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5 **R-1 Program Element (Number/Name)**
PE 0604261N / *Acoustic Search Sensors* **Project (Number/Name)**
0480 / *ASW Sensors & Proc*

Proj: 0480 ASW Sensors & Processors - Advanced Processing Builds (APB)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestones																												
Milestones	APB (3) Fit Rel ▼																				RCI (2) Fit Rel ▼							
System Development																												
Software Development	System Development/Engineering Measurement																											
Test & Evaluation																												
Technical Evaluation																	RCI (2) SQT ▼				RCI (3) SQT ▼							
Fleet Introduction Training																												
	Fleet Intro Trng																											

2017PB - 0604261N - 0480 Transitioning to P8 RCI FY15-FY17

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604261N / <i>Acoustic Search Sensors</i>	Project (Number/Name) 0480 / <i>ASW Sensors & Proc</i>
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Proj: 0480 Theater ASW Offset Strategy	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestones																												
Milestones					Theater ASW prototype development				▲																			
								Advanced Theater ASW prototype development																				

2017PB - 0604261N - 0480 FY16 efforts are dependent upon Omnibus Reprogramming action

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604261N / <i>Acoustic Search Sensors</i>	Project (Number/Name) 0480 / <i>ASW Sensors & Proc</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Proj: 0480 ASW Sensors & Processors - Multistatic Active Coherent</i>				
Acquisition Milestones: Milestones: P-8A Increment 3 MS B	3	2017	3	2017
Acquisition Milestones: Milestones: P-8A Increment 3 MS C	2	2020	2	2020
System Development: Hardware Development: Engineering Change Proposal	1	2015	4	2016
System Development: EDM Delivery: Eng Dev Model (H/W EDM) 2	1	2017	1	2017
System Development: Software Development: MAC-E Software Development	1	2016	4	2021
Test & Evaluation: Development Test: Engineering Change Proposal Test	1	2016	2	2017
Test & Evaluation: Development Test: SSQ-125A Test	3	2017	4	2017
Test & Evaluation: Development Test: MAC-E Development Test	3	2018	4	2021
Production Milestones: Contract Awards: Full Rate Production (FRP)	1	2015	1	2015
Production Milestones: Contract Awards: SSQ-125A	1	2018	1	2018
<i>Proj: 0480 ASW Sensors & Processors - Advanced Processing Builds (APB)</i>				
Acquisition Milestones: Milestones: APB (3) Fleet Release	1	2015	1	2015
Acquisition Milestones: Milestones: RCI (2) Fleet Release	4	2019	4	2019
System Development: Software Development: System Development/Engineering Measurement	1	2015	4	2021
Test & Evaluation: Technical Evaluation: RCI (2) SQT	3	2018	3	2018
Test & Evaluation: Technical Evaluation: RCI (3) SQT	3	2020	3	2020
Fleet Introduction Training: Fleet Introduction Training	1	2015	4	2021
<i>Proj: 0480 Theater ASW Offset Strategy</i>				
Acquisition Milestones: Milestones: Theater ASW prototype development	4	2015	4	2016
Acquisition Milestones: Milestones: Theater ASW Demonstration	1	2017	1	2017
Acquisition Milestones: Milestones: Advanced Theater ASW prototype development	4	2016	4	2017

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604261N / <i>Acoustic Search Sensors</i>				Project (Number/Name) 3224 / <i>High Altitude ASW</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3224: <i>High Altitude ASW</i>	97.518	7.041	8.857	4.558	-	4.558	3.941	3.995	4.079	4.162	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The High Altitude Anti-Submarine Warfare (HAASW) program increases P-8A operational flexibility and effectiveness throughout the kill chain at higher than traditional ASW altitudes. FY10-FY16 activities include Sonobuoy Technology Development (TD), P-8A Aircraft integration, Training, Test & Evaluation, and Initial Operational Capability. TD includes hardware modifications to current production sonobuoys and software development for the aircraft. Global Positioning System (GPS) integration will provide precise sonobuoy location regardless of aircraft altitude/location to enhance wide area ASW search, localization, track and targeting. The digital telemetry will improve sonobuoy communication performance in high Radio Frequency Interference environments, increase Air Deployable Active Receiver (SSQ-101) channel availability, and provide NATO compatibility. FY16-FY19 activities include the integration of an algorithm that will adjust sonobuoy release/drop points for more accurate sonobuoy placement and integrating digital telemetry into the SSQ-53 and SSQ-62.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Provide precision delivery of sonobuoys	7.041	8.857	4.558	0.000	4.558
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Continued P-8A Increment (Inc) 2, Engineering Change Proposal (ECP) 2, Initial Test & Evaluation (IT&E). Initiated transfer of SSQ-53G, SSQ-62F, and SSQ-101B ECPs into Full Rate Production (FRP).					
FY 2016 Plans: Initiate P-8A Inc 2 ECP 2 Follow-On Operational Test & Evaluation (FOT&E) and ECP 3 IT&E. Initiate digital telemetry in the SSQ-53, SSQ-62 and SSQ-125.					
FY 2017 Base Plans: Continue P-8A Inc 2 ECP 2 FOT&E and reach ECP 2 Initial Operational Capability (IOC). Initiate ECP 3 FOT&E and reach ECP 3 IOC. Continue digital telemetry in the SSQ-53, SSQ-62 and SSQ-125.					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	7.041	8.857	4.558	0.000	4.558

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604261N / <i>Acoustic Search Sensors</i>	Project (Number/Name) 3224 / <i>High Altitude ASW</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPN/4048: <i>Sonobuoys - All Types</i>	182.890	168.763	162.588	-	162.588	198.510	199.533	203.896	207.967	Continuing	Continuing

Remarks

D. Acquisition Strategy

A 15 March 12 Acquisition Decision Memorandum from PEO(A) (Milestone Decision Authority) approved the transition from a planned Acquisition Category (ACAT) Program to a series of Engineering Change Proposal (ECP) modifications to the AN/SSQ-53, AN/SSQ-62 and AN/SSQ-101 sonobuoys. Affordability deferred the digital telemetry requirement in the SSQ-53, SSQ-62 and SSQ-125 sonobuoys to FY16-FY19. All major contracts (ERAPSCO & Boeing) to meet P-8A Inc 2 ECP 2 and ECP 3 requirements have been awarded. The P-8A Inc 2 ECP 3 contract award that develops and integrates the GPS drop vector algorithm (GDVA) was awarded in FY15. IOC is planned for P-8A Inc 2 ECP 2 in FY17 and for P-8A Inc 2 ECP 3 in FY18.

E. Performance Metrics

Schedule and cost variances are used to track sonobuoy development. Should Cost methodology has also been employed to manage the development and production costs of the HAASW capable sonobuoys.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604261N / <i>Acoustic Search Sensors</i>	Project (Number/Name) 3224 / <i>High Altitude ASW</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary Hdw Development	SS/CPIF	ERAPSCO : FT. WAYNE IN	32.706	0.304	Jan 2015	3.907	Nov 2015	0.000	Nov 2016	-		0.000	0.000	36.917	36.917
Primary Hdw Development	TBD	TBD : TBD	0.000	0.000		0.600	Sep 2016	2.800	Nov 2016	-		2.800	2.600	6.000	-
Prior year Prod Dev no longer funded in the FYDP	Various	VARIOUS : VARIOUS	5.863	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			38.569	0.304		4.507		2.800		-		2.800	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
A/C Software Integration	C/CPFF	BOEING : SEATTLE WA	23.041	5.007	Nov 2014	2.471	Nov 2015	0.000		-		0.000	0.000	30.519	30.519
Prior year Support cost no longer funded in the FYDP	Various	VARIOUS : VARIOUS	4.861	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			27.902	5.007		2.471		0.000		-		0.000	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test & Eval	Various	VARIOUS : VARIOUS	3.812	0.480	Nov 2014	0.444	Nov 2015	0.767	Nov 2016	-		0.767	Continuing	Continuing	Continuing
Subtotal			3.812	0.480		0.444		0.767		-		0.767	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Contractor Eng Spt	Various	VARIOUS : VARIOUS	2.899	0.088	Nov 2014	0.135	Nov 2015	0.200	Nov 2016	-		0.200	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604261N / <i>Acoustic Search Sensors</i>	Project (Number/Name) 3224 / <i>High Altitude ASW</i>
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Government Eng Spt	WR	NAWCAD : PATUXENT RIVER, MD	20.774	1.135	Nov 2014	1.300	Nov 2015	0.791	Nov 2016	-		0.791	Continuing	Continuing	Continuing
Travel	C/T&M	VARIOUS : VARIOUS	0.549	0.027	Nov 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Prior Year Mngmt Svcs no longer funded in the FYDP	Various	VARIOUS : VARIOUS	3.013	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			27.235	1.250		1.435		0.991		-		0.991	-	-	-
Project Cost Totals			97.518	7.041		8.857		4.558		-		4.558	-	-	-

Remarks
Funding increases from FY16 to FY17 support P8A Inc ECP 2 FOTE&E and ECP 2 IOC.

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5 **R-1 Program Element (Number/Name)**
PE 0604261N / *Acoustic Search Sensors* **Project (Number/Name)**
3224 / *High Altitude ASW*

Proj: 3224 High Altitude ASW	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
Milestones																																
Milestones									P-8A Inc 2 ECP 2 IOC ▲									P-8A Inc 2 ECP 3 (GDVA) IOC ▲														
System Development																																
Hardware Development	Hardware System Development																															
Software Development	S/W + A/C Integration																															
Reviews																																
Test & Evaluation																																
Technical Evaluation	Inc 2 Integrated Testing																Digital Telemetry Integrated Testing															
Operational Evaluation									Inc 2 Operational Testing																Digital Telemetry Operational Testing							
Production Milestones																																
Contract Awards	●								●																							

2017PB - 0604261N - 3224

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604261N / <i>Acoustic Search Sensors</i>	Project (Number/Name) 3224 / <i>High Altitude ASW</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Proj: 3224 High Altitude ASW</i>				
Milestones: Milestones: P-8A Inc 2 ECP 2 IOC	1	2017	1	2017
Milestones: Milestones: P-8A Inc 2 ECP 3 (GDVA) IOC	2	2018	2	2018
System Development: Hardware Development: Hardware System Development	1	2015	4	2021
System Development: Software Development: Aircraft Software Development/ Integration	1	2015	4	2021
Test & Evaluation: Technical Evaluation: Inc 2 Integrated Testing	1	2015	3	2016
Test & Evaluation: Technical Evaluation: Digital Telemetry Integrated Testing	3	2018	2	2020
Test & Evaluation: Operational Evaluation: Inc 2 Operational Testing	3	2016	2	2017
Test & Evaluation: Operational Evaluation: Digital Telemetry Operational Testing	3	2020	4	2021
Production Milestones: Contract Awards: P-8A (ECP 3) Integration Contract Award	1	2015	1	2015
Production Milestones: Contract Awards: Digital Telemetry Contract Award	4	2016	4	2016

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604262N / V-22A
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	9,078.016	50.188	76.483	174.423	-	174.423	145.342	97.583	64.184	67.500	209.793	9,963.512
1425: V-22	9,078.016	50.188	76.483	174.423	-	174.423	145.342	97.583	64.184	67.500	209.793	9,963.512

Program MDAP/MAIS Code: 212

A. Mission Description and Budget Item Justification

The V-22 Osprey is an Acquisition Category IC Joint Program led by the Department of the Navy for the purpose of developing, testing, evaluating, procuring and fielding a tilt rotor, vertical takeoff and landing aircraft for Joint Service application. The V-22 program is designed to provide an aircraft to meet the amphibious/vertical assault needs of the Marine Corps, the Carrier Onboard Delivery needs of the Navy, and the special operations needs of the Air Force and the United States Special Operations Command. The V-22 is replacing the CH-46E and CH53A/D in the Marine Corps with the MV-22; will supplement the H-60 in the Navy with the MV-22; and replace the MH-53J and MH-53M as well as augment the C-130 in the Air Force and USSOCOM with the CV-22. The V-22 is capable of flying over 2,100 nautical miles, with a single refueling, giving the services the advantage of a Vertical/Short Take-off and Landing aircraft that can rapidly self-deploy to any location in the world. This program is funded under Engineering Manufacturing and Development for correction of deficiencies and includes Block A and Block B upgrades which encompassed engineering and manufacturing development of new end-items prior to the production incorporation decision as well as Block C suitability and effectiveness development upgrades. Capability Development Document interoperability requirements were addressed through a spiral upgrade acquisition strategy. It was the first spiral providing Key Enabling Department of Defense mandated open systems architecture upgrades for the mission computer hardware and software while simultaneously addressing required interoperability common avionics upgrades and current avionics obsolescence issues. Future development efforts will include Pre-Planned-Product-Improvements in the Capability Development Document and Re-design efforts to correct critical Reliability, Maintainability and Availability issues in support of readiness Operational Safety Improvement Program as prioritized by the United States Marine Corps or a Urgent Universal Needs Statement. Development efforts include Block C Upgrade, Mission System Upgrade, Electrical System Upgrades, Mid-Wing Process Unit, ARC 210 Generation 5 Radio, Mission Computer Obsolescence Initiative, Weapon Systems Development, AAR-47 Hostile Fire Indicator, Time on Wing, Digital Interoperability, and Blue Force Tracker/Netted Weather.

FY17 will provide for additional Aircraft Mission Maneuvering Envelope Expansion, Velocity Not to Exceed Expansion, Digital Interoperability, Software Reprogrammable Payload, Time on Wing and Reliability Improvement efforts such as Improved Inlet Solution (IIS), Condition Based Maintenance Plus (CBM+) development as well as development and testing of Additive Manufacturing processes for selected MV-22 components.

The MV-22 Hardware Development Airframe continues to fund development efforts by Bell-Boeing. Continue development in support of MV-22 Block upgrades and Time on Wing and efforts such as IIS and CBM+. Continue engineering, logistics, flight test, flight test support and address the correction of deficiencies and obsolescence. Continue MV-22 software development/mission computer obsolescence initiatives such as modular software, transition tech demo and map replacement demo. Continue V-22 Integrated Aircraft Survivability Equipment to include correcting deficiencies of the current radar warning system, integration with an upgraded missile warning and active infrared countermeasure system, and providing integrated threat warning information on the aircraft main flight displays.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604262N / V-22A	
<p>MV-22 Hardware Development Propulsion will continue to fund the flight/engine hours necessary for developmental testing at the Patuxent River squadron. Rolls-Royce will continue to provide engine support and development of MV-22 flight testing.</p> <p>FY17 continues MV-22 Digital Interoperability (DI), United States Marine Corps Aviation wide implementation of software defined radios, such as Software Reprogrammable Payload, capable of migration to advanced waveforms and payloads, providing enhanced digital connectivity between forces using dissimilar waveforms and/or protocols. DI will enable fleet integration of new capability through the use of tablets with custom applications. Digital Interoperability is also envisioned to include logistics tracking (cargo and personnel) with the use of Radio Frequency Identification technology, advanced Electronic Warfare/Cyber capability, and threat data capturing/off-boarding.</p> <p>FY17 continues MV-22 Software Reprogrammable Payload is a single common payload module that is open architecture, government owned, flexible, and reconfigurable to support simultaneous missions and applications making maximum use of available bandwidth and ensuring interoperability. Provides a bridge and translator to allow various systems/waveforms to collaborate and provides the V-22 operator and passenger with a common operating picture. MV-22 is the lead platform for integration of Software Reprogrammable Payload Spiral II.</p> <p>FY17 continues effort started under PE: 0605525N. The Navy Variant Hardware Development consists of an Engineering Change Proposal (ECP) to modify MV-22 into the Navy Variant configuration to perform the Carrier Onboard Delivery (COD) mission. The ECP will add such things as (1) the capability to meet the range requirements that the COD mission demands (2) a high frequency radio to transmit/receive beyond line of sight over water and (3) a public address system for use while transporting passengers.</p> <p>FY17 continues the V-22 Aerial Refueling System (VARs) capability. VARs will provide V-22 tanker capability to the Marine Air Ground Task Force, enabling safe and efficient execution of all missions, tactical or humanitarian. The system will allow the V-22 to provide fuel to other Air Combat Element aircraft, such as F-35B and CH-53E/K, while en-route, in the objective area, or during recovery, extending the operational reach/duration. With the V-22 deployed onboard, amphibious assault ships would gain an organic aerial refueling capability, maximizing response time and agility.</p> <p>FY17 continues Electrical System re-design and reliability improvement effort started in the Hardware Development Airframe line. This effort will assess and select engineering solutions to improve the Variable Frequency Generator and Generator Control Unit components. Increased V-22 electrical system reliability and capacity is required to accommodate demands on electrical power system as additional systems are added to the V-22.</p> <p>JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate funding in the current or subsequent fiscal year.</p>		

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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	57.749	87.918	138.217	-	138.217
Current President's Budget	50.188	76.483	174.423	-	174.423
Total Adjustments	-7.561	-11.435	36.206	-	36.206
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-11.435			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-6.147	0.000			
• SBIR/STTR Transfer	-1.413	0.000			
• Program Adjustments	0.000	0.000	22.071	-	22.071
• Rate/Misc Adjustments	-0.001	0.000	14.135	-	14.135

Change Summary Explanation

The FY 2017 funding request was reduced by \$2.518M to account for the availability of prior year execution balances.

Schedule: Added Additional detail to FY2017 schedule for Navy Variant (also formally referred to as HV-22) to reflect Engineering Development Model (1) article milestones. Also Production Quantity change from 8 per year to 6 per year. Expanded OT to reflect planned OT events across the FYDP. Software Reprogrammable Payload development schedule was moved out to 3rd FY18 to account for the \$6M recession. Development Test and Evaluation (DT&E) was updated to adjust for actuals.

Technical: Not applicable

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604262N / V-22A				Project (Number/Name) 1425 / V-22			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
1425: V-22	9,078.016	50.188	76.483	174.423	-	174.423	145.342	97.583	64.184	67.500	209.793	9,963.512
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The V-22 Osprey is an Acquisition Category IC Joint Program led by the Department of the Navy for the purpose of developing, testing, evaluating, procuring and fielding a tilt rotor, vertical takeoff and landing aircraft for Joint Service application. The V-22 program is designed to provide an aircraft to meet the amphibious/vertical assault needs of the Marine Corps, the Carrier Onboard Delivery needs of the Navy, and the special operations needs of the Air Force and the United States Special Operations Command. The V-22 is replacing the CH-46E and CH53A/D in the Marine Corps with the MV-22; will supplement the H-60 in the Navy with the MV-22; and replace the MH-53J and MH-53M as well as augment the C-130 in the Air Force and USSOCOM with the CV-22. The V-22 is capable of flying over 2,100 nautical miles, with a single refueling, giving the services the advantage of a Vertical/Short Take-off and Landing aircraft that can rapidly self-deploy to any location in the world. This program is funded under Engineering Manufacturing and Development for correction of deficiencies and includes Block A and Block B upgrades which encompassed engineering and manufacturing development of new end-items prior to the production incorporation decision as well as Block C suitability and effectiveness development upgrades. Capability Development Document interoperability requirements were addressed through a spiral upgrade acquisition strategy. It was the first spiral providing Key Enabling Department of Defense mandated open systems architecture upgrades for the mission computer hardware and software while simultaneously addressing required interoperability common avionics upgrades and current avionics obsolescence issues. Future development efforts will include Pre-Planned-Product-Improvements in the Capability Development Document and Re-design efforts to correct critical Reliability, Maintainability and Availability issues in support of readiness Operational Safety Improvement Program as prioritized by the United States Marine Corps or a Urgent Universal Needs Statement. Development efforts include Block C Upgrade, Mission System Upgrade, Electrical System Upgrades, Mid-Wing Process Unit, ARC 210 Generation 5 Radio, Mission Computer Obsolescence Initiative, Weapon Systems Development, AAR-47 Hostile Fire Indicator, Time on Wing, Digital Interoperability, and Blue Force Tracker/Netted Weather.

FY17 will provide for additional Aircraft Mission Maneuvering Envelope Expansion, Velocity Not to Exceed Expansion, Digital Interoperability, Software Reprogrammable Payload, Time on Wing and Reliability Improvement efforts such as Improved Inlet Solution (IIS), Condition Based Maintenance Plus (CBM+) development as well as development and testing of Additive Manufacturing processes for selected MV-22 components.

The MV-22 Hardware Development Airframe continues to fund development efforts by Bell-Boeing. Continue development in support of MV-22 Block upgrades and Time on Wing and efforts such as IIS and CBM+. Continue engineering, logistics, flight test, flight test support and address the correction of deficiencies and obsolescence. Continue MV-22 software development/mission computer obsolescence initiatives such as modular software, transition tech demo and map replacement demo. Continue V-22 Integrated Aircraft Survivability Equipment to include correcting deficiencies of the current radar warning system, integration with an upgraded missile warning and active infrared countermeasure system, and providing integrated threat warning information on the aircraft main flight displays.

MV-22 Hardware Development Propulsion will continue to fund the flight/engine hours necessary for developmental testing at the Patuxent River squadron. Rolls-Royce will continue to provide engine support and development of MV-22 flight testing.

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FY17 continues MV-22 Digital Interoperability (DI), United States Marine Corps Aviation wide implementation of software defined radios, such as Software Reprogrammable Payload, capable of migration to advanced waveforms and payloads, providing enhanced digital connectivity between forces using dissimilar waveforms and/or protocols. DI will enable fleet integration of new capability through the use of tablets with custom applications. Digital Interoperability is also envisioned to include logistics tracking (cargo and personnel) with the use of Radio Frequency Identification technology, advanced Electronic Warfare/Cyber capability, and threat data capturing/off-boarding.

FY17 continues MV-22 Software Reprogrammable Payload is a single common payload module that is open architecture, government owned, flexible, and reconfigurable to support simultaneous missions and applications making maximum use of available bandwidth and ensuring interoperability. Provides a bridge and translator to allow various systems/waveforms to collaborate and provides the V-22 operator and passenger with a common operating picture. MV-22 is the lead platform for integration of Software Reprogrammable Payload Spiral II.

FY17 continues effort started under PE: 0605525N. The Navy Variant Hardware Development consists of an Engineering Change Proposal (ECP) to modify MV-22 into the Navy Variant configuration to perform the Carrier Onboard Delivery (COD) mission. The ECP will add such things as (1) the capability to meet the range requirements that the COD mission demands (2) a high frequency radio to transmit/receive beyond line of sight over water and (3) a public address system for use while transporting passengers.

FY17 continues the V-22 Aerial Refueling System (VARS) capability. VARS will provide V-22 tanker capability to the Marine Air Ground Task Force, enabling safe and efficient execution of all missions, tactical or humanitarian. The system will allow the V-22 to provide fuel to other Air Combat Element aircraft, such as F-35B and CH-53E/K, while en-route, in the objective area, or during recovery, extending the operational reach/duration. With the V-22 deployed onboard, amphibious assault ships would gain an organic aerial refueling capability, maximizing response time and agility.

FY17 continues Electrical System re-design and reliability improvement effort started in the Hardware Development Airframe line. This effort will assess and select engineering solutions to improve the Variable Frequency Generator and Generator Control Unit components. Increased V-22 electrical system reliability and capacity is required to accommodate demands on electrical power system as additional systems are added to the V-22.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate funding in the current or subsequent fiscal year.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: New V-22 Instrumented Aircraft (NVIA)	2.205	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: The purpose of the NVIA is to (a) augment existing V-22 structural test capability by supplementing and eventually replacing Aircraft 90008; and (b) provide improved, comprehensive flight test data with increased reliability/maintainability over existing Aircraft 90008 to support the V-22 development roadmap. The NVIA was					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>delivered to Pax River on 5/12/15. The aircraft completed final test configuration work and will start its utilization as a fully instrument test aircraft 3rd QTR FY15.</p> <p>FY 2015 Accomplishments: FY15: Final incremental funding for the NVIA, delivered 3rd quarter of FY15.</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: MV-22 Hardware Development Airframe</p> <p align="right">Articles:</p> <p>Description: The MV-22 Hardware Development Airframe continues to fund development efforts by Bell-Boeing. Continue development in support of MV-22 Block upgrades and Time on Wing/Reliability Improvements efforts such as Improved Inlet Solution, Condition Based Maintenance development, development and testing of Additive Manufacturing processes for selected MV-22 components, Miniaturized Airborne Global Positioning and electrical system capacity efforts. Continue engineering, logistics, flight test, flight test support and address the correction of deficiencies and obsolescence efforts, including training upgrades and developments. Continue MV-22 software development/sustainment efforts such as modular software study, transition tech demo, map replacement demo and Mission Computer Obsolescence Initiative re-design. Continue V-22 Integrated Aircraft Survivability Equipment to include correcting deficiencies and obsolescence issues, to include the current radar warning system, integration with an upgraded missile warning and active infrared countermeasure system, cockpit interface units, electrical power system, and providing integrated threat warning information on the aircraft main flight displays. FY2017 increase supports increasing USMC Ready Basic Aircraft with development efforts such as the Infrared Suppressor Redesign and Modular Avionics.</p> <p>FY 2015 Accomplishments: Continue MV-22 development efforts by Bell-Boeing. Rolls-Royce will continue to provide engine support and development of MV-22 flight testing. Continue MV-22 software development/sustainment efforts. Continue development in support of MV-22 Block upgrades and Time on Wing efforts such as Improved Inlet Solution (IIS). Continue engineering, logistics, flight test and flight test support. Conduct Modular Software Study.</p>	22.292	14.817	40.238	0.000	40.238
	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>FY15 funds used to address correction of deficiencies and obsolescence issues in cockpit interface units and electrical power system, as well as address other obsolescence issues as part of additive manufacturing process development for V-22 components.</p> <p>FY 2016 Plans: Continue MV-22 development efforts by Bell-Boeing. Rolls-Royce will continue to provide engine support and development of MV-22 flight testing. Continue MV-22 software development/sustainment efforts. Continue development in support of MV-22 Block upgrades and Time on Wing efforts such as IIS. Continue engineering, logistics, flight test, flight test support and address correction of deficiencies. Continue contracted development efforts on test aircraft. Continue electrical system capacity and reliability improvement efforts.</p> <p>FY 2017 Base Plans: FY2017 increase supports increasing USMC Ready Basic Aircraft with development efforts such as the Infrared Suppressor Redesign and Modular Avionics. Continue MV-22 development efforts by Bell-Boeing. Rolls-Royce will continue to provide engine support and development of MV-22 flight testing. Continue MV-22 software development/sustainment efforts such as Mission Computer Obsolescence Initiative re-design and modular software. Continue development in support of MV-22 Block upgrades and Time on Wing/Reliability Improvement efforts such as Improved Inlet Solution and Condition Based Maintenance Plus. Continue V-22 Integrated Aircraft Survivability Equipment effort. Continue engineering, logistics, flight test, flight test support and address correction of deficiencies and obsolescence efforts, including training upgrades and developments. Continue reliability improvement efforts such as Additive manufacturing, and Miniaturized Airborne Global Positioning as well as Re-design efforts to correct critical Reliability, Maintainability and Availability issues in support of readiness Operational Safety Improvement Program.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: MV-22 Hardware Development Propulsion/Mission Care</p> <p align="right">Articles:</p> <p>Description: The funding of Mission Care relates to our RDT&E program as it funds the flight/engine hours necessary for developmental testing at the Patuxent River squadron. In addition, it pays for Rolls Royce engine support at Patuxent River.</p> <p>FY 2015 Accomplishments:</p>	0.306 -	0.298 -	0.280 -	0.000 -	0.280 -

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Funds are provided for continued Mission Care flight & engine hours for developmental testing at Patuxent River squadron.</p> <p>FY 2016 Plans: Funds continued for Mission Care flight & engine hours for developmental testing at Patuxent River squadron.</p> <p>FY 2017 Base Plans: Funds continued for Mission Care flight & engine hours for developmental testing at Patuxent River squadron.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: MV-22 Digital Interoperability</p> <p align="right">Articles:</p> <p>Description: Digital Interoperability is the United States Marine Corps Aviation wide implementation of software defined radios, such as Software Reprogrammable Payload, capable of migration to advanced waveforms and payloads, providing enhanced digital connectivity between forces using dissimilar waveforms and/or protocols. Digital Interoperability will enable fleet integration of new capability through the use of tablets with custom applications. Digital Interoperability is also envisioned to include logistics tracking (cargo and personnel) with the use of Radio Frequency Identification technology, advanced Electronic Warfare/Cyber capability, and threat data capturing/off-boarding.</p> <p>FY 2015 Accomplishments: Funds begin for MV-22 Digital Interoperability providing MV-22 Gateway functionality to provide digital connectivity between Air and Ground forces using dissimilar protocols. Begin development of Software Reprogrammable Payload Spiral II Critical Design Review, including Interface Control Document.</p> <p>FY 2016 Plans: Funds continue for development and demonstration of Digital Interoperability, including spiral development of Software Reprogrammable Payload (SRP), tablets and the custom applications.</p> <p>FY 2017 Base Plans: Funds continue for development and demonstration of Digital Interoperability, by incorporating lessons learned into the SRP, using additional dissimilar waveforms and Protocols, tablets and the custom applications, Radio Frequency Identification technology, Electronic Warfare/Cyber capability and threat data capturing/off-boarding.</p> <p>FY 2017 OCO Plans:</p>	6.635	4.508	9.900	0.000	9.900
	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
<p>Title: MV-22 Software Reprogrammable Payload (SRP)</p> <p align="right">Articles:</p> <p>Description: SRP is a single common payload module that is open architecture, government owned, flexible, and reconfigurable to support simultaneous missions and applications making maximum use of available bandwidth and ensuring interoperability. Provides a bridge and translator to allow various systems/waveforms to collaborate and provides the V-22 operator and passenger with a common operating picture.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: Development begins for the SRP with the development of a conformal antenna and incorporation of Spiral II waveforms (Link 16, Bandwidth Efficient Common Data Link {BE-CDL}, Tactical Targeting Network Technology {TTNT} and associated hardware) into the Software Reprogrammable Payload (SRP) radio.</p> <p>FY 2017 Base Plans: Completes remaining efforts Software Reprogrammable Payload development to include Software Integration Labs, MV-22 integration, test and development assets.</p> <p>FY 2017 OCO Plans: N/A</p>	0.000	5.200	6.000	0.000	6.000
	-	-	-	-	-
<p>Title: V-22 Navy Variant Development</p> <p align="right">Articles:</p> <p>Description: Funding supports the implementation of an Engineering Change Proposal to incorporate the new systems required for the Navy Variant configuration to perform the Carrier Onboard Delivery (COD) mission. The ECP will add (1) the capability to meet the range requirements that the COD mission demands (2) a High Frequency radio to transmit/receive beyond line of sight over water and (3) a Public Address system for use while transporting passengers.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans:</p>	0.000	17.170	71.563	0.000	71.563
	-	-	1	-	1

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Funds provided for the V-22 Navy Variant to perform the COD mission. Begin development of Engineering Change Proposal to meet External Fuel Tank, High Frequency radio and Public Address system requirements. Begin engineering and logistics support needed to develop ECP. Develop full System Engineering Development Model (EDM).</p> <p>FY 2017 Base Plans: Continue funding for the V-22 Navy Variant to perform the COD mission. Continue development of Engineering Change Proposal to meet Extended Range, High Frequency radio and Public Address system requirements. Continue engineering and logistics support needed to develop ECP. Build and install EDM prototype ECP kit on V-22 developmental test aircraft.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: V-22 Aerial Refueling System Development</p> <p align="right">Articles:</p> <p>Description: V-22 Aerial Refueling System will provide V-22 tanker capability to the Marine Air Ground Task Force, enabling safe and efficient execution of all missions, tactical or humanitarian. The system will allow the V-22 to provide fuel to other Air Combat Element aircraft, such as F-35B and CH-53E/K, while en-route, in the objective area, or during recovery, extending the operational reach/duration. With the V-22 deployed onboard, amphibious assault ships would gain an organic aerial refueling capability, maximizing response time and agility.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: Begin funding the V-22 Aerial Refueling System Development Capability. V-22 Aerial Refueling System will provide V-22 tanker capability to the Marine Air Ground Task Force, enabling safe and efficient execution of all missions, tactical or humanitarian. This FY16 funding will complete the initial design and allow the effort to proceed through CDR.</p> <p>FY 2017 Base Plans: Continue funding for the V-22 Aerial Refueling System (VARS) Development Capability. VARS will provide V-22 tanker capability to the Marine Air Ground Task Force, enabling safe and efficient execution of all missions,</p>	0.000	15.000	24.752	0.000	24.752
	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
tactical or humanitarian. This FY17 funding will provide engineering to complete the basic (post-CDR) design for testing and the procurement of flight test kits and support flight test. FY 2017 OCO Plans: N/A					
Title: V-22 Development Support, Test and Evaluation Articles:	18.750	19.490	16.490	0.000	16.490
Description: Fund Government Engineering, Contractor Engineering, including Follow-On Test Evaluation (FOT&E), Developmental Test & Engineering (DT&E), and Operational Test & Evaluation (OT&E) for the MV-22 flight events. Perform Government oversight. Execute test program risk reduction efforts, as well as fund Tactical Training Theatre Assessment and Planning Phase III program to ensure that all Navy training and testing at sea is compliant with the major Federal environmental laws. FY 2015 Accomplishments: Funds provided for continued support of FOT&E, to include Operational Test (OT-IIK). DT&E includes flight control software, vehicle system operating software, inlet distortion, APR-39D(V)2, structural fatigue, envelope expansion, software airframe loads, structures and bonded blade tab, GAU-21, Nacelle Sail testing, MV Traffic Collision Avoidance System. FY 2016 Plans: Funds provided for continued support of FOT&E, DT&E and OT&E to include flight control software, vehicle system operating software, inlet distortion, APR-39D(V)2, structural fatigue, envelope expansion, software airframe loads, nacelle sails, Integrated Aircraft Survivability Equipment, Nacelle Sail testing, traffic collision avoidance system, bonded tabs, aerial refueling system and refueling envelope, Tactical Training Theatre Assessment and Planning Phase III and Navy variant risk reduction. FY 2017 Base Plans: Funds provided for continued support of FOT&E, DT&E and OT&E to include flight control software, vehicle system operating software, inlet distortion, APR-39D(V)2, structural fatigue, envelope expansion, software airframe loads,	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
nacelle sails, Integrated Aircraft Survivability Equipment, Nacelle Sail testing, traffic collision avoidance system, bonded tabs, aerial refueling system and refueling envelope, Tactical Training Theatre Assessment and Planning Phase III and Navy variant risk reduction. FY 2017 OCO Plans: N/A					
Title: MV-22 Electrical System Re-design Description: Continue Electrical System re-design and reliability improvement effort started in the Hardware Development Airframe line. This effort will assess and select engineering solutions to improve the Variable Frequency Generator (VFG) and Generator Control Unit (GCU) components. Increased V-22 electrical system reliability and capacity is required to accommodate demands on electrical power system as additional systems are added to the V-22. FY 2015 Accomplishments: N/A FY 2016 Plans: N/A FY 2017 Base Plans: Continue Electrical System re-design and reliability improvement effort begun under the hardware development line. This effort will assess and select engineering solutions to improve the VFG and GCU components. Increased V-22 electrical system reliability and capacity is required to accommodate demands on electrical power system as additional systems are added to the V-22. FY 2017 OCO Plans: N/A	0.000	0.000	5.200	0.000	5.200
Articles:	-	-	-	-	-
Accomplishments/Planned Programs Subtotals	50.188	76.483	174.423	0.000	174.423

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APN 0164: V-22	1,546.883	1,440.208	1,283.808	-	1,283.808	663.632	730.964	664.001	1,494.884	4,740.373	36,841.949
• APN 0590: V-22 Series	109.152	145.308	141.545	8.740	150.285	171.399	196.795	169.068	181.154	895.248	2,927.876

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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APN 0605/J0164: <i>V-22 Initial Spares</i>	0.858	0.479	0.033	-	0.033	0.000	0.000	0.000	37.569	377.899	1,207.834
• RDTE 1160403BB: <i>CV-22 Special Operations, Aviation Systems</i>	176.097	0.000	15.346	-	15.346	14.259	21.635	4.961	0.000	0.000	237.191
• RDTE BA07 0401318F: <i>CV-22 USAF BA07</i>	37.698	27.776	16.702	-	16.702	17.455	16.634	14.724	14.984	0.000	145.973

Remarks

D. Acquisition Strategy

The MV-22 is a post Milestone III ACAT-IC program. As a result of mishaps during and subsequent to MV-22 Operational Evaluation (Apr and Dec 00), the program was restructured employing a phased approach to return to flight and tactical introduction. The Contractor and Government defined deficient areas within the program/ aircraft requiring correction prior to return to flight. A Block Upgrade approach was planned, with required efforts identified in Block "A", "B", and "C". Block "A" included those efforts necessary to return the V-22 to safe and operational fleet operations. Block "B" included those efforts necessary to improve the effectiveness and suitability of the aircraft. Block "C" includes mission enhancements like weather radar, cabin effectiveness suitability improvements, i.e., Environmental Control System, and Forward Firing ALE-47. Non-recurring development activities are to be initiated and completed for all efforts identified in Block "A", "B", and "C". The Contractor will develop specific Statements of Work and Preliminary Specification Change Notices required to integrate the Block Upgrade efforts into the baseline Program. A Systems Requirements Review, Initial Design Review, and Final Design Review was held for each of the Block efforts so the design maturity could be reviewed and the Government could redirect activities as appropriate. The CV-22 Engineering Manufacturing and Development program is also structured in Blocks to define an evolutionary approach to achieving full operational capability. Block "0" is the initial baseline CV-22 variant. Block "10" enhances mission capability with the addition of terrain following radar, additional fuel tanks, additional radios, and Block "20" includes capabilities such as radio frequency and infrared countermeasures improvements. Additional Blocks are in the planning stages to continue the growth process throughout the operational life of the weapon system. The Government will issue an RFP to the Contractor and upon award, an Integrated Baseline Review, Preliminary Design Review, Integrated Logistics Assessment and a Critical Design Review will be held to assess the design maturity of the MV-22 Navy Variant. The Navy Variant will add (1) the capability to meet the range requirements that the Carrier Onboard Delivery (COD) mission demands (2) a high frequency radio to transmit/receive beyond line of sight over water and (3) a public address system for use while transporting passengers in support of the COD mission.

E. Performance Metrics

Milestone Reviews.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604262N / V-22A	Project (Number/Name) 1425 / V-22
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
MV-22 Instrumented A/C	SS/FPIF	Bell Boeing : Ridley Park, PA	25.784	2.205	Nov 2014	0.000		0.000		-		0.000	0.000	27.989	27.989
MV-Hardware Dev Airframe	SS/CPIF	Bell Boeing : Ridley Park, PA	45.138	22.292	Jan 2015	14.817	Jan 2016	40.238	Jan 2017	-		40.238	198.034	320.519	320.519
MV-22 Hardware Dev Propulsion	SS/CPIF	Rolls-Royce Corp. : Indianapolis, IN	196.600	0.306	Jan 2015	0.298	Jan 2016	0.280	Jan 2017	-		0.280	2.231	199.715	199.715
MV-22 Digital Interoperability	WR	NAWCWD : China Lake, CA	0.000	6.635	Jan 2015	4.508	Jan 2016	9.900	Jan 2017	-		9.900	49.250	70.293	-
MV-22 Software Reprogrammable Payload (SRP)	WR	NAWCWD : China Lake, CA	0.000	0.000		5.200	Jan 2016	6.000	Jan 2017	-		6.000	6.000	17.200	-
MV-22 Navy Variant Development	C/CPIF	Bell Boeing : Ridley Park, PA	0.000	0.000		17.170	Jan 2016	71.563	Jan 2017	-		71.563	108.787	197.520	197.520
V-22 Aerial Refueling System Development	SS/CPIF	Bell Boeing : Ridley Park, PA	0.000	0.000		15.000	Jan 2016	24.752	Jan 2017	-		24.752	22.864	62.616	62.616
V-22 Electrical System Re-Design	C/BA	Bell Boeing : Ridley Park, PA	0.000	0.000		0.000		5.200	Jan 2017	-		5.200	37.400	42.600	42.600
Prior year Prod Dev no longer funded in the FYDP	Various	Various : Various	5,078.483	0.000		0.000		0.000		-		0.000	0.000	5,078.483	-
Subtotal			5,346.005	31.438		56.993		157.933		-		157.933	424.566	6,016.935	-

Remarks
 NVIA Aircraft delivered in 3rd Qtr of FY15.
 FY16 begins Software Reprogrammable Payload, Navy Variant and V-22 Aerial Refueling System.
 FY17 shows Electrical System Re-Design effort seperately from Hardware Development Airframe line.
 FY17 Hardware Dev Airframe Increase FY2017 supports Infrared Suppressor Redesign and Modular Avionics.
 FY17 Navy Variant Development increase is attributed to the continued development of the Navy Variant ECP to meet extended range, high frequency radio and public address system requirements. FY17 includes the build and install of the EDM prototype ECP kit on V-22 developmental Test Aircraft.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604262N / V-22A	Project (Number/Name) 1425 / V-22
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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
MV-22 Govt Engineering Sppt	WR	NAWCAD : Pax River, MD	1,104.317	2.367	Nov 2014	2.415	Nov 2015	2.279	Nov 2016	-		2.279	19.235	1,130.613	-
MV-22 Navy Variant Govt Engineering Sppt	WR	NAWCAD : Pax River, MD	0.000	0.000		1.350	Nov 2015	1.397	Nov 2016	-		1.397	4.746	7.493	-
Prior Year Support no longer funded in the FYDP	Various	Various : Various	189.718	0.000		0.000		0.000		-		0.000	0.000	189.718	-
Subtotal			1,294.035	2.367		3.765		3.676		-		3.676	23.981	1,327.824	-

Remarks

Begin Govt Engineering Support for MV-22 Navy Variant efforts in FY16.

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
MV-22 Dev Test & Evaluation	WR	NAWCAD : Pax River, MD	1,016.297	11.694	Nov 2014	11.765	Nov 2015	8.831	Nov 2016	-		8.831	65.254	1,113.841	-
MV-22 Operational Test & Evaluation	WR	OT&E Force : Norfolk, VA	53.209	2.388	Dec 2014	1.776	Dec 2015	1.834	Dec 2016	-		1.834	42.609	101.816	-
Prior Year T & E no longer funde in the FYDP	Various	Various : Various	48.200	0.000		0.000		0.000		-		0.000	0.000	48.200	-
Subtotal			1,117.706	14.082		13.541		10.665		-		10.665	107.863	1,263.857	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
MV-22 Engineering Tech Sppt	Various	Various : Various	1,046.918	0.258	Nov 2014	0.274	Nov 2015	0.277	Nov 2016	-		0.277	6.609	1,054.336	-
MV-22 Management Sppt Svc	Various	Various : Various	156.184	0.700	Nov 2014	0.630	Nov 2015	0.624	Nov 2016	-		0.624	7.542	165.680	-
MV-22 Program Mgmt Support	WR	NAWCAD : Pax River, MD	59.795	1.095	Nov 2014	1.043	Nov 2015	1.013	Nov 2016	-		1.013	11.541	74.487	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604262N / V-22A	Project (Number/Name) 1425 / V-22
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
V-22 Hardware Development																																
Acquisition Milestones																																
Engineering Milestones																																
Reviews																																
	IIS Development																															
	PDR																															
	CDR																															
Acquisition Documentation																																
Test & Evaluation																																
Test & Evaluation	IIS Flight Test																															
Development Test	Flight Test/Integrated Test																															
Operational Evaluation	OT																															
Kit Deliveries & Installs	OT-IIIK				OT-IIIIL																											
					IASE Op Test								OT-IIIIM								OT-IIIIN								OT-IIIIO			
Production Milestones																																
Deliveries		IT A/C																														

2017PB - 0604262N - 1425

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604262N / V-22A	Project (Number/Name) 1425 / V-22
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MV-22 Navy Variant Development	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
Navy Variant ECP																																
Reviews																																
Acquisition Documentation					■																											
Test & Evaluation																																
Reviews																																
Development Deliveries																																
Contract Awards																																
Production Milestones																																
Production Deliveries																																

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604262N / V-22A	Project (Number/Name) 1425 / V-22
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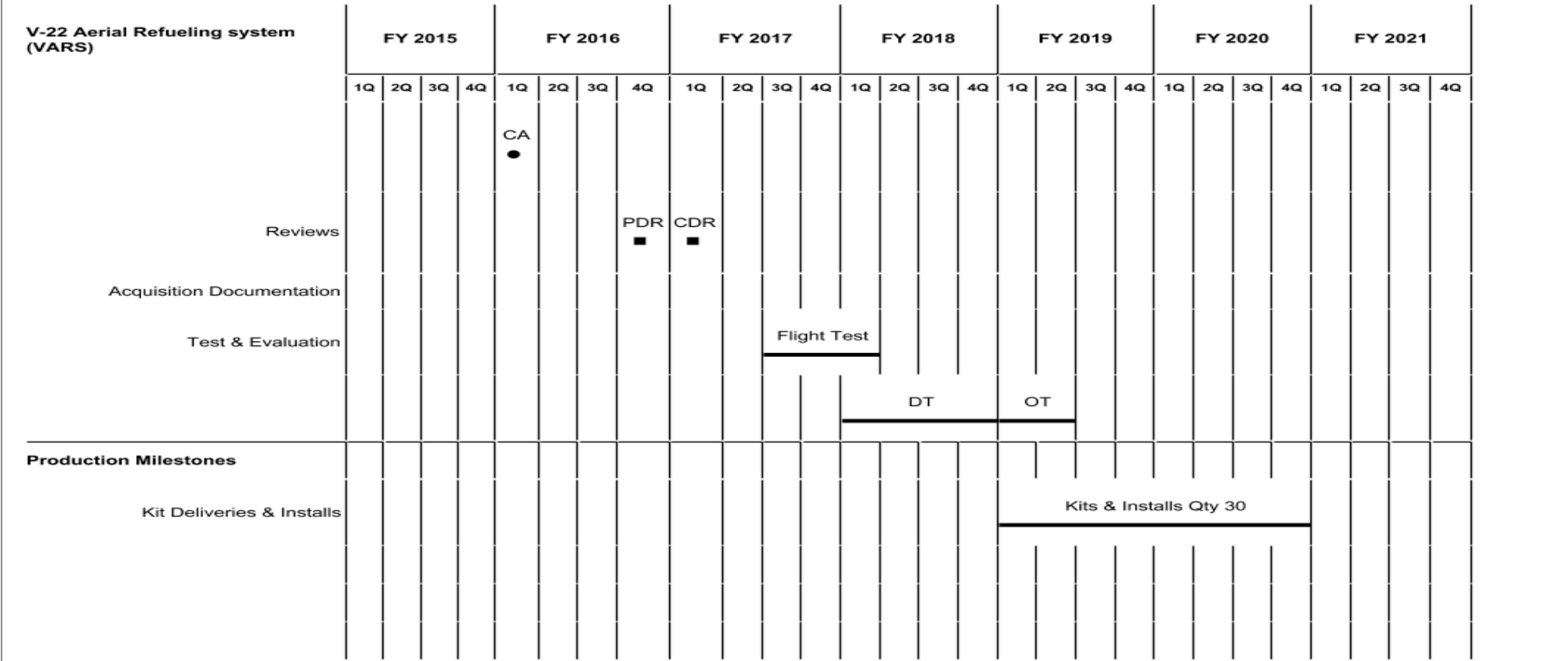
Digital Interoperability (DI)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
	Design & Demonstration																											
	SRP Dev.																											
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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604262N / V-22A	Project (Number/Name) 1425 / V-22
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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604262N / V-22A	Project (Number/Name) 1425 / V-22
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Electrical System Re-design	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021											
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q								
							RFP				CA																									
													NRE																							

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604262N / V-22A	Project (Number/Name) 1425 / V-22
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>V-22 Hardware Development</i>				
Engineering Milestones: Reviews: Preliminary Design Review	4	2016	4	2016
Engineering Milestones: Reviews: Improved Inlet Solution - Contract Award/ Development effort	1	2015	4	2017
Engineering Milestones: Reviews: Critical Design Review	1	2017	1	2017
Test & Evaluation: Test & Evaluation: IIS Flight Test	1	2017	3	2017
Test & Evaluation: Development Test: Development Flight Test / Integrated Test (IT- IIID) & Continuous software sustainment developmental testing	1	2015	4	2021
Test & Evaluation: Operational Evaluation: Operational Testing	1	2015	4	2021
Test & Evaluation: Kit Deliveries & Installs: Operational Testing (OT-IIIK)	2	2015	2	2015
Test & Evaluation: Kit Deliveries & Installs: Operational Testing (OT-IIIL)	2	2016	2	2016
Test & Evaluation: Kit Deliveries & Installs: Integrated Aircraft Survivability Equipment - Operational Testing	2	2016	2	2016
Test & Evaluation: Kit Deliveries & Installs: Operational Testing (OT-IIIM)	2	2017	2	2017
Test & Evaluation: Kit Deliveries & Installs: Operational Testing (OT-IIIN)	2	2019	2	2019
Test & Evaluation: Kit Deliveries & Installs: Operational Testing (OT-IIIO)	2	2021	2	2021
Production Milestones: Deliveries: Instrumented Test Aircraft Delivery	3	2015	3	2015
<i>MV-22 Navy Variant Development</i>				
Engineering Change Proposal	2	2016	4	2020
Reviews: Integrated Baseline Review	2	2016	2	2016
Reviews: Preliminary Design Review	3	2016	3	2016
Reviews: Critical Design Review	4	2016	4	2016
Reviews: Test & Evaluation: Integrated Logistics assessment	1	2017	1	2017
Reviews: Test & Evaluation: Engineering Development Model Test	3	2017	3	2017

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604262N / V-22A	Project (Number/Name) 1425 / V-22
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Reviews: Reviews: Functional Configuration Audit	4	2017	4	2017
Development Deliveries: Engineering Development Model Delivery	1	2017	1	2017
Development Deliveries: Engineering Development Model Install	2	2017	2	2017
Development Deliveries: Contract Awards: Development Contract Award	2	2016	2	2016
Production Milestones: Lot 22 APN MV22 Navy Variant Qty 6	1	2018	1	2018
Production Milestones: Lot 23 APN MV22 Navy Variant Qty 6	1	2019	1	2019
Production Milestones: Lot 24 APN MV22 Navy Variant Qty 6	1	2020	1	2020
Production Milestones: Production Deliveries: Lot 22 APN Navy Variant Qty 6	1	2020	4	2020
Production Milestones: Production Deliveries: Lot 23 APN Navy Variant Qty 6	1	2021	4	2021
Digital Interoperability (DI)				
System Design & Demonstration	2	2015	4	2019
Software Reprogrammable Payload (SRP)	2	2016	3	2018
SRP Contract Award	2	2016	2	2016
V-22 Aerial Refueling system (VARS)				
Contract Award	1	2016	1	2016
Reviews: Preliminary Design Review	4	2016	4	2016
Reviews: Critical Design Review	1	2017	1	2017
Test & Evaluation: Prototype Test	3	2017	1	2018
Test & Evaluation: Developmental Testing	1	2018	4	2018
Test & Evaluation: Operational Testing	1	2019	2	2019
Production Milestones: Kit Deliveries & Installs: Kits & Installs Qty 30	1	2019	4	2020
Electrical System Re-design				
RFP Release	4	2016	4	2016
Contract Award	3	2017	3	2017
NRE	3	2017	3	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>					R-1 Program Element (Number/Name) PE 0604264N / <i>Air Crew Systems Development</i>							
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	102.267	14.503	12.665	13.577	-	13.577	15.113	10.004	2.969	1.959	Continuing	Continuing
0606: <i>Aircrew System Development</i>	102.267	14.503	12.665	13.577	-	13.577	15.113	10.004	2.969	1.959	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Aircrew Systems Development program provides Engineering and Manufacturing Development of Aviation Life Support Systems to protect aircrew and flight deck personnel from current and future threats including: directed energy weapons, chemical/biological/radiological agents/fallout, ballistic projectiles, temperature extremes, heat/fire, low concentration oxygen environments, high dynamic forces during emergency egress, hearing loss, and high "G" forces. The program also provides development for the following capabilities: night vision capability, hearing and head protection, aircrew endurance, aircrew performance, man mounted data display, communications, clothing, in flight restraint and stability emergency egress and descent, escape and evasion, survival and rescue, crash protection, and anthropometric sizing for small aircrew. Acquisition initiatives include: competition, the application of streamlining initiatives, use of non-developmental items, joint and tri-service developments, and the pursuit of NATO/allied cooperative ventures, which expedite introduction of new products into Navy and Marine Corps fixed and rotary wing aircraft, reduce costs, and promote commonality.

JUSTIFICATION FOR BUDGET ACTIVITY:

This program is funded under SYSTEM DEVELOPMENT AND DEMONSTRATION because it includes projects that have passed Milestone B approval and are conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full-rate production decision.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	15.014	12.679	13.084	-	13.084
Current President's Budget	14.503	12.665	13.577	-	13.577
Total Adjustments	-0.511	-0.014	0.493	-	0.493
• Congressional General Reductions	-	-0.014			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.280	0.000			
• SBIR/STTR Transfer	-0.231	0.000			
• Program Adjustments	0.000	0.000	1.771	-	1.771
• Rate/Misc Adjustments	0.000	0.000	-1.278	-	-1.278

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604264N / <i>Air Crew Systems Development</i>	
<u>Change Summary Explanation</u> The FY 2017 funding request was reduced by \$791 thousand to account for the availability of prior year execution balances. Additional decrease in Air Crew Systems Development by \$565 thousand as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015. Schedule: 1. Acquisition Milestones: A. Laser Eye Protection (LEP) - Milestone B (MS B), Milestone C, Initial Operational Capability (IOC) and Full Rate Production (FRP) delayed due to extended revision of threat requirement and decision not to procure United States Air Force (USAF) Spectacle. B. Enhanced Visual Acuity (EVA) - Full Rate Production Decision (FRPD) changed to Full Rate Production Review (FRPR). Post MS B changed to MS B. MS C, FRPR, and IOC dates changed to reflect revised schedule. 2. System Development: A. LEP - System Readiness Review 1 moved from 2Q FY15 to 4Q FY15; System Function Review/System Readiness Review 2 moved from 3Q FY16 to 2Q FY17; Critical Design Review moved from 1Q FY17 to 1Q FY18; Test Readiness Review moved from 2Q FY17 to 2Q FY18; System Verification Review/Production Readiness Review moved from 2Q FY18 to 2Q FY19; Physical Configuration Audit moved from 2Q FY19 to 2Q FY20. B. EKB - Added an Application Development and Integration period to the schedule to reflect on-going developmental EKB efforts. C. EVA - Moved Preliminary Design Review From 1Q FY15 to 1Q FY17; moved Critical Design Review from 2Q FY15 to 4Q FY17; moved Test Readiness Review from 4Q FY15 to 3Q FY18; moved System Verification Review/Production Readiness Review from 1Q FY17 to 3Q FY19. 3. Test and Evaluation: A. LEP - Developmental Test shifted from 2Q of FY17 to 4Q of FY18. B. EVA - Developmental Test shifted from 1Q FY16 to 3Q FY18; Operational Test shifted from 4Q FY17 to 2Q FY20. 4. Production Milestones: A. LEP - Engineering Development Model (EDM), Low Rate Initial Production (LRIP) and Full Rate Production (FRP) contract awards changed to align with milestone decisions. B. EVA - EDM, LRIP 1, LRIP 2, and FRP contract award dates changed to align with milestone decisions.		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy Date: February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604264N / <i>Air Crew Systems Development</i>
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5. Deliveries:

A. Laser Eye Protection (LEP) - Engineering Development Model (EDM) quantity changed from 50 to 62; Low Rate Initial Production (LRIP) 1 quantity changed from 350 to 550; Full Rate Production (FRP) 1 quantity updated from 785 to 665; FRP 2 changed from 801 to 750.

B. Enhanced Visual Acuity (EVA) - EDM quantity changed from 25 to 12; LRIP 1 quantity changed from 6 to 25; LRIP 2 quantity changed from 64 to 100; and FRP quantity changed from 80 to 200.

Technical: N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604264N / Air Crew Systems Development				Project (Number/Name) 0606 / Aircrew System Development			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
0606: Aircrew System Development	102.267	14.503	12.665	13.577	-	13.577	15.113	10.004	2.969	1.959	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

AIRCREW SYSTEMS: Laser Eye Protection (LEP), Enhanced Visual Acuity (EVA), and Aircrew Systems (AS).

Under the above projects, LEP provides eye protection solutions that will provide Fixed, Rotary Wing and Patrol pilots and aircrew with multiple wavelength fixed threat and hazard protection during day and night unaided and Night Vision Goggle aided missions. LEP will consist of a suite of products to include spectacles, goggles and visors. The LEP (visor, spectacle or goggle format) is being developed for compatibility with all required USN/USMC Aviation Life Support Equipment as well as cockpit displays, night vision and fire control systems. EVA provides a digital night vision capability to address critical capability gaps in low and no light illumination levels (night vision). Future increments will provide enhanced visibility in degraded visual environment. Aircrew Systems includes State of the Art (SOA) and Survival Systems which provides for the yearly evaluation of the survival, clothing and other aircrew systems that provide upgraded performance, fill capability gaps, improve aircrew endurance and performance, safety and enhance survivability.

AIRCRAFT SYSTEMS: Aircraft Systems include studies for Advanced Crash Protection, SOA, Survival Systems and Electronic Knee Board (EKB). EKB provides digital display that will allow aircrew to store, search, and view significant amounts of data required for mission accomplishment during flight operations. SOA provides for the yearly evaluation of the survival systems that provide upgraded performance, fill capability gaps, improve performance, safety and enhance survivability.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Aircrew System Development	9.262	11.226	13.031	0.000	13.031
Articles:	-	-	-	-	-
Description: Laser Eye Protection (LEP) Spectacles (both Self Protection and Multi-Wavelength), step-in visor and Laser Eye Protection Improvement Program (LEPIP). Enhanced Visual Acuity (EVA) provides a digital night vision capability to address critical capability gaps in low and no light illumination(Night Vision). Future increments will provide enhanced visibility in degraded visual environments. AS includes SOA.					
FY 2015 Accomplishments: Laser Eye Protection (LEP): Continued research & development for next increment of threat spectacles. Enhanced Visual Acuity (EVA): Continued development.					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604264N / Air Crew Systems Development	Project (Number/Name) 0606 / Aircrew System Development

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>State of the Art (SOA): Continued a yearly evaluation and authorization of the survival, clothing, and other aircrew systems items. Identification, testing and approval of commercial-off-the-shelf (COTS) items that provide upgrade performance, fill capability gaps, improve aircrew endurance, aircrew performance, safety and enhance survivability.</p> <p>FY 2016 Plans: Laser Eye Protection (LEP): Continue research & development for next increment of threat spectacles. Enhanced Visual Acuity (EVA): Continue development. State of the Art (SOA): Continue a yearly evaluation and authorization of the survival, clothing, and other aircrew systems items. Identification, testing and approval of items that provide upgraded performance, fill capability gaps, improve aircrew endurance, aircrew performance, safety and enhance survivability.</p> <p>FY 2017 Base Plans: Laser Eye Protection (LEP): Continue research and development of the next increment of threat spectacle, award Engineering Development Manufacturing contract. Enhanced Visual Acuity (EVA): Continue Development, complete Preliminary Design Review (PDR), complete Critical Design Review (CDR). State of the Art (SOA): Continue a yearly evaluation and authorization of the survival, clothing, and other aircrew systems items. Identification, testing and approval of items that provide upgraded performance, fill capability gaps, improve aircrew endurance, aircrew performance, safety and enhance survivability.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Aircraft Systems Development</p> <p align="right">Articles:</p> <p>Description: Aircraft Systems include studies for Advanced Crash Protection, State of the Art (SOA), and Electronic Knee Board (EKB).</p> <p>FY 2015 Accomplishments: Electronic Knee Board (EKB): Continued development, completed design review, conducted integrated testing, and Authorizations to Work.</p> <p>FY 2016 Plans:</p>	5.241	1.439	0.546	0.000	0.546
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604264N / Air Crew Systems Development	Project (Number/Name) 0606 / Aircrew System Development

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Electronic Knee Board (EKB): Continue development, complete design review, select configuration 1 hardware, conduct integrated testing, and Authorizations to Work. Establish logistics support plan to support first hardware procurement. State of the Art (SOA): Continue a yearly evaluation and authorization to include identification, testing and approval of items that provide upgraded performance, fill capability gaps, improve endurance, performance, safety and enhance survivability. FY 2017 Base Plans: State of the Art (SOA): Continue a yearly evaluation and authorization to include identification, testing and approval of items that provide upgraded performance, fill capability gaps, improve endurance, performance, safety and enhance survivability. FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	14.503	12.665	13.577	0.000	13.577

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• OPN/4268: Aviation Life Support	28.602	30.586	22.528	-	22.528	16.974	21.737	41.411	41.444	Continuing	Continuing
• APN/0575: Aviation Life Support Mods	0.000	0.000	0.000	-	0.000	0.000	1.000	1.000	3.000	25.788	51.156

Remarks

D. Acquisition Strategy

Commercial Off-The-Shelf /Non-Developmental Items where possible, cost type contracts.

E. Performance Metrics

Electronic Knee Board: Performance Metrics to include Design Review, Early Operational Capability (EOC) and Initial Operational Capability (IOC).
Enhanced Visual Acuity: Performance Metrics to include Preliminary Design Review (PDR), Critical Design Review (CDR), Milestone B, Milestone C and IOC.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604264N / Air Crew Systems Development	Project (Number/Name) 0606 / Aircrew System Development
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Eng Laser Eye Protection (LEP)	WR	NAWCAD : Patuxent River, MD	6.743	0.713	Apr 2015	1.294	Apr 2016	1.474	Apr 2017	-		1.474	Continuing	Continuing	Continuing
Systems Eng Laser Eye Protection (LEP)	C/FFP	NAVAIR : Patuxent River, MD	0.000	0.000		0.400	Feb 2016	0.911	Feb 2017	-		0.911	0.527	1.838	1.838
Systems Eng Aircrew Systems	WR	Various : Various	7.605	4.457	Feb 2015	0.596	Feb 2016	0.469	Feb 2017	-		0.469	Continuing	Continuing	Continuing
Systems Eng Aircraft Systems	WR	Various : Various	41.582	1.410	Feb 2015	0.561	Feb 2016	0.501	Feb 2017	-		0.501	Continuing	Continuing	Continuing
System Eng Enhanced Visual Acuity	WR	Various : Various	3.349	4.092	Feb 2015	8.936	Feb 2016	10.177	Feb 2017	-		10.177	31.864	58.418	-
System Eng Electronic Knee Board	WR	NAWCAD : Patuxent River, MD	0.802	1.450	Feb 2015	0.834	Feb 2016	0.000		-		0.000	0.000	3.086	-
System Eng Electronic Knee Board	Various	Various : Various	0.995	2.341	Feb 2015	0.000		0.000		-		0.000	0.000	3.336	-
Prior year Prod Dev cost no longer funded in the FYDP	Various	Various : Various	28.147	0.000		0.000		0.000		-		0.000	0.000	28.147	-
Subtotal			89.223	14.463		12.621		13.532		-		13.532	-	-	-

Remarks
Electronic Knee Board (EKB) funding realigned to PE 0605215N starting in FY17.

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	WR	Various : Various	1.121	0.040	Dec 2014	0.044	Dec 2015	0.045	Dec 2016	-		0.045	Continuing	Continuing	Continuing
Prior year Mgmt Svcs no longer funded in the FYDP	Various	Various : Various	11.923	0.000		0.000		0.000		-		0.000	0.000	11.923	-
Subtotal			13.044	0.040		0.044		0.045		-		0.045	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy							Date: February 2016						
Appropriation/Budget Activity 1319 / 5				R-1 Program Element (Number/Name) PE 0604264N / <i>Air Crew Systems Development</i>			Project (Number/Name) 0606 / <i>Aircrew System Development</i>						
	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	102.267	14.503		12.665		13.577		-		13.577	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy

Date: February 2016

Appropriation/Budget Activity
1319 / 5

R-1 Program Element (Number/Name)
PE 0604264N / Air Crew Systems
Development

Project (Number/Name)
0606 / Aircrew System Development

Laser Eye Protection (LEP)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021								
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q					
Acquisition Milestones																																	
Milestones									MS B ▲												MS C ▲	FRPD ◆			IOC ▲								
System Development																																	
Reviews									SRR 1 ■				SFR/SRR 2 ■				CDR TRR ■	■			SVR/PRR ■					PCA ■							
Test & Evaluation																																	
DT																																	
Production Milestones																																	
Contract Awards													EDM ●												LRIP 1 ●			FRP 1 ●			FRP 2 ●		
Deliveries																																	
EDM Qty 62 (RDTEN)																																	
LRIP 1 Qty 550 (OPN)																																	
FRP 1 Qty 665 (OPN)																																	
FRP 2 Qty 750 (OPN)																																	

2017DON - 0604264N - 0606

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604264N / Air Crew Systems Development	Project (Number/Name) 0606 / Aircrew System Development
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Electronic Knee Board (EKB)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021																			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q																
Acquisition Milestones																																												
Milestones																																												
EOC ▲ (FY 2017 3Q) IOC ▲ (FY 2019 4Q)																																												
System Development																																												
Reviews	Design Review																																											
Application Development and Integration																																												
Test and Evaluation																																												
IT	IT								IT																																			
Production Milestones																																												
Contract Awards																																												
Deliveries																																												
FRP 1 ● (FY 2016 2Q) FRP 2 ● (FY 2017 2Q) FRP 3 ● (FY 2018 2Q) FRP 4 ● (FY 2019 2Q) FRP 5 ● (FY 2020 2Q)																																												
FRP 1 Qty 1736 (OPN) FRP 2 Qty 2236 (OPN) FRP 3 Qty 1160 (OPN) FRP 4 Qty 1160 (OPN) FRP 5 Qty 1160 (OPN)																																												

2017DON - 0604264N - 0606

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604264N / Air Crew Systems Development	Project (Number/Name) 0606 / Aircrew System Development
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Enhanced Visual Acuity (EVA)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
Acquisition Milestones																																
Milestones																																
System Development																																
Reviews																																
Test and Evaluation																																
Production Milestones																																
Contract Awards																																
Deliveries																																

2017DON - 0604264N - 0606 EDM Units will be used for Operational Testing

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604264N / <i>Air Crew Systems Development</i>	Project (Number/Name) 0606 / <i>Aircrew System Development</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Laser Eye Protection (LEP)</i>				
Acquisition Milestones: Milestones: LEP Milestone B	1	2017	1	2017
Acquisition Milestones: Milestones: LEP: Milestone C	3	2019	3	2019
Acquisition Milestones: Milestones: LEP: FRP Decision	1	2020	1	2020
Acquisition Milestones: Milestones: LEP IOC	3	2020	3	2020
System Development: Reviews: SRR 1	4	2015	4	2015
System Development: Reviews: SFR/SRR 2	2	2017	2	2017
System Development: Reviews: CDR	1	2018	1	2018
System Development: Reviews: TRR	2	2018	2	2018
System Development: Reviews: SVR/PRR	2	2019	2	2019
System Development: Reviews: PCA	2	2020	2	2020
Test & Evaluation: DT	4	2018	1	2019
Production Milestones: Contract Awards: LEP EDM (RD TEN)	2	2017	2	2017
Production Milestones: Contract Awards: LEP LRIP 1 (OPN)	3	2019	3	2019
Production Milestones: Contract Awards: LEP FRP 1 (OPN)	2	2020	2	2020
Production Milestones: Contract Awards: LEP FRP 2 (OPN)	1	2021	1	2021
Deliveries: LEP EDM Qty 62	2	2017	1	2018
Deliveries: LEP LRIP Qty 550	4	2019	3	2020
Deliveries: LEP FRP 1 Qty 665	4	2020	3	2021
Deliveries: LEP FRP 2 Qty 750	4	2021	4	2021
<i>Electronic Knee Board (EKB)</i>				
Acquisition Milestones: Milestones: EKB EOC	3	2017	3	2017

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604264N / <i>Air Crew Systems Development</i>	Project (Number/Name) 0606 / <i>Aircrew System Development</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Acquisition Milestones: Milestones: EKB IOC	4	2019	4	2019
System Development: Reviews: Design Review Complete	1	2015	3	2015
System Development: Reviews: Application Development and Integration	2	2015	4	2020
Test and Evaluation: EKB Integrated Testing to Support EOC	2	2015	2	2016
Test and Evaluation: EKB Integrated Testing to Support IOC	3	2017	3	2018
Production Milestones: Contract Awards: EKB FRP 1 (OPN)	2	2016	2	2016
Production Milestones: Contract Awards: EKB FRP 2 (OPN)	2	2017	2	2017
Production Milestones: Contract Awards: EKB FRP 3 (OPN)	2	2018	2	2018
Production Milestones: Contract Awards: EKB FRP 4 (OPN)	2	2019	2	2019
Production Milestones: Contract Awards: EKP FRP 5 (OPN)	2	2020	2	2020
Production Milestones: Deliveries: EKB FRP 1 Qty 1736	3	2016	4	2016
Production Milestones: Deliveries: EKB FRP 2 Qty 2236	3	2017	4	2017
Production Milestones: Deliveries: EKB FRP 3 Qty 1160	3	2018	4	2018
Production Milestones: Deliveries: EKB FRP 4 Qty 1160	3	2019	4	2019
Production Milestones: Deliveries: EKB FRP 5 Qty 1160	3	2020	4	2020
Enhanced Visual Acuity (EVA)				
Acquisition Milestones: Milestones: EVA Milestone B	2	2016	2	2016
Acquisition Milestones: Milestones: EVA Milestone C	4	2019	4	2019
Acquisition Milestones: Milestones: EVA IOC	4	2020	4	2020
Acquisition Milestones: Milestones: EVA FRP Review	1	2021	1	2021
System Development: Reviews: EVA PDR	1	2017	1	2017
System Development: Reviews: EVA CDR	4	2017	4	2017
System Development: Reviews: EVA TRR	3	2018	3	2018
System Development: Reviews: EVA SVR/PRR	3	2019	3	2019
Test and Evaluation: EVA Developmental Testing	3	2018	3	2019

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604264N / <i>Air Crew Systems Development</i>	Project (Number/Name) 0606 / <i>Aircrew System Development</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Test and Evaluation: EVA Operational Testing	2	2020	4	2020
Production Milestones: Contract Awards: EDM (RDTEN)	2	2018	2	2018
Production Milestones: Contract Awards: EVA LRIP 1 (OPN)	3	2019	3	2019
Production Milestones: Contract Awards: EVA LRIP 2 (OPN)	3	2020	3	2020
Production Milestones: Contract Awards: EVA FRIP (OPN)	1	2021	1	2021
Deliveries: EDM (QTY 12)	2	2018	3	2018
Deliveries: EVA LRIP 1 (QTY 25)	1	2020	2	2020
Deliveries: EVA LRIP 2 (QTY 100)	3	2020	2	2021
Deliveries: EVA FRIP 2 (QTY 200)	3	2021	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604269N / EA-18 Squadrons
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	1,815.500	18.653	46.921	116.761	-	116.761	164.999	142.820	65.642	67.405	Continuing	Continuing
3063: <i>EA-18G Development</i>	1,815.500	18.653	46.921	116.761	-	116.761	164.999	142.820	65.642	67.405	Continuing	Continuing

Program MDAP/MAIS Code: 378

A. Mission Description and Budget Item Justification

Decrease in EA-18 SQUADRONS by \$4.853M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

The EA-18G is replacing the EA-6B aircraft as the primary Electronic Attack platform supporting the Navy and Marine Corps, as the EA-6B is fully phased out the EA-18G will be the sole EA aircraft in the inventory. Capabilities of the EA-18G weapon system and ancillary equipment can be upgraded to accommodate and incorporate new or enhanced weapons as well as advances in technology to respond effectively to emerging future threats. E/A-18G "Flight Plan" spiral capability development is critical to the baseline of the EA-18G next generation mission system capability and maintaining tactical relevance in support of Navy Aviation Plan 2030. Development continues for design and integration of avionics systems, integration of Jamming Techniques Optimization improvements, evolutionary software upgrades via the System Configuration Set block builds and related testing. Continued advanced development engineering for improvements in reliability and maintainability are required to ensure maximum benefit is achieved through reduced cost of ownership and to provide enhanced availability.

The FY 2017 funding request was increased by \$45M for improvements to the ALQ-218 Complex Emitter. This funds a combination hardware/software solution to the ALQ-218 receiver to enable low band geo-location, faster geo-location response times, improved location, identification, and probability of intercept by enabling the EA-18G to detect and identify radio frequency emitters with complex waveforms that typically are not able to be detected or identified using traditional methods. Provide foundational capabilities needed in the Digital Memory Unit and processor elements of the ALQ-218.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	18.730	56.921	47.261	-	47.261
Current President's Budget	18.653	46.921	116.761	-	116.761
Total Adjustments	-0.077	-10.000	69.500	-	69.500
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-10.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.077	0.000			
• Program Adjustments	0.000	0.000	44.465	-	44.465
• Rate/Misc Adjustments	0.000	0.000	25.035	-	25.035

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy Date: February 2016

Appropriation/Budget Activity
1319: *Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)*

R-1 Program Element (Number/Name)
PE 0604269N / *EA-18 Squadrons*

Change Summary Explanation

Technical: FYDP Improvements to the ALQ-218 complex emitter to significantly improve lowband geo-location, signal detection, and identification capabilities. FY17 increase to system engineering efforts to ALQ-218 requirement and realignment of Integrated Capability Package-3 requirements for execution purposes.

Schedule: Not applicable.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604269N / EA-18 Squadrons				Project (Number/Name) 3063 / EA-18G Development			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3063: EA-18G Development	1,815.500	18.653	46.921	116.761	-	116.761	164.999	142.820	65.642	67.405	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The EA-18G is the replacement aircraft for the EA-6B. The EA-18G development program upgrades the EA-6B's Airborne Electronic Attack capability to detect, identify, locate and suppress hostile emitters; provides enhanced connectivity to National, Theater and Strike assets; and provides organic precision emitter targeting for employment of onboard suppression weapons (High-speed Anti-Radiation Missile family) to fulfill operational requirements. The performance of the aircraft is compatible with the primary strike/fighter aircraft projected to be in the inventory, allowing it to be fully integrated into specific strike packages.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: EA-18G Design and Avionics Integration	0.450	14.164	59.799	0.000	59.799
Articles:	-	-	-	-	-
<p>Description: The EA-18G has the capability to operate autonomously or as a major node in a network-centric operation and is being designed to perform a range of Electronic Warfare/Electronic Attack functions either simultaneously or independently. Funding will be utilized for design and integration of avionics systems into the EA-18G.</p> <p>FY 2015 Accomplishments: Continued integration of improvements developed through the Jamming Techniques Optimization teams.</p> <p>FY 2016 Plans: Continue integration of improvements developed through the Jamming Techniques Optimization teams. Addition of ALQ-218 complex emitter upgrade to improve low band geo-location, signal detection, and identification capabilities necessary for complex emitter geo-location and identification.</p> <p>FY 2017 Base Plans: Continue integration of improvements developed through the Jamming Techniques Optimization teams. Continue and increase engineering, flight hours and test efforts for ALQ-218 complex emitter upgrade requirements to improve low band geo-location, signal detection, and identification capabilities necessary for complex emitter geo-location and identification. Funds will support a combined hardware/software solution to provide significant capability enhancements to the ALQ-218 which are required to address evolving threats. To incorporate those ALQ-218 complex emitter upgrades with the System Configuration Sets (SCS) fleet releases on EA-18G, an increase in engineering, system integration, SCS development, Operational Flight Program re-</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604269N / EA-18 Squadrons	Project (Number/Name) 3063 / EA-18G Development
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>hosting, test planning, materials, lab equipment, and lab/flight testing is being funded as part of the FY17 funding increase.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: EA-18G Software Development</p> <p align="right">Articles:</p> <p>Description: Continued capability enhancements to improve the EA-18G Airborne Electronic Attack capabilities are predominantly realized through evolutionary software upgrades. Funding will be utilized to develop improved software capabilities for the EA-18G through System Configuration Set block software updates.</p> <p>FY 2015 Accomplishments: Continued System Configuration Set block software development and integration for the EA-18G, specifically System Configuration Set builds 25X, 27C, H10 and H12.</p> <p>FY 2016 Plans: Continue System Configuration Set block software development and integration for the EA-18G, specifically System Configuration Set builds 29C, 31C, H14 and H16.</p> <p>FY 2017 Base Plans: Continue System Configuration Set block software development and integration for the EA-18G, specifically System Configuration Set builds H14 and H16. Additional funds added for continuance of Integrated Capability Package-3 requirements. Increase to engineering efforts for integration of active and passive kill chain capabilities and sensors. Multi System Integration algorithm and sensor developmental efforts also increase at test activities for ongoing modeling and simulation upgrades such as Net Enabled Weapon Controller Interface Model interoperability software and equipment, and Live Virtual Construct interoperability efforts.</p> <p>FY 2017 OCO Plans: N/A</p>	15.623	10.204	13.065	0.000	13.065
Articles:	-	-	-	-	-
<p>Title: EA-18G Developmental & Operational Testing</p> <p align="right">Articles:</p> <p>Description: Funding will be utilized to support required test phases of the EA-18G.</p> <p>FY 2015 Accomplishments:</p>	1.500	3.100	5.417	0.000	5.417
Articles:	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604269N / EA-18 Squadrons	Project (Number/Name) 3063 / EA-18G Development
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Continued operational test of EA-18G avionics upgrades and System Configuration Set block software updates to include Flight Tests conducted in conjunction with various Fleet Exercises (i.e. FLEX-15).</p> <p>FY 2016 Plans: Continue operational and integration test of EA-18G avionics upgrades and System Configuration Set block software updates to include Flight Tests conducted in conjunction with various Fleet Exercises (i.e. FLEX-1X).</p> <p>FY 2017 Base Plans: Continue operational and integration test of EA-18G avionics upgrades and System Configuration Set block software updates to include Flight Tests conducted in conjunction with various Fleet Exercises (i.e. FLEX-1X).</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: EA-18G Flight Plan Engineering / System Configuration Set Development and Integration</p> <p align="right">Articles:</p> <p>Description: EA-18G "Flight Plan" spiral capability development is critical to the baseline of the Growler next generation mission system capability. Funding will support the development, test and integration efforts required to maintain tactical relevance in support of Navy Aviation Plan 2030.</p> <p>FY 2015 Accomplishments: Flight Plan Engineering efforts to included EA-18G improvements necessary for Growler relevance and tactical supremacy; Navy Integrated Fire Control-Counter Air system configuration set requirements to support Navy Integrated Air and Missile Defense capability requirements and enhanced EA-18G Cooperative Engagement Capability. Funding supported development (hardware and software), test and integration efforts for Flight Plan requirements such as Distributed Targeting Processor-Networked to include Aided Target Recognition, Stationary Target Recognition, Maritime Multiple Target Track and Engagement, Multi-Level Security, Strike Accelerator and Advanced Tactical Data Link; Display Improvements for enhanced sensor integration; Tactical Targeting Network Technology internet protocol capability and Time Difference Of Arrival in support of Integrated Capability Package-3.</p> <p>FY 2016 Plans: Flight Plan Engineering efforts to include EA-18G improvements necessary for Growler relevance and tactical supremacy; Navy Integrated Fire Control-Counter Air system configuration set requirements to support Navy Integrated Air and Missile Defense capability requirements and enhance EA-18G Cooperative Engagement Capability. Funding supports development (hardware and software), test and integration efforts for Flight</p>	1.000	19.353	38.380	0.000	38.380
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604269N / EA-18 Squadrons	Project (Number/Name) 3063 / EA-18G Development
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Plan requirements such as Distributed Targeting Processor-Networked to include Aided Target Recognition, Stationary Target Recognition, Maritime Multiple Target Track and Engagement, Multi-Level Security, Strike Accelerator and Advanced Tactical Data Link; Display Improvements for enhanced sensor integration; Tactical Targeting Network Technology internet protocol capability; Precision Approach and Landing Capability; Flight Path Control (Magic Carpet); Time Difference Of Arrival in support of Integrated Capability Package-3, and continued updates to Wingman Compatability improvements.</p> <p>FY 2017 Base Plans: Flight Plan Engineering efforts to include EA-18G improvements necessary for Growler relevance and tactical supremacy; Navy Integrated Fire Control-Counter Air system configuration set requirements to support Navy Integrated Air and Missile Defense capability requirements and enhance EA-18G Cooperative Engagement Capability. Funding supports development (hardware and software), test and integration efforts for Flight Plan requirements such as Distributed Targeting Processor-Networked to include Aided Target Recognition, Stationary Target Recognition, Maritime Multiple Target Track and Engagement, Multi-Level Security, Strike Accelerator and Advanced Tactical Data Link; Display Improvements for enhanced sensor integration; Tactical Targeting Network Technology internet protocol capability; Precision Approach and Landing Capability; Flight Path Control (Magic Carpet); Time Difference Of Arrival in support of Integrated Capability Package-3, and continued updates to Wingman Compatability improvements. Additional funding was realigned from PU 1662 F/ A-18 Improvements line for proper execution of EA-18G specific ICP-3 requirements.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: EA-18G Obsolescence Redesign</p> <p align="right">Articles:</p> <p>Description: Develop and test design modifications to address obsolescence issues.</p> <p>FY 2015 Accomplishments: Developed and tested design modifications to hardware components and software systems in response to EA-18G weapon system and ancillary equipment obsolescence issues.</p> <p>FY 2016 Plans: Develop and test design modifications to hardware components and software systems in response to EA-18G weapon system and ancillary equipment obsolescence issues.</p> <p>FY 2017 Base Plans:</p>	0.080	0.100	0.100	0.000	0.100
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604269N / EA-18 Squadrons	Project (Number/Name) 3063 / EA-18G Development
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Develop and test design modifications to hardware components and software systems in response to EA-18G weapon system and ancillary equipment obsolescence issues.					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	18.653	46.921	116.761	0.000	116.761

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APN/014300: EA-18G	1,503.534	858.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	12,905.711
• APN/05250: F-18 Series (OSIP 011-10)	19.049	10.760	22.632	-	22.632	37.590	85.061	46.423	58.973	120.818	471.906
• RDTEN/1662: F/A-18 Improvement	72.075	109.233	67.886	-	67.886	72.171	61.150	50.069	51.766	Continuing	Continuing

Remarks

D. Acquisition Strategy

The program achieved Full Rate Production in November 2009. Contractual studies are underway for Operational Requirement Document core Block II activities and those efforts will be integrated into the overall EA-18G plan/roadmap as resources permit. EA-18G software upgrades are incrementally developed, integrated and fielded. Software development and integration are coordinated efforts between government activities and industry partners to field capability upgrades to the EA-18G fleet.

E. Performance Metrics

Completion of Full Rate Production Delivery of EA-18G aircraft scheduled for 1st Quarter FY2017.

Complete incorporation of EA-18G specific upgrades into the System Configuration Set block software builds to meet planned Fleet Release dates.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604269N / EA-18 Squadrons	Project (Number/Name) 3063 / EA-18G Development
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Systems Engineering (System Configuration Set / Software)	WR	NAWCAD : Pax River, MD	32.205	1.500	Feb 2015	1.000	Nov 2015	5.489	Dec 2016	-		5.489	Continuing	Continuing	Continuing
Systems Engineering (SCS/Flight Plan)	WR	NAWCWD : China Lake, CA	85.914	4.814	Nov 2014	13.352	Feb 2016	14.701	Dec 2016	-		14.701	Continuing	Continuing	Continuing
Systems Engineering (SCS/Flight Plan)	WR	NAWCWD : Pt. Mugu, CA	66.669	7.935	Nov 2014	7.512	Jan 2016	7.522	Dec 2016	-		7.522	Continuing	Continuing	Continuing
Systems Engineering (SCS/SW)	WR	NAWCAD : North Island, CA	0.000	0.000		0.000		0.050	Dec 2016	-		0.050	Continuing	Continuing	Continuing
Systems Engineering (SCS/Flight Plan)	Various	Boeing : St. Louis	0.000	0.000		0.000		15.525	Mar 2017	-		15.525	Continuing	Continuing	Continuing
Systems Engineering (JATO)	WR	NAVSEASYSKOM : Washington, DC	5.064	0.250	Feb 2015	0.250	Feb 2016	0.000		-		0.000	0.000	5.564	-
Systems Engineering (JATO/ALQ-218)	WR	Naval Research Laboratory : Washington, DC	2.722	0.200	Feb 2015	0.200	Feb 2016	0.000		-		0.000	0.000	3.122	-
System Engineering (ALQ-218)	C/CPFF	Northrop Grumman : Various	0.000	0.000		13.348	Feb 2016	56.385	Apr 2017	-		56.385	Continuing	Continuing	Continuing
System Engineering (Flight Plan TDOA)	C/CPFF	Boeing : St. Louis	0.000	0.000		1.366	Dec 2015	2.719	Dec 2016	-		2.719	Continuing	Continuing	Continuing
Systems Engineering (SCS/Flight Plan)	WR	NSMA : Various	0.000	0.000		0.000		2.500	Apr 2017	-		2.500	0.000	2.500	-
Prior Year Prod Dev no longer funded in FYDP	Various	Various : Various	1,093.867	0.000		0.000		0.000		-		0.000	0.000	1,093.867	-
Subtotal			1,286.441	14.699		37.028		104.891		-		104.891	-	-	-

Remarks
 FY17 supports increase of Systems Engineering for ALQ-218 improvement design and integration efforts, and funding re-alignment for execution of Integrated Capability Package-3 requirements.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604269N / EA-18 Squadrons	Project (Number/Name) 3063 / EA-18G Development
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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Obsolescence Redesign	Various	Various : Various	0.100	0.080	Jun 2015	0.100	Jun 2016	0.100	Jun 2017	-		0.100	Continuing	Continuing	Continuing
Flight Plan Engineering/SCS Development and Integration	Various	Various : Various	0.000	0.000		4.239	Dec 2015	3.881	Dec 2016	-		3.881	Continuing	Continuing	Continuing
Prior Year Support no longer funded in FYDP	Various	Various : Various	235.789	0.000		0.000		0.000		-		0.000	0.000	235.789	-
Subtotal			235.889	0.080		4.339		3.981		-		3.981	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Integration & Operational Testing	WR	Various : Various	112.725	1.500	Jul 2015	2.000	Jul 2016	1.500	Jun 2017	-		1.500	Continuing	Continuing	Continuing
Integration & Operational Testing	WR	COTF : China Lake, CA	0.000	0.000		0.000		3.917	Dec 2016	-		3.917	Continuing	Continuing	Continuing
Test Assets	C/CPFF	Raytheon : Tuscon, AZ	1.033	0.000		1.100	Nov 2015	0.000		-		0.000	0.000	2.133	2.133
Prior Year T&E no longer funded in FYDP	Various	Various : Various	106.400	0.000		0.000		0.000		-		0.000	0.000	106.400	-
Subtotal			220.158	1.500		3.100		5.417		-		5.417	-	-	-

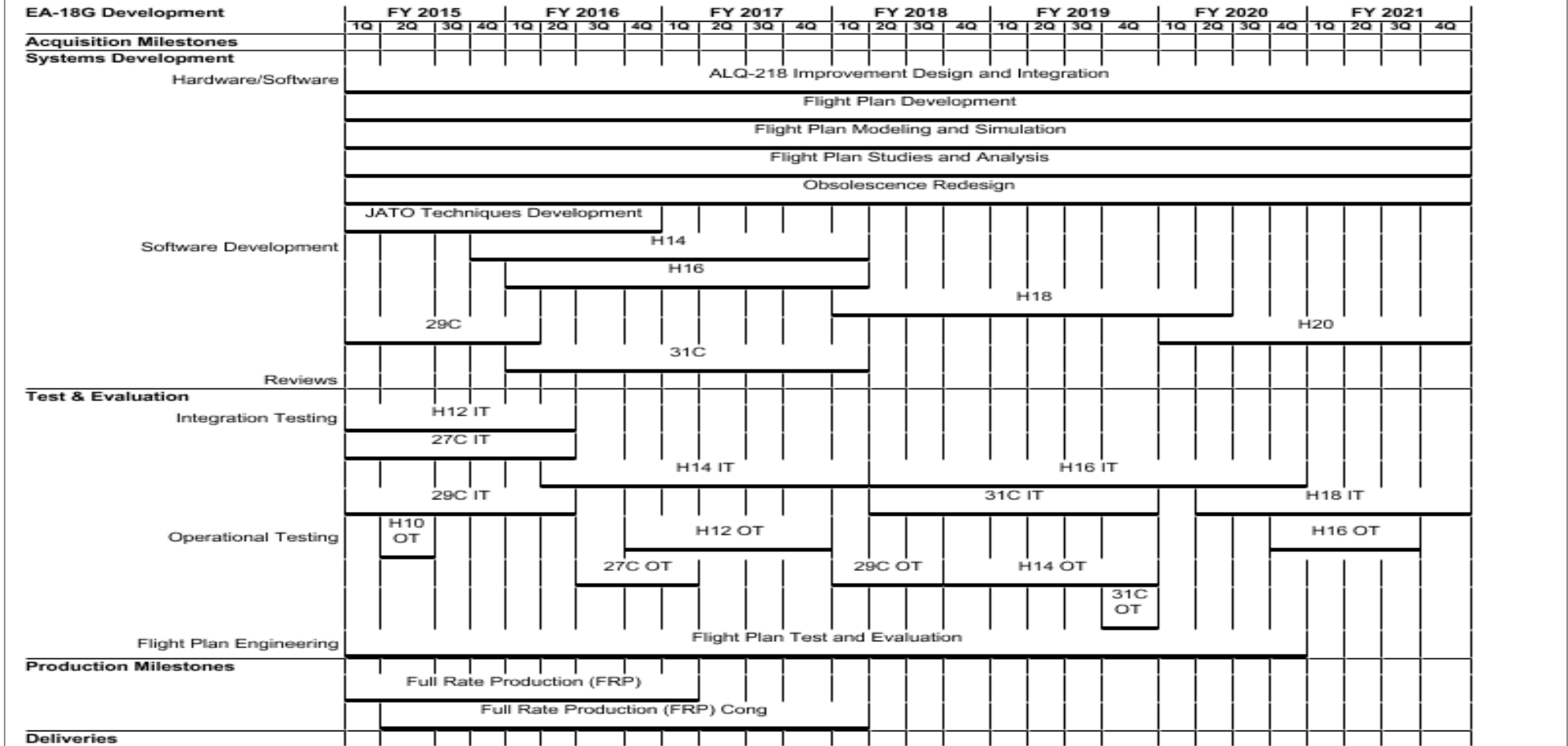
Remarks
Test Assets (AIM-120, AIM-9X) procured as live fire and E3/HERO test assets in support of EA-18G software development and weapons integration efforts specific to the EA-18G.

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support (Seaport-CSS)	C/CPFF	Wyle Lab : Pax River, MD	13.339	0.616	Nov 2014	0.616	Nov 2015	0.584	Apr 2017	-		0.584	Continuing	Continuing	Continuing

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

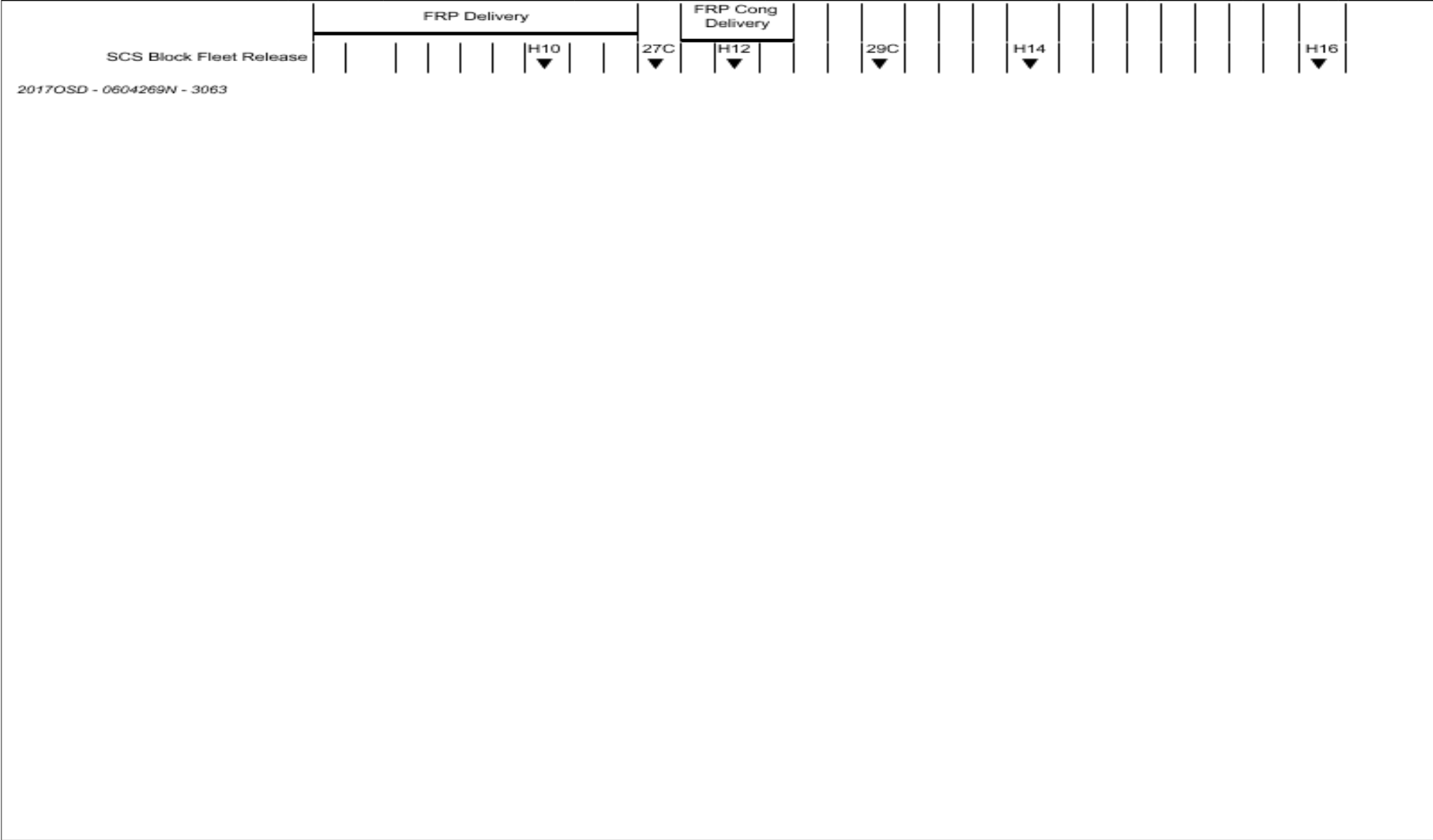
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604269N / EA-18 Squadrons	Project (Number/Name) 3063 / EA-18G Development
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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604269N / EA-18 Squadrons	Project (Number/Name) 3063 / EA-18G Development
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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604269N / EA-18 Squadrons	Project (Number/Name) 3063 / EA-18G Development

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
EA-18G Development				
Systems Development: Hardware/Software: ALQ-218 Improvement Design and Integration	1	2015	4	2021
Systems Development: Hardware/Software: Flight Plan Development	1	2015	4	2021
Systems Development: Hardware/Software: Flight Plan Modeling and Simulation	1	2015	4	2021
Systems Development: Hardware/Software: Flight Plan Studies and Analysis	1	2015	4	2021
Systems Development: Hardware/Software: Obsolescence Redesign Development and Testing	1	2015	4	2021
Systems Development: Hardware/Software: JATO Techniques Development	1	2015	4	2016
Systems Development: Software Development: H14 Software Development	4	2015	1	2018
Systems Development: Software Development: H16 Software Development	1	2016	1	2018
Systems Development: Software Development: H18 Software Development	1	2018	2	2020
Systems Development: Software Development: H20 Software Development	1	2020	4	2021
Systems Development: Software Development: 29C Software Development	1	2015	1	2016
Systems Development: Software Development: 31C Software Development	1	2016	1	2018
Test & Evaluation: Integration Testing: H12 Integration Testing	1	2015	2	2016
Test & Evaluation: Integration Testing: 27C Integration Testing	1	2015	2	2016
Test & Evaluation: Integration Testing: H14 Integration Testing	2	2016	1	2018
Test & Evaluation: Integration Testing: H16 Integration Testing	2	2018	4	2020
Test & Evaluation: Integration Testing: H18 Integration Testing	2	2020	4	2021
Test & Evaluation: Integration Testing: 29C Integration Testing	1	2015	2	2016
Test & Evaluation: Integration Testing: 31C Integration Testing	2	2018	4	2019
Test & Evaluation: Operational Testing: H10 Operational Testing	2	2015	2	2015

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604269N / EA-18 Squadrons	Project (Number/Name) 3063 / EA-18G Development
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Test & Evaluation: Operational Testing: H12 Operational Testing	4	2016	4	2017
Test & Evaluation: Operational Testing: H16 Operational Testing	4	2020	3	2021
Test & Evaluation: Operational Testing: 27C Operational Testing	3	2016	1	2017
Test & Evaluation: Operational Testing: H14 Operational Testing	4	2018	4	2019
Test & Evaluation: Operational Testing: 29C Operational Testing	1	2018	3	2018
Test & Evaluation: Operational Testing: 31C Operational Testing	4	2019	4	2019
Test & Evaluation: Flight Plan Engineering: Developmental, Integration and Operational Testing	1	2015	4	2020
Production Milestones: Full Rate Production	1	2015	1	2017
Production Milestones: Full Rate Production - Congressional add	2	2015	1	2018
Deliveries: FRP Delivery	1	2015	1	2017
Deliveries: FRP Cong Delivery	3	2017	1	2018
Deliveries: SCS Block Fleet Release: H10 Fleet Release	3	2016	3	2016
Deliveries: SCS Block Fleet Release: H12 Fleet Release	4	2017	4	2017
Deliveries: SCS Block Fleet Release: H16 Fleet Release	4	2021	4	2021
Deliveries: SCS Block Fleet Release: 27C Fleet Release	2	2017	2	2017
Deliveries: SCS Block Fleet Release: 29C Fleet Release	4	2018	4	2018
Deliveries: SCS Block Fleet Release: H14 Fleet Release	4	2019	4	2019

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	915.610	27.251	20.113	48.766	-	48.766	45.809	32.399	32.727	33.432	Continuing	Continuing
0556: <i>EW Counter Response</i>	447.063	15.026	11.890	15.389	-	15.389	16.395	17.633	18.009	18.389	Continuing	Continuing
1742.: <i>EW Technical Development and T&E</i>	0.000	1.112	1.629	1.585	-	1.585	1.585	1.617	1.652	1.685	Continuing	Continuing
2175: <i>Tactical Air Electronic Warfare</i>	468.547	11.113	6.594	3.927	-	3.927	2.074	2.069	2.089	0.000	0.000	496.413
3308: <i>Technology Development</i>	0.000	0.000	0.000	2.016	-	2.016	2.502	6.316	6.382	8.652	Continuing	Continuing
3309: <i>Assault Survivability Optimization</i>	0.000	0.000	0.000	3.375	-	3.375	0.849	0.835	0.836	0.858	Continuing	Continuing
3327: <i>MAGTF EW Aviation Development</i>	0.000	0.000	0.000	20.817	-	20.817	20.776	2.984	2.794	2.862	Continuing	Continuing
3371: <i>MAGTF EW Interoperability Development</i>	0.000	0.000	0.000	1.657	-	1.657	1.628	0.945	0.965	0.986	Continuing	Continuing

Program MDAP/MAIS Code: 418

A. Mission Description and Budget Item Justification

Decrease in ELECTRONIC WARFARE (EW) DEV by \$1.115M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

This program element includes development of Electronic Warfare (EW) systems for the United States Navy (USN), United States Marine Corps (USMC), and United States Army tactical aircraft, USMC helicopters, surface combatants, data link vulnerability assessments, precision targeting, USN and USMC radio frequency jammers, and development and testing of electronic warfare devices for emerging threats and emergency contingencies. This element also includes development of Aircraft Survivability Equipment (ASE) and Electronic Warfare (EW)/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.

This program is funded under SYSTEM DEVELOPMENT AND DEMONSTRATION because it includes those projects that have passed Milestone B approval and are conducting engineering and manufacturing development tasks aimed at meeting validated requirement prior to full-rate production decision.

PE 0604279N and 0604376M consolidated to PE 0604270N beginning in FY 2017.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	28.742	23.685	20.306	-	20.306
Current President's Budget	27.251	20.113	48.766	-	48.766
Total Adjustments	-1.491	-3.572	28.460	-	28.460
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-3.572			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-1.272	0.000			
• SBIR/STTR Transfer	-0.219	0.000			
• Program Adjustments	0.000	0.000	30.586	-	30.586
• Rate/Misc Adjustments	0.000	0.000	-2.126	-	-2.126

Change Summary Explanation

Technical: Not Applicable.

Schedule:

Project Unit 0556 / EW COUNTER RESPONSE: N/A.

Project Unit 2175 / Tactical Air Electronic Warfare:

Software Improvement: IDECM Block 4 (IB4)ALQ-214 Software Improvement (SWIP) Initial Operational Capability (IOC) date changed from 1st Qtr FY 2017 to 4th Qtr FY 2017 due to delayed schedule for ALQ-214 SWIP Operational Testing (OT). ALQ-214 SW Improvement Development added and extended to 1st Qtr FY 2018. ALQ-214 SWIP Developmental Testing (DT)/OT testing dates changed from 1st Qtr FY 2015 through 3rd Qtr FY 2015 to 1st Qtr 2016 through 4th Qtr FY 2016 due to delays with ALQ-214 software development and integration. ALQ-214 SWIP OT flights dates changed from 2nd Qtr FY 2016 through 3rd Qtr FY 2016 to 2nd Qtr FY2017 through 3rd Qtr 2017 due to the schedule slide of ALQ-214 SWIP DT/OT completion. Verification of Correction of Deficiencies (VCD) DT added to verify software anomalies identified during ALQ-214 SWIP DT/OT testing. VCD OT added to verify software anomalies identified during ALQ-214 SWIP OT testing.

Project Unit 3308 / Technology Development:

Release 16 added to 1st Qtr FY 2017 from PE 0604279N. Release 17 added to 1st Qtr FY 2018. Release 18 moved from 3rd Qtr FY 2018 to 1st Qtr FY 2019 to better align with Program Related Engineering (PRE) Software releases. Release 19 added to 1st Qtr FY 2020. Release 20 added to 1st Qtr FY 2021. FY 2016 System Development Analysis completion moved from 1st Qtr FY 2017 to 4th Qtr FY 2016 and is reflected under PE 0604279N. FY 2017 Software Technique

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity	R-1 Program Element (Number/Name)
1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	PE 0604270N / <i>Electronic Warfare (EW) Dev</i>

Development moved from 1st Qtr FY 2017 through 4th Qtr 2021 to 1st Qtr FY 2017 to 3rd Qtr 2017 as an annualized effort. FY 2018 through 2021 Software Technique Development effort annualized to 1st Qtr through 3rd Qtr of each FY. FY 2017 through 2021 Integrated Evaluation moved to 4th Qtr of each FY as a 1 Qtr event.

Project Units 3308, 3309, 3327, and 3371 were incorporated into PE 0604270N.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>				Project (Number/Name) 0556 / <i>EW Counter Response</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
0556: <i>EW Counter Response</i>	447.063	15.026	11.890	15.389	-	15.389	16.395	17.633	18.009	18.389	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project develops upgrades to combat the increasingly complex and dense Electronic Warfare (EW) threat environment. Required improvements in Airborne Electronic Attack (AEA) will achieve application of state-of-the-art signal exploitation, processing, display techniques, improved tactics, and jamming capabilities against EW threats.

Efforts include continued development of Force Protection/Overseas Contingency Operations (classified discussion available upon request) Navigation and Information Operations applications and enhanced communications jamming. Efforts also include risk reduction activities to support the upgrade of the ALQ-99 Tactical Jamming System (TJS) capabilities to include technology studies, breadboard/demonstrator development, and testing in laboratory and relevant environments. The efforts under this project provide for electronic countermeasure responses to advanced threat weapon systems and Command, Control, and Communications (C3) networks that are expanding in density and technical complexity. This project funds the continued development and integration of all EW and Electronic Attack systems for the US Navy electronic attack aircraft including improvements within precision Direction of Arrival, geo-location, Specific Emitter Identification, Auto-Electronic Support Measures, and selective reactive jamming.

Electronic Attack Jammer Techniques Optimization (JATO) and test support is required to address and counter new and evolving radar and communications threats in support of existing and emerging systems such as the EA-6B, EA-18G, and Next Generation Jammer (NGJ). JATO will continue to generate techniques, tactics, and procedures that will optimize the capabilities of existing weapon systems, and to assist in requirements definitions of emerging AEA systems.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: ICAP III UPDATE	1.330	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2015 Accomplishments: In FY 2015, the ICAP III program continued development, integration, and enhancement of Link-16 capabilities, ALQ-218 capabilities, USQ-113 capabilities, USB ENTR, and VACM into ICAP III Aircraft, and resolved OPEVAL and FOT&E related deficiencies via ICAP III Block release.					
FY 2016 Plans: N/A					
FY 2017 Base Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>	Project (Number/Name) 0556 / <i>EW Counter Response</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
FY 2017 OCO Plans: N/A					
Title: MISSION PLANNING	1.100	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2015 Accomplishments: In FY 2015, the EA-6B Mission Planning program completed development of all elements and supported Operational Test of the EA-6B Mission Planning Environment (MPE), including Unique Planning Component (UPC), Electronic Tactical Information and Report Management System (ETIRMS), and Electronic Warfare Database System (EWDS). The program executed all tasks required to obtain Navy and Marines Corp IA accreditation for product and support subsequent MPE fielding. Mission Planning Environment (MPE) development of .NET 64 bit Operating System (OS) migration began, synchronizing with new Joint Mission Planning System (JMPS) FW 64 bit evolution for continued Information Assurance (IA) sustainment and OS obsolescence avoidance.					
FY 2016 Plans: N/A					
FY 2017 Base Plans: N/A					
FY 2017 OCO Plans: N/A					
Title: JAMMER TECHNIQUES OPTIMIZATION (JATO)	12.451	11.400	15.389	0.000	15.389
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Continue engineering development and test support required to address new and evolving radar/communications threats in support of existing and emerging systems such as the EA-6B, EA-18G, and Next Generation Jammer. Jammer Techniques Optimization (JATO) will continue to generate techniques, tactics, and procedures to optimize the capabilities of ALQ-99, USQ-113, ALQ-218, ALQ-227, ALQ-231, ALE-43, and Airborne Electronic Attack Expendable (AEAE) systems, and to assist in requirements definitions of emerging					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016		
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>	Project (Number/Name) 0556 / <i>EW Counter Response</i>			
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)					
Airborne Electronic Attack (AEA) systems. JATO continues to lead efforts in support of Overseas Contingency Operation and Force Protection issues. (Classified discussion available upon request.)					
FY 2016 Plans: Continue engineering development and test support of existing and emerging systems such as the EA-6B, EA-18G, and Next Generation Jammer to address potential Radio Frequency (RF) and Cyber Electronic Warfare (Cyber/EW) effects on current and evolving radar/communications threats. Jammer Techniques Optimization (JATO) will continue to generate techniques, tactics, and procedures to optimize the capabilities of systems such as, but not limited to, the ALQ-99, USQ-113, ALQ-218, ALQ-227, ALQ-231, ALE-43, and Airborne Electronic Attack Expendable (AEAE) systems; and assist in requirements definitions of emerging Airborne Electronic Attack (AEA) systems. JATO continues to lead efforts in support of Overseas Operations and Force Protection issues. (Classified discussion available upon request.)					
FY 2017 Base Plans: The Jammer Techniques Optimization (JATO) organization will continue engineering development and test support of existing and emerging systems such as the EA-6B, EA-18G, and Next Generation Jammer to address potential Radio Frequency (RF) and Cyber Electronic Warfare (Cyber/EW) effects on current and evolving radar/communications threats. JATO will continue to generate techniques, tactics, and procedures to optimize the capabilities of systems such as, but not limited to, the ALQ-99, USQ-113, ALQ-218, ALQ-227, ALQ-231, ALE-43, and Airborne Electronic Attack Expendable (AEAE) systems; and assist in requirements definitions of emerging Airborne Electronic Attack (AEA) systems. JATO continues to lead efforts in support of Overseas Operations and Force Protection issues. (Classified discussion available upon request.)					
Increase in funding from FY2016 to FY2017 is due to increased flight and ground testing against adversary systems and increased efforts of the Advanced Techniques Group (ATG) to address Cyber/EW threats.					
FY 2017 OCO Plans: N/A					
Title: AIRBORNE ELECTRONIC ATTACK EXPENDABLE (AEAE)					
Articles:					
	0.145	0.490	0.000	0.000	0.000
	-	-	-	-	-
FY 2015 Accomplishments:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>	Project (Number/Name) 0556 / <i>EW Counter Response</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
In FY 2015, the Airborne Electronic Attack Expendable (AEAE) program continued risk reduction efforts in conjunction with other partner services and entities. FY 2016 Plans: Continue risk reduction efforts including evaluation of Electronic Warfare payload(s) for integration into AEAE platform. FY 2017 Base Plans: N/A FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	15.026	11.890	15.389	0.000	15.389

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APN/0511: <i>EA-6 Series</i>	10.881	7.799	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	3,394.443
• APN/0513: <i>AEA Systems</i>	44.768	36.233	51.900	-	51.900	52.818	51.878	58.282	70.078	315.316	880.351

Remarks

D. Acquisition Strategy
The Jammer Techniques Optimization Group (JATO), comprised of a partnership between the Government and a University Aligned Research Center (UARC), continues to research Electronic Warfare tactics and techniques. The JATO prime delivery order, a cost plus fixed fee contract that covers the period of FY 2013 through FY 2017, was awarded to Johns Hopkins University in 3Q FY 2013.

E. Performance Metrics
1. Jammer Techniques Optimization development counters enemy radar systems and communication systems to provide techniques to protect allied forces.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>	Project (Number/Name) 0556 / <i>EW Counter Response</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary HDW Develop - ICAP III	C/FFP	Various : Various	261.704	0.400	Dec 2014	0.000		0.000		-		0.000	0.000	262.104	262.104
Systems Engineering NRL	WR	Naval Research Lab : Maryland	8.732	1.615	Nov 2014	1.600	Dec 2015	1.606	Nov 2016	-		1.606	Continuing	Continuing	Continuing
Systems Engineering NAWCAD	WR	NAWCAD : Patuxent River, MD	24.211	0.530	Nov 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering NAWCWD	WR	NAWCWD : Point Mugu, CA	76.065	5.987	Nov 2014	4.784	Nov 2015	4.376	Nov 2016	-		4.376	Continuing	Continuing	Continuing
Systems Engineering NSWC	WR	NSWC Det : Crane, IN	10.451	0.260	Dec 2014	0.250	Dec 2015	0.625	Nov 2016	-		0.625	Continuing	Continuing	Continuing
Systems Engineering VAR	WR	Various : Various	14.893	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Prior Year Development cost no longer Funded in the FYDP	Various	Various : Various	1.043	0.000		0.000		0.000		-		0.000	0.000	1.043	1.043
Subtotal			397.099	8.792		6.634		6.607		-		6.607	-	-	-

Remarks
Obligation date for FY 2017 efforts moved to November 2016 to ensure continuity of JATO operations.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Development Support - JATO	SS/CPFF	Johns Hopkins Univ : Maryland	31.202	4.302	Dec 2014	3.709	Dec 2015	4.744	Nov 2016	-		4.744	Continuing	Continuing	Continuing
Eng & Tech Svc (Non FFRDC)	Various	Various : Various	15.301	1.760	Dec 2014	1.417	Dec 2015	1.833	Nov 2016	-		1.833	Continuing	Continuing	Continuing
Prior year Support costs no longer funded in the FYDP	Various	Various : Various	2.256	0.000		0.000		0.000		-		0.000	0.000	2.256	-
Subtotal			48.759	6.062		5.126		6.577		-		6.577	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>	Project (Number/Name) 0556 / <i>EW Counter Response</i>
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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks
Obligation date for FY 2017 efforts moved to November 2016 to ensure continuity of JATO operations.

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
JATO Flight Test	WR	NAWCWD : Point Mugu, CA	0.000	0.000		0.000		1.556	Nov 2016	-		1.556	0.000	1.556	-
JATO Ground/Lab Test	WR	NAWCWD : Point Mugu, CA	0.000	0.000		0.000		0.519	Nov 2016	-		0.519	0.000	0.519	-
Subtotal			0.000	0.000		0.000		2.075		-		2.075	0.000	2.075	-

Remarks
JATO Flight and Ground/Lab Tests broken out separately from Systems Engineering efforts for budget clarity in FY 2017. These lines will fund tests of JATO techniques, tactics, and procedures (TTPs) against real and simulated adversary systems. Obligation date for FY 2017 efforts moved to November 2016 to ensure continuity of JATO operations.

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support	WR	Various : Various	1.205	0.021	Dec 2014	0.030	Oct 2015	0.030	Oct 2016	-		0.030	Continuing	Continuing	Continuing
Travel	WR	Various : Various	0.000	0.151	Oct 2014	0.100	Oct 2015	0.100	Oct 2016	-		0.100	0.000	0.351	-
Subtotal			1.205	0.172		0.130		0.130		-		0.130	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			447.063	15.026	11.890	15.389	-	15.389	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>	Project (Number/Name) 0556 / <i>EW Counter Response</i>
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EW Counter Response	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestones																												
Milestones																												
Systems Development																												
Hardware Development																												
Software Development																												
Reviews			JATO ESC ■				JATO ESC ■				JATO ESC ■				JATO ESC ■				JATO ESC ■				JATO ESC ■				JATO ESC ■	
Test & Evaluation																												
Technical Evaluation																												
Operational Evaluation			ICAP III Block 6 DT/OT																									
Production Milestones																												
Contract Awards																												
Deliveries																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW)</i> <i>Dev</i>	Project (Number/Name) 0556 / <i>EW Counter Response</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>EW Counter Response</i>				
Systems Development: Reviews: JATO Executive Steering Committee 2015	3	2015	3	2015
Systems Development: Reviews: JATO Executive Steering Committee 2016	3	2016	3	2016
Systems Development: Reviews: JATO Executive Steering Committee 2017	3	2017	3	2017
Systems Development: Reviews: JATO Executive Steering Committee 2018	3	2018	3	2018
Systems Development: Reviews: JATO Executive Steering Committee 2019	3	2019	3	2019
Systems Development: Reviews: JATO Executive Steering Committee 2020	3	2020	3	2020
Systems Development: Reviews: JATO Executive Steering Committee 2021	3	2021	3	2021
Test & Evaluation: Operational Evaluation: ICAP III Block 6 DT/OT	1	2015	4	2015

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>				Project (Number/Name) 1742. / <i>EW Technical Development and T&E</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
1742.: <i>EW Technical Development and T&E</i>	0.000	1.112	1.629	1.585	-	1.585	1.585	1.617	1.652	1.685	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This program element includes development of Electronic Warfare (EW) systems for the United States Navy (USN), United States Marine Corps (USMC), and United States Army tactical aircraft, USMC helicopters, surface combatants, data link vulnerability assessments, precision targeting, USN and USMC radio frequency jammers, and development and testing of electronic warfare devices for emerging threats and emergency contingencies.

This project funds efforts that focus on the quick reaction prototyping of tactical information and electronic warfare systems. This program directly addresses various Fleet requirements across multiple platforms (airborne, surface and subsurface), airborne and surface cryptologic operational requirements documents and the joint oversight council missions needs statement to research, assess, and develop information warfare and electronic warfare systems and capabilities. These systems/capabilities provide information dominance to friendly forces during conflict, which is necessary for successful mission accomplishment.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Electronic Warfare Technical Development Studies and Test & Evaluation	1.112	1.629	1.585	0.000	1.585
Articles:	-	-	-	-	-
Description: This project funds efforts that focus on the quick reaction prototyping of tactical information and electronic warfare systems.					
FY 2015 Accomplishments: *Develop, tested, and integrated two waveforms into MCS-21 systems					
FY 2016 Plans: *Continue studies and vulnerability analysis on emerging/changing threats/targets for EW programs. *Continue IW/IO EA capability development & integration (Details held at higher classification level) *Continue specific wave form (EA) Research and Analysis (Details held at higher classification level).					
FY 2017 Base Plans: *Continue studies and vulnerability analysis on emerging/changing threats/targets for EW programs. *Develop and test ES capabilities across various platforms. *Develop and test IO Countermeasures capabilities across various platforms.					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>	Project (Number/Name) 1742. / <i>EW Technical Development and T&E</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
*Purchase a system to support next generation electronic support and electronic attack capability development					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	1.112	1.629	1.585	0.000	1.585

C. Other Program Funding Summary (\$ in Millions)
N/A

Remarks

D. Acquisition Strategy

BSO 60: Development of classified prototypes and special capabilities. The Navy Cyber Warfare Development Group (NCWDG) is granted streamlined acquisition authority for the development of classified prototypes and special capabilities under the DASN(C4I).

E. Performance Metrics

BSO 60: Research, assess and develop EW/IW capabilities. The NCWDG serves as the Program Management Office of the EW Technical Development and Information Warfare (IW) program. As such, NCWDG is tasked as the Navy's principal technical agent to research, assess, and develop EW/IW capabilities.

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy

Date: February 2016

Appropriation/Budget Activity
1319 / 5

R-1 Program Element (Number/Name)
PE 0604270N / *Electronic Warfare (EW) Dev*

Project (Number/Name)
1742. / *EW Technical Development and T&E*

Proj 1742.L60	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
Development	▲		▲		▲		▲		▲		▲		▲		▲		▲		▲		▲		▲		▲		▲		▲		▲	
Testing		▲		▲		▲		▲		▲		▲		▲		▲		▲		▲		▲		▲		▲		▲		▲		▲
Deliveries		▲				▲				▲				▲				▲				▲				▲				▲		

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>	Project (Number/Name) 1742. / <i>EW Technical Development and T&E</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 1742.L60				
Development: 1 - Waveforms	1	2015	1	2015
Development: 2 - Waveforms	3	2015	3	2015
Development: 3 - Waveforms	1	2016	1	2016
Development: 4 - Waveforms	3	2016	3	2016
Development: 5 - Waveforms	1	2017	1	2017
Development: 6 - Waveforms	3	2017	3	2017
Development: 7 - Waveforms	1	2018	1	2018
Development: 8 - Waveforms	3	2018	3	2018
Development: 9 - Waveforms	1	2019	1	2019
Development: 10 - Waveforms	3	2019	3	2019
Development: 11 - Waveforms	1	2020	1	2020
Development: 12 - Waveforms	3	2020	3	2020
Development: 13 - Waveforms	1	2021	1	2021
Development: 14 - Waveforms	3	2021	3	2021
Testing: 1 - Prototype	2	2015	2	2015
Testing: 2 - Prototype	4	2015	4	2015
Testing: 3 - Prototype	2	2016	2	2016
Testing: 4 - Prototype	4	2016	4	2016
Testing: 5 - Prototype	2	2017	2	2017
Testing: 6 - Prototype	4	2017	4	2017
Testing: 7 - Prototype	2	2018	2	2018

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>	Project (Number/Name) 1742. / <i>EW Technical Development and T&E</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Testing: 8 - Prototype	4	2018	4	2018
Testing: 9 - Prototype	2	2019	2	2019
Testing: 10 - Prototype	4	2019	4	2019
Testing: 11 - Prototype	2	2020	2	2020
Testing: 12 - Prototype	4	2020	4	2020
Testing: 13 - Prototype	2	2021	2	2021
Testing: 14 - Prototype	4	2021	4	2021
Testing: 1 - MCS-21 Integration	2	2015	2	2015
Testing: 2 - MCS-21 Integration	2	2016	2	2016
Testing: 3 - MCS-21 Integration	2	2017	2	2017
Testing: 4 - MCS-21 Integration	2	2018	2	2018
Testing: 5 - MCS-21 Integration	2	2019	2	2019
Testing: 6 - MCS-21 Integration	2	2020	2	2020
Testing: 7 - MCS-21 Integration	2	2021	2	2021
Deliveries: 1 - IO Capabilities	4	2015	4	2015
Deliveries: 2 - IO Capabilities	4	2016	4	2016
Deliveries: 3 - IO Capabilities	4	2017	4	2017
Deliveries: 4 - IO Capabilities	4	2018	4	2018
Deliveries: 5 - IO Capabilities	4	2019	4	2019
Deliveries: 6 - IO Capabilities	4	2020	4	2020
Deliveries: 7 - IO Capabilities	4	2021	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>				Project (Number/Name) 2175 / <i>Tactical Air Electronic Warfare</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2175: <i>Tactical Air Electronic Warfare</i>	468.547	11.113	6.594	3.927	-	3.927	2.074	2.069	2.089	0.000	0.000	496.413
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Integrated Defensive Electronic Countermeasures (IDECM) Block 3 (IB-3) introduced the new Fiber Optic Towed Decoy (FOTD), ALE-55, capability to the IDECM Block 2 Electronic Warfare (EW) suite as a replacement for the ALE-50 decoy. The FOTD, when integrated with the rest of the F/A-18E/F EW suite (i.e., ALQ-214, ALR-67(V)3, ALE-47 and ALE-50), the associated cockpit controls, displays and other avionics significantly improves the survivability of the host aircraft in a radio frequency threat environment. IB-3 MS III (Full Rate Production Decision) was approved in the 4th Qtr FY 2011. IB-3 Initial Operational Capability (IOC) achieved 4th Qtr FY 2011.

IDECM Block 4 (IB-4) is an Engineering Change Proposal (ECP) to the ALQ-214 to render it suitable for operation on F/A-18C/D aircraft (replacing the ALQ-126B and significantly improving F/A-18C/D survivability) while retaining all IDECM suite functionality when installed on F/A-18E/F aircraft. The IB-4 acquisition and contract strategy includes development of the Common On-Board Jammer for the F/A-18 C/D/E/F aircraft through sole source contract awards for modifications to the ALQ-214. IB-4, ALQ-214 ECP efforts include hardware and software design, development and test, delivery of 17 engineering development models, integration and testing on the host aircraft. The F/A-18C/D EW suite includes the ALR-67(V)2 Radar Warning Receiver (RWR), the ALE-47 Countermeasures Dispensing Set (CMDS), the mission computer and other avionics. In addition to performing the RWR function, the ALR-67(V)2 is the EW bus controller. The EW bus is the primary interface between the EW systems (Jammer, RWR, and CMDS). The mission computer is the avionics bus controller, the interface between the EW suite and other avionics.

ALQ-214 software improvement will provide the ALQ-214 with digital radio frequency memory deny-delay, technique capability significantly improving F/A-18C/D/E/F survivability. Acquisition and contract strategy includes development, integration and test of the ALQ-214 software improvements through sole-source contract award. Minor modification to other avionics are required in order to integrate this new capability. These other avionics may include, but are not limited to, the ALR-67(V)2, ALR-67(V)3, ALE-47, ALE-50, ALE-55, mission computer and fire control radar.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Tactical Air EW	11.113	6.594	3.927	0.000	3.927
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Successfully awarded the ALE-55 FRP 5 contract. Successfully achieved IB-4 Initial Operational Capability (IOC). ALQ-214 software improvement contract and developmental testing will continue into FY 2016.					
FY 2016 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>	Project (Number/Name) 2175 / <i>Tactical Air Electronic Warfare</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
The ALQ-214 software improvement contract will continue into FY 2016. Integrated testing for software improvement will begin and will continue through FY 2016. FY 2017 Base Plans: ALQ-214 Software Improvement operational testing will begin and will continue through FY 2017. FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	11.113	6.594	3.927	0.000	3.927

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APN/0576 004-12: <i>Common On-Board Jammer</i>	94.310	94.095	57.568	-	57.568	49.911	46.873	47.722	48.680	328.662	932.934
• PANMC/0182: <i>Airborne Expendable CM</i>	21.574	21.723	20.905	-	20.905	24.517	24.929	25.384	25.799	Continuing	Continuing

Remarks

D. Acquisition Strategy
 IDECM Block 3 (IB-3) sole source award of Full Rate Production (FRP) in FY 2013. Annual IB-3 production contracts will continue through FY 2046. The ALQ-214 Engineering Change Proposal (ECP) engineering manufacturing & development contract effort was awarded sole source to Harris (formerly ITT/EXELIS) in December 2009. The contract will conclude in FY 2016. ALQ-214 software improvement acquisition awarded to Harris in FY 2012. Harris is the original developer/manufacturer and current sustainer of the ALQ-214.

E. Performance Metrics
 IDECM Block 3: Successfully award ALE-55 FRP 6-10 contract in 2nd Qtr FY 2016. ALE-55 FRP 6-10 is planned as Sole Source Firm Fixed Price (SS/FFP) contract with a base plus 4 options to BAE Systems.

 IDECM Block 4: Successfully award ALQ-214 FRP 12-13 contract in 4th Qtr FY 2015. ALQ-214 FRP 12-13 is planned as Sole Source Firm Fixed Price (SS/FFP) contract with a base plus 1 option to Harris.

 ALQ-214 Software Improvement: Successfully achieve IOC in 4th Qtr FY 2017.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>	Project (Number/Name) 2175 / <i>Tactical Air Electronic Warfare</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Aircraft Integration -IDECM Boeing	Various	Various : Various	7.519	0.000		0.000		0.000		-		0.000	0.000	7.519	7.519
Systems Eng - IDECM	SS/CPFF	Various : Various	64.169	0.000		0.000		0.000		-		0.000	0.000	64.169	64.169
Prior Year Prod Dev costs no longer funded in FYDP	Various	Various : Various	236.024	0.000		0.000		0.000		-		0.000	0.000	236.024	-
Subtotal			307.712	0.000		0.000		0.000		-		0.000	0.000	307.712	-

Remarks
Aircraft Integration and Systems Engineering efforts have been completed. Previously budgeted Product Development funding reallocated into NAWCWD "Dev Test & Evaluation Supt ALQ-214 SW Imp", China Lake line to cover additional testing efforts.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Integrated Log Supt- IDECM	WR	NAWCAD : Pax River, MD	0.113	0.116	Nov 2014	0.111	Nov 2015	0.112	Nov 2016	-		0.112	0.344	0.796	-
Integrated Log Supt- IDECM	SS/CPFF	WYLE : Pax River, MD	0.000	0.050	Apr 2015	0.000		0.000		-		0.000	0.000	0.050	0.050
Software Dev-ALQ-214 SW Dev	SS/CPFF	ITT : Clifton, NJ	22.227	0.000		1.000	Mar 2016	0.000		-		0.000	0.000	23.227	23.227
Engineering Support	WR	Various : Various	1.130	0.782	Nov 2014	0.979	Nov 2015	0.644	Nov 2016	-		0.644	3.243	6.778	-
Engineering Support	WR	NAWCWD : China Lake, CA	0.000	0.195	Nov 2014	0.000		0.000		-		0.000	0.000	0.195	-
Engineering Support	WR	NAWCWD : Point Mugu, CA	2.440	0.334	Nov 2014	1.472	Nov 2015	0.000		-		0.000	0.000	4.246	-
Studies and Analysis SW Dev	SS/CR	Johns Hopkins : Baltimore, MD	1.160	0.313	Jan 2015	0.000		0.000		-		0.000	0.000	1.473	1.473
Prior Year Support costs no longer funded in FYDP	Various	Various : Various	10.307	0.000		0.000		0.000		-		0.000	0.000	10.307	-
Subtotal			37.377	1.790		3.562		0.756		-		0.756	3.587	47.072	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>	Project (Number/Name) 2175 / <i>Tactical Air Electronic Warfare</i>
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Dev Test & Eval Supt ALQ-214 SW Imp	WR	Various : Various	0.420	0.000		0.000		0.000		-		0.000	0.000	0.420	-
Oper Test & Eval ALQ-214 SW Imp	WR	NAWCWD : China Lake, CA	0.000	0.000		0.000		1.445	Oct 2016	-		1.445	0.000	1.445	-
Dev Test & Eval Supt ALQ-214 SW Imp	WR	NAWCWD : China Lake, CA	2.980	6.386	Nov 2014	0.740	Nov 2015	0.770	Nov 2016	-		0.770	0.000	10.876	-
Dev Test & Eval Supt ALQ-214 SW IMP	WR	NAWCWD : Point Mugu, CA	0.000	0.743	Nov 2014	0.361	Nov 2015	0.000		-		0.000	0.000	1.104	-
Oper Test & Eval IDECM	WR	NAWCWD : China Lake, CA	2.737	0.000		0.000		0.000		-		0.000	0.000	2.737	-
Eng Test & Eval IDECM	WR	Various : Various	1.172	1.057	Nov 2014	1.106	Nov 2015	0.715	Nov 2016	-		0.715	1.816	5.866	-
Eng & Tech Svcs (Non-FFRDC)	SS/CPFF	Various : Various	0.517	1.052	Dec 2014	0.748	Jun 2016	0.172	Jun 2017	-		0.172	0.649	3.138	3.721
Prior Year T&E costs no longer funded in FYDP	Various	Various : Various	26.007	0.000		0.000		0.000		-		0.000	0.000	26.007	-
Subtotal			33.833	9.238		2.955		3.102		-		3.102	2.465	51.593	-

Remarks
Additional Engineering & Technical Services due to Award of FY 2015 Contract which will run through 3rd Qtr of FY 2016. Currently IDECM has two major test events in progress.

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Travel	Allot	NAWCAD : Pax River, MD	0.690	0.085	Nov 2014	0.077	Oct 2015	0.069	Oct 2016	-		0.069	0.180	1.101	-
Prior Year Mgmt costs no longer funded in FYDP	Various	Various : Various	88.935	0.000		0.000		0.000		-		0.000	0.000	88.935	-
Subtotal			89.625	0.085		0.077		0.069		-		0.069	0.180	90.036	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy								Date: February 2016					
Appropriation/Budget Activity 1319 / 5				R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>				Project (Number/Name) 2175 / <i>Tactical Air Electronic Warfare</i>					
	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	468.547	11.113		6.594		3.927		-		3.927	6.232	496.413	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>	Project (Number/Name) 2175 / <i>Tactical Air Electronic Warfare</i>
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IDECM	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
Acquisition Milestones																																
IDECM Block 4 Milestones			▲ IOC																													
ALQ-214 SW Improvement Program Reviews											▲ IOC																					
Systems Development																																
IDECM Block 4 Development SWIP Development Reviews																																
ALQ-214 SW Improvement Development	ALQ-214 SW Improvement Development																															
Test and Evaluation																																
IDECM Block 4 Testing	OT Flights																															
ALQ-214 SW Improvement Testing	DT/OT								OT Flights																							
IDECM Block 4 Verification of Correction of Deficiencies (VCD)									DT Flight Test (VCD)				OT Flight Test (VCD)																			
Production Milestones																																
IDECM Block 3 Contract Awards	● FRP 5				● FRP 6						● FRP 7				● FRP 8							● FRP 9						● FRP 10				● FRP 11
IDECM Block 4 Contract Awards			● FRP 12		● FRP 13				● FRP 14				● FRP 15			● FRP 16				● FRP 17				● FRP 18								
Deliveries																																
IDECM Block 3	FRP 3 (269)																															
	FRP 4 (262)				FRP 5 (283)				FRP 6 (284)				FRP 7 (261)				FRP 8 (319)				FRP 9 (317)				FRP 10 (317)							
IDECM Block 4	FRP 9 (7)																															
	FRP 10 (17)		FRP 11 (25)				FRP 12 (46)				FRP 13 (48)				FRP 14 (20)																	

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>	Project (Number/Name) 2175 / <i>Tactical Air Electronic Warfare</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
IDECM				
Acquisition Milestones: IDECM Block 4 Milestones: IDECM Block 4 IOC	3	2015	3	2015
Acquisition Milestones: ALQ-214 SW Improvement: ALQ-214 SW Improvement (IOC)	4	2017	4	2017
Systems Development: ALQ-214 SW Improvement Development: ALQ-214 SW Improvement Development	1	2015	1	2018
Test and Evaluation: IDECM Block 4 Testing: IDECM Block 4 Operational Testing Flights	1	2015	1	2016
Test and Evaluation: ALQ-214 SW Improvement Testing: ALQ-214 SW Improvement Development Testing(DT)/Operational Testing (OT) Flights	1	2016	4	2016
Test and Evaluation: ALQ-214 SW Improvement Testing: ALQ-214 SW Improvement Operational Testing (OT) Flights	2	2017	3	2017
Test and Evaluation: IDECM Block 4 Verification of Correction of Deficiencies (VCD): IDECM Block 4 Verification of Correction of Deficiencies DT (VCD)	4	2017	3	2018
Test and Evaluation: IDECM Block 4 Verification of Correction of Deficiencies (VCD): IDECM Block 4 Verification of Correction of Deficiencies OT(VCD)	4	2018	3	2019
Production Milestones: IDECM Block 3 Contract Awards: IDECM Block 3 Full Rate Production (FRP) 5	1	2015	1	2015
Production Milestones: IDECM Block 3 Contract Awards: IDECM Block 3 Full Rate Production (FRP) 6	1	2016	1	2016
Production Milestones: IDECM Block 3 Contract Awards: IDECM Block 3 Full Rate Production (FRP) 7	2	2017	2	2017
Production Milestones: IDECM Block 3 Contract Awards: IDECM Block 3 Full Rate Production (FRP) 8	2	2018	2	2018
Production Milestones: IDECM Block 3 Contract Awards: IDECM Block 3 Full Rate Production (FRP) 9	2	2019	2	2019

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>	Project (Number/Name) 2175 / <i>Tactical Air Electronic Warfare</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Production Milestones: IDECM Block 3 Contract Awards: IDECM Block 3 Full Rate Production (FRP) 10	2	2020	2	2020
Production Milestones: IDECM Block 3 Contract Awards: IDECM Block 3 Full Rate Production (FRP) 11	2	2021	2	2021
Production Milestones: IDECM Block 4 Contract Awards: IDECM Block 4 Full Rate Production (FRP) 12	4	2015	4	2015
Production Milestones: IDECM Block 4 Contract Awards: IDECM Block 4 Full Rate Production (FRP) 13	2	2016	2	2016
Production Milestones: IDECM Block 4 Contract Awards: IDECM Block 4 Full Rate Production (FRP) 14	2	2017	2	2017
Production Milestones: IDECM Block 4 Contract Awards: IDECM Block 4 Full Rate Production (FRP) 15	2	2018	2	2018
Production Milestones: IDECM Block 4 Contract Awards: IDECM Block 4 Full Rate Production (FRP) 16	2	2019	2	2019
Production Milestones: IDECM Block 4 Contract Awards: IDECM Block 4 Full Rate Production (FRP) 17	2	2020	2	2020
Production Milestones: IDECM Block 4 Contract Awards: IDECM Block 4 Full Rate Production (FRP) 18	2	2021	2	2021
Deliveries: IDECM Block 3: IDECM Block 3 FRP 3 Deliveries (269)	1	2015	1	2015
Deliveries: IDECM Block 3: IDECM Block 3 FRP 4 Deliveries (262)	1	2015	1	2016
Deliveries: IDECM Block 3: IDECM Block 3 FRP 5 Deliveries (283)	2	2016	1	2017
Deliveries: IDECM Block 3: IDECM Block 3 FRP 6 Deliveries (284)	2	2017	1	2018
Deliveries: IDECM Block 3: IDECM Block 3 FRP 7 Deliveries (261)	2	2018	1	2019
Deliveries: IDECM Block 3: IDECM Block 3 FRP 8 Deliveries (319)	2	2019	1	2020
Deliveries: IDECM Block 3: IDECM Block 3 FRP 9 Deliveries (317)	2	2020	1	2021
Deliveries: IDECM Block 3: IDECM Block 3 FRP 10 Deliveries (317)	2	2021	4	2021
Deliveries: IDECM Block 4: IDECM Block 4 FRP 9 Deliveries (7)	1	2015	2	2015

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>	Project (Number/Name) 2175 / <i>Tactical Air Electronic Warfare</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Deliveries: IDECM Block 4: IDECM Block 4 FRP 10 Deliveries (17)	2	2015	2	2016
Deliveries: IDECM Block 4: IDECM Block 4 FRP 11 Deliveries (25)	2	2016	2	2017
Deliveries: IDECM Block 4: IDECM Block 4 FRP 12 Deliveries (46)	2	2017	2	2018
Deliveries: IDECM Block 4: IDECM Block 4 FRP 13 Deliveries (48)	2	2018	2	2019
Deliveries: IDECM Block 4: IDECM Block 4 FRP 14 Deliveries (20)	2	2019	2	2020
Deliveries: IDECM Block 4: IDECM Block 4 FRP 15 Deliveries (17)	2	2020	2	2021
Deliveries: IDECM Block 4: IDECM Block 4 FRP 16 Deliveries (16)	2	2021	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>	Project (Number/Name) 3308 / <i>Technology Development</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3308: <i>Technology Development</i>	0.000	0.000	0.000	2.016	-	2.016	2.502	6.316	6.382	8.652	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

PE 0604279N consolidated to PE 0604270N beginning in FY 2017 pursuant to PDASN (FM&C) memorandum signed 5 December 2014.

A. Mission Description and Budget Item Justification

Project Unit (PU) 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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: New Accomplishment/Planned Program Entry	0.000	0.000	2.016	0.000	2.016
Articles:	-	-	-	-	-
FY 2015 Accomplishments: N/A					
FY 2016 Plans: N/A					
FY 2017 Base Plans: Continue EW vulnerability studies/analysis, product development and test conducted for strike aircraft.					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.000	0.000	2.016	0.000	2.016

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW)</i> <i>Dev</i>	Project (Number/Name) 3308 / <i>Technology Development</i>

D. Acquisition Strategy

EW vulnerability studies/analysis, product development and test conducted for strike aircraft across the FYDP.

E. Performance Metrics

Electronic Warfare (EW) vulnerability studies/analysis, product development and test conducted for strike aircraft across the FYDP.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity 1319 / 5				R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>				Project (Number/Name) 3308 / <i>Technology Development</i>							
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Dev-ALQ-214 SW Dev	WR	NAWCWD : Point Mugu, CA	0.000	0.000		0.000		0.587	Nov 2016	-		0.587	Continuing	Continuing	Continuing
Software Dev-ALQ-214 SW Dev	WR	Various : Various	0.000	0.000		0.000		0.240	Nov 2016	-		0.240	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		0.827		-		0.827	-	-	-
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering & Evaluation	WR	NAWCWD : Point Mugu, CA	0.000	0.000		0.000		0.879	Nov 2016	-		0.879	Continuing	Continuing	Continuing
Engineering & Evaluation	WR	Various : Various	0.000	0.000		0.000		0.310	Nov 2016	-		0.310	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		1.189		-		1.189	-	-	-
Project Cost Totals			0.000	0.000		0.000		2.016		-		2.016	-	-	-
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>	Project (Number/Name) 3308 / <i>Technology Development</i>
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ASPO	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Milestones																												
Release								R-16																				
Systems Development																												
Systems Development Reviews								FY-17 Review																				
System Development Analysis										FY-17 Analysis				FY-18 Analysis														
Software Development																												
Test and Evaluation																												
Integrated Evaluation																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>	Project (Number/Name) 3308 / <i>Technology Development</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
ASPO				
Milestones: Release: Release-16	1	2017	1	2017
Milestones: Release: Release-17	1	2018	1	2018
Milestones: Release: Release-18	1	2019	1	2019
Milestones: Release: Release-19	1	2020	1	2020
Milestones: Release: Release-20	1	2021	1	2021
Systems Development: Systems Development Reviews: FY-17 Review	1	2017	1	2017
Systems Development: Systems Development Reviews: FY-18 Review	1	2018	1	2018
Systems Development: Systems Development Reviews: FY-19 Review	1	2019	1	2019
Systems Development: Systems Development Reviews: FY-20 Review	1	2020	1	2020
Systems Development: Systems Development Reviews: FY-21 Review	1	2021	1	2021
Systems Development: System Development Analysis: FY-17 Analysis	2	2017	4	2017
Systems Development: System Development Analysis: FY-18 Analysis	2	2018	4	2018
Systems Development: System Development Analysis: FY-19 Analysis	2	2019	4	2019
Systems Development: System Development Analysis: FY-20 Analysis	2	2020	4	2020
Systems Development: System Development Analysis: FY-21 Analysis	2	2021	4	2021
Systems Development: Software Development: FY-17 SW/Technique Development	1	2017	3	2017
Systems Development: Software Development: FY-18 SW/Technique Development	1	2018	3	2018
Systems Development: Software Development: FY-19 SW/Technique Development	1	2019	3	2019
Systems Development: Software Development: FY-20 SW/Technique Development	1	2020	3	2020
Systems Development: Software Development: FY-21 SW/Technique Development	1	2021	3	2021
Test and Evaluation: Integrated Evaluation: FY-17 Integrated Evaluation	4	2017	4	2017

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>	Project (Number/Name) 3308 / <i>Technology Development</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Test and Evaluation: Integrated Evaluation: FY-18 Integrated Evaluation	4	2018	4	2018
Test and Evaluation: Integrated Evaluation: FY-19 Integrated Evaluation	4	2019	4	2019
Test and Evaluation: Integrated Evaluation: FY-20 Integrated Evaluation	4	2020	4	2020
Test and Evaluation: Integrated Evaluation: FY-21 Integrated Evaluation	4	2021	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>			Project (Number/Name) 3309 / <i>Assault Survivability Optimization</i>				
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3309: <i>Assault Survivability Optimization</i>	0.000	0.000	0.000	3.375	-	3.375	0.849	0.835	0.836	0.858	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

PE 0604279N consolidated to PE 0604270N beginning in FY 2017 pursuant to PDASN (FM&C) memorandum signed 5 December 2014.

A. Mission Description and Budget Item Justification

Program was established by OPNAV N98 to fill USN and USMC aircraft survivability gaps against current and future threat systems using current and advanced technology expendable countermeasures as well as improvements in Aircraft Survivability Equipment (ASE) systems. Project is required for DoN aircraft self-protection against MANPADs including accelerated proliferation of threat addressed in JUONS #SO-0010. This project funds the development, testing, and rapid fielding of advanced countermeasures and enhanced employment techniques needed to support current and future operations for USN and USMC aircraft. Incorporates capability advancements in ASE and expendable countermeasures to develop and deploy countermeasure responses resulting in increased platform survivability. Countermeasure Techniques developed for improved survivability are supported by Statement of Functionality for Aircraft Survivability Equipment Smart Dispense, dated 19 January 2012. Resources will be applied to the following areas: 1) studies and evaluations to optimize current countermeasures and ASE capabilities, 2) development and demonstration of advanced expendable countermeasures and countermeasure techniques, 3) testing and evaluation of advanced countermeasures, 4) development of system software integration 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 against proliferating threats. Advanced countermeasures procured in FY 2016 (PE 0604279N) will support flight test for optimized/advanced countermeasures techniques in FY 2017. The quantity of 1,500 units is required by Air Expendable Countermeasures Test and Evaluation Master Plan #1480 to complete the flight testing for test Mission Data Files (MDF) and optimized/advanced countermeasures techniques. (RDT&E Articles are advanced air expendable countermeasures.)

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: New Accomplishment/Planned Program Entry	0.000	0.000	3.375	0.000	3.375
Articles:	-	-	480	-	480
FY 2015 Accomplishments: N/A					
FY 2016 Plans: N/A					
FY 2017 Base Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>	Project (Number/Name) 3309 / <i>Assault Survivability Optimization</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Continue development and testing of advanced countermeasure techniques and upgrade specialized evaluation equipment for advancing threat systems. 480 test articles procured in FY17 are advanced expendable countermeasures for flight effectiveness testing /optimization flight tests in FY18. FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.000	0.000	3.375	0.000	3.375

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

Acquisition strategy is to leverage improvements in air expendable countermeasures technology and integration of existing Aircraft Survivability Equipment (ASE) sensor data to enhance platform survivability on USN and USMC platforms through more effective dispense techniques, invest in enhancements to modeling and simulation tools to better evaluate countermeasure effectiveness, upgrade test and evaluation equipment to incorporate current and future threats for effectiveness tests and develop and demonstrate advanced concept countermeasures for future threats. Advanced countermeasures procured in FY16 will support flight test for optimized/ advanced countermeasure techniques in FY17. New advanced countermeasures are then transitioned to the Procurement of Ammunition Navy and Marine Corps appropriation for procurement and fielding. New optimized and advanced countermeasure techniques are delivered to government software support activities for fleet release to increase aircraft/aircrew survivability.

E. Performance Metrics

Maintain Air Expendable Countermeasures (AECM) ORD: #512-88-89 dated 28 May 99 requirement to provide operationally effective mixture of countermeasures that can be employed to degrade and/or neutralize the effectiveness of current and projected threats. Continued development of optimized/advanced countermeasure techniques and advance countermeasures by ongoing analysis and test flight efforts related to aircraft platform survivability based on threat development and proliferation. Countermeasure Techniques developed for improved survivability are further supported by Statement of Functionality for Aircraft Survivability Equipment Smart Dispense, dated 19 January 2012. PU 3309 efforts will continue to change in response to this requirement when similar threat proliferation, advances in countermeasures technology and integrated ASE capability advancements are accomplished in particular the RF and UV spectrums. Project will include efforts to satisfy DoN aircraft self-protection against MANPADs including accelerated proliferation of threat addressed in JUONS #SO-0010.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy											Date: February 2016				
Appropriation/Budget Activity 1319 / 5				R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>				Project (Number/Name) 3309 / <i>Assault Survivability Optimization</i>							

Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Expendable Countermeasure Technique Modeling and Simulation	WR	NSWC CRANE : Crane, IN	0.000	0.000		0.000		1.116	Oct 2016	-		1.116	Continuing	Continuing	Continuing
Radio Frequency Countermeasures Modeling and Simulation	WR	NSWC CRANE : Crane, IN	0.000	0.000		0.000		0.632	Oct 2016	-		0.632	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		1.748		-		1.748	-	-	-

Remarks
Modeling and simulation to develop advanced countermeasure techniques prior to flight test. Radio Frequency Countermeasures (RFCM) Modeling and Simulation will evaluate RFCM effectiveness and support mission data optimization for DoN aircraft.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test Mission Data File Software Development	WR	FRCSE : Jacksonville, FL	0.000	0.000		0.000		0.120	Nov 2016	-		0.120	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		0.120		-		0.120	-	-	-

Remarks
Software development to create Mission Data Files (MDF) and enhanced operational flight program algorithms for flight effectiveness testing.

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental T&E Flight Tests	WR	Various : Various	0.000	0.000		0.000		0.600	Nov 2016	-		0.600	Continuing	Continuing	Continuing
Advanced Countermeasures for Flight Tests	MIPR	DOTC : Picatinny Arsenal, NJ	0.000	0.000		0.000		0.550	Mar 2017	-		0.550	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>	Project (Number/Name) 3309 / <i>Assault Survivability Optimization</i>
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Seeker Test Van Advanced Threat Capability	MIPR	DOTC : Picatinny Arsenal, NJ	0.000	0.000		0.000		0.255	Jan 2017	-		0.255	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		1.405		-		1.405	-	-	-

Remarks
Developmental T&E flight test following modeling and simulation evaluation in FY 2017 will optimize expendable countermeasure effectiveness for UH-1Y, AH-1Z and MH-60S aircraft. Advanced expendable countermeasures procured in FY 2017 will support flight effectiveness testing /optimization flight tests in FY 2018. Equipment procurement required to evaluate advanced countermeasure techniques and integrate new threat systems into SDV, STV, and ESDV for evaluation capability will continue FY 2017

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Project Management	WR	FRCSE : Jacksonville, FL	0.000	0.000		0.000		0.102	Oct 2016	-		0.102	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		0.102		-		0.102	-	-	-

Remarks
Project management required to coordinate increased development activities.

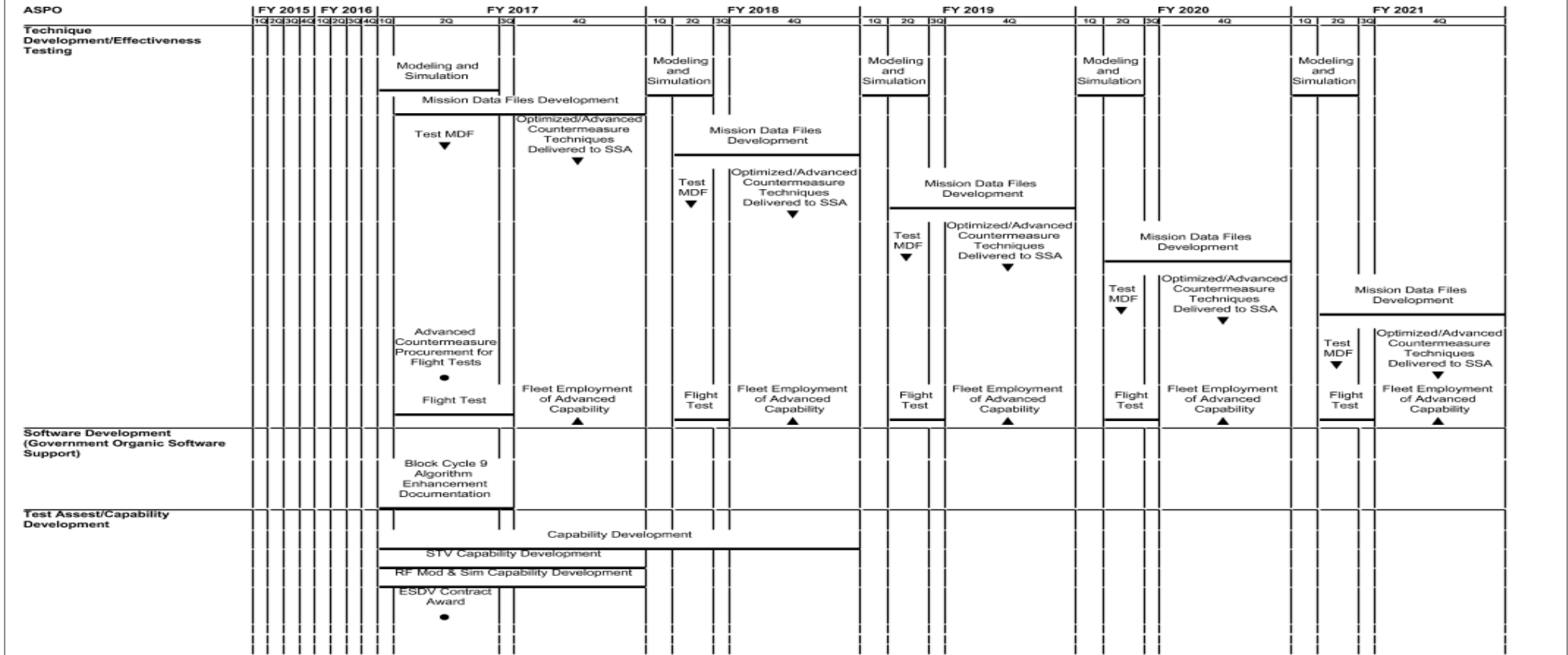
	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000	0.000	3.375	-	3.375	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>	Project (Number/Name) 3309 / <i>Assault Survivability Optimization</i>
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2017PB - 0604270N - 3309 Project 3309 moved from PE 0604279N to PE 0604270N in FY 17 and out.

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>	Project (Number/Name) 3309 / <i>Assault Survivability Optimization</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
ASPO				
Technique Development/Effectiveness Testing: FY17 Modeling and Simulation	1	2017	2	2017
Technique Development/Effectiveness Testing: FY18 Modeling and Simulation	1	2018	2	2018
Technique Development/Effectiveness Testing: FY19 Modeling and Simulation	1	2019	2	2019
Technique Development/Effectiveness Testing: FY20 Modeling and Simulation	1	2020	2	2020
Technique Development/Effectiveness Testing: FY21 Modeling and Simulation	1	2021	2	2021
Technique Development/Effectiveness Testing: FY17 Mission Data Files Development	2	2017	4	2017
Technique Development/Effectiveness Testing: FY17 Test MDF	2	2017	2	2017
Technique Development/Effectiveness Testing: FY17 Optimized/Advanced Countermeasure Techniques Delivered to Software Support Activity (SSA) for fleet release	4	2017	4	2017
Technique Development/Effectiveness Testing: FY18 Mission Data Files Development	2	2018	4	2018
Technique Development/Effectiveness Testing: FY18 Test MDF	2	2018	2	2018
Technique Development/Effectiveness Testing: FY18 Optimized/Advanced Countermeasure Techniques Delivered to Software Support Activity (SSA) for fleet release	4	2018	4	2018
Technique Development/Effectiveness Testing: FY19 Mission Data Files Development	2	2019	4	2019
Technique Development/Effectiveness Testing: FY19 Test MDF	2	2019	2	2019
Technique Development/Effectiveness Testing: FY19 Optimized/Advanced Countermeasure Techniques Delivered to Software Support Activity (SSA) for fleet release	4	2019	4	2019
Technique Development/Effectiveness Testing: F20 Mission Data Files Development	2	2020	4	2020
Technique Development/Effectiveness Testing: FY20 Test MDF	2	2020	2	2020

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>	Project (Number/Name) 3309 / <i>Assault Survivability Optimization</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Technique Development/Effectiveness Testing: FY20 Optimized/Advanced Countermeasure Techniques Delivered to Software Support Activity (SSA) for fleet release	4	2020	4	2020
Technique Development/Effectiveness Testing: F21 Mission Data Files Development	2	2021	4	2021
Technique Development/Effectiveness Testing: FY21 Test MDF	2	2021	2	2021
Technique Development/Effectiveness Testing: FY21 Optimized/Advanced Countermeasure Techniques Delivered to Software Support Activity (SSA) for fleet release	4	2021	4	2021
Technique Development/Effectiveness Testing: Advanced Countermeasure Procurement for Flight Tests	2	2017	2	2017
Technique Development/Effectiveness Testing: FY17 Flight Test	2	2017	3	2017
Technique Development/Effectiveness Testing: FY18 Flight Test	2	2018	3	2018
Technique Development/Effectiveness Testing: FY19 Flight Test	2	2019	3	2019
Technique Development/Effectiveness Testing: FY20 Flight Test	2	2020	3	2020
Technique Development/Effectiveness Testing: FY21 Flight Test	2	2021	3	2021
Technique Development/Effectiveness Testing: FY17 Fleet Employment of Advanced Capability	4	2017	4	2017
Technique Development/Effectiveness Testing: FY18 Fleet Employment of Advanced Capability	4	2018	4	2018
Technique Development/Effectiveness Testing: FY19 Fleet Employment of Advanced Capability	4	2019	4	2019
Technique Development/Effectiveness Testing: FY20 Fleet Employment of Advanced Capability	4	2020	4	2020
Technique Development/Effectiveness Testing: FY21 Fleet Employment of Advanced Capability	4	2021	4	2021
Software Development (Government Organic Software Support): Block Cycle 9 Algorithm Enhancement Documentation	1	2017	3	2017
Test Assest/Capability Development: SDV/ESDV Capability Development	1	2017	4	2018

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>	Project (Number/Name) 3309 / <i>Assault Survivability Optimization</i>

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Test Assest/Capability Development: STV Capability Development	1	2017	4	2017
Test Assest/Capability Development: RF Mod & Sim Capability Development	1	2017	4	2017
Test Assest/Capability Development: FY17 ESDV Contract Award	2	2017	2	2017

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>				Project (Number/Name) 3327 / <i>MAGTF EW Aviation Development</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3327: <i>MAGTF EW Aviation Development</i>	0.000	0.000	0.000	20.817	-	20.817	20.776	2.984	2.794	2.862	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

PE 0604376M was consolidated to PE 0604270N beginning in FY 2017 pursuant to PDASN (FM&C) memorandum signed 5 December 2014.

A. Mission Description and Budget Item Justification

This project unit supports the United States Marine Corps development of Marine Air Ground Task Force (MAGTF) Electronic Warfare (EW) and the various elements of its distributed System of Systems (SoS) that support the Commandant of the Marine Corps' Strategy and Vision 2025 and Joint Vision 2025. The SoS will address MAGTF EW sufficiency gaps in the areas of Electronic Attack, EW Support, and Electronic Protection with a multitude of payloads designed for carriage on a variety of organic MAGTF air and ground assets. Payload development plans follow an adaptable, modular and open architecture philosophy to combat the increasing capability gap and enable future growth at a reduced operational and sustainment cost.

The ALQ-231(v)1 pod is the Fixed-Wing variant of the Intrepid Tiger II pod flown on the AV-8B and F/A-18A-D platforms. The ALQ-231(v)2 will be the variant of the Intrepid Tiger II pod flown on unmanned aerial vehicle (UAV) platforms once integration is complete. The ALQ-231(v)3 is the Rotary-Wing variant of the Intrepid Tiger II pod flown on the AH-1 and UH-1 platforms. As of the PresBud15 submission, the ALQ-231(v)1 was the only approved configuration and nomenclature for the Intrepid Tiger II pod. The re-designation of the ALQ-231 variants occurred with the approval of Rapid Deployment Capability authorization for ALQ-231 on Rotary Wing platforms by the Assistant Secretary of the Navy for Research, Development, and Acquisition (ASN(RD&A)) on January 14, 2014.

Prior to FY 2011, Intrepid Tiger II efforts were budgeted under Program Element (PE) 0604270N, Project Unit (PU) 0556.

In FY 2012, Intrepid Tiger II efforts were budgeted under PE 0604376M, PU 3327. In FY 2017, Intrepid Tiger II efforts are budgeted under PE 0604270N, PU 3327.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Intrepid Tiger II (ALQ-231)	0.000	0.000	20.817	0.000	20.817
Articles:	-	-	-	-	-
FY 2015 Accomplishments: N/A					
FY 2016 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>	Project (Number/Name) 3327 / <i>MAGTF EW Aviation Development</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
<p><i>FY 2017 Base Plans:</i> *The ALQ-231 V(1) BLK X received a \$6.000M investment in FY 2016 by the Office of Secretary of Defense's Science and Technology (S&T) program under Program Element (PE) 0603618D8Z Project Unit (PU) P244*</p> <p>In FY 2017, technologies developed for the ALQ-231 V(1) BLK X by the Office of Secretary of Defense's Science and Technology (S&T) program under Program Element (PE) 0603618D8Z Project Unit (PU) P244 will transition to the USMC. The Intrepid Tiger II (ALQ-231) program will continue to mature hardware technology, update targeting techniques, and correct identified software discrepancies to ensure relevance against emerging communication and radar threats.</p> <p>The USMC will assume responsibility for all efforts to develop and test Intrepid Tiger II based solutions to radar threats in support of the penetrating jammer mission, culminating in the release of the ALQ-231(v)1 BLK X Radar Jammer for the AV-8B, F/A-18C/D, and MV-22. Updates to major components of the ALQ-231 to address this new threat set will commence in FY 2016 and are expected to include upgrades to amplifiers, transceivers, antennas, radios/encryptors, a direction finding array, and the development of a modular pod shell. Other components may also require upgrade/update due to configurations in the ALQ-231 V(1) pod. Additionally, lab testing of upgraded components is expected to occur in FY 2017.</p> <p>FY 2017 efforts also include the investigation of the potential for integration of the Intrepid Tiger II capability on the C-130 platform. Related research efforts will work to develop an enabling capability to facilitate Collaborative Electronic Warfare (CEW) through shared organic, national and space-based Electromagnetic Spectrum (EMS) sensing (ES) and coordinated non-kinetic fires (EA) in accordance with spectrum operations objectives by linking Command and Control (C2), operators and sensors across a network interface, and continue to explore uses for Intrepid Tiger II with the Cyber Electronic Warfare Coordination Cell (CEWCC).</p> <p>Intrepid Tiger II (ALQ-231) was funded in Program Element 0604376M Project Unit 3327 in FY 2016 and prior.</p> <p><i>FY 2017 OCO Plans:</i> N/A</p>					
Accomplishments/Planned Programs Subtotals	0.000	0.000	20.817	0.000	20.817

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>	Project (Number/Name) 3327 / <i>MAGTF EW Aviation Development</i>

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017	FY 2017	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Cost To	Total Cost
			Base	OCO	Total					Complete	
• APN/0587: <i>MAGTF EW For Aviation</i>	17.170	7.680	5.676	-	5.676	5.682	11.267	11.360	11.588	135.059	277.109

Remarks

D. Acquisition Strategy

This project unit is part of United States Marine Corps led efforts to ensure Marine Corps requirements are included in the budget process for the Future Year Defense Program and beyond. These efforts include ALQ-231 Intrepid Tiger II(v)1, Intrepid Tiger II(v)2, Intrepid Tiger II(v)3, Collaborative Electronic Warfare (EW)/EW Battle Management, EW Payload, and EW Service Architecture (formerly Collaborative Online Reconnaissance Provider Operationally Responsive Attack Link). These programs are the Marine Corps' initial steps to create systems to distribute EW capability across the battle space.

E. Performance Metrics

Successful completion of Intrepid Tiger II(v)3 (ALQ-231) Initial Operational Capability (IOC). Commencement of research into Engineering Change Proposals (ECPs) for capability upgrades for Intrepid Tiger II(v)1 and Intrepid Tiger II(v)3 pods.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>	Project (Number/Name) 3327 / <i>MAGTF EW Aviation Development</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Intrepid Tiger BLK X Hardware Development - Amplifiers	C/CPIF	TBD : TBD	0.000	0.000		0.000		1.000	Nov 2016	-		1.000	Continuing	Continuing	Continuing
Intrepid Tiger BLK X Hardware Development - Transceivers	C/CPIF	TBD : TBD	0.000	0.000		0.000		3.000	Nov 2016	-		3.000	Continuing	Continuing	Continuing
Intrepid Tiger BLK X Hardware Development - Antennas	C/CPIF	TBD : TBD	0.000	0.000		0.000		1.500	Nov 2016	-		1.500	Continuing	Continuing	Continuing
Intrepid Tiger BLK X Hardware Development - Modular Pod Shell	C/CPIF	TBD : TBD	0.000	0.000		0.000		2.000	Nov 2016	-		2.000	Continuing	Continuing	Continuing
Intrepid Tiger BLK X Hardware Development - Radios/Encryptors	C/CPIF	TBD : TBD	0.000	0.000		0.000		2.000	Nov 2016	-		2.000	Continuing	Continuing	Continuing
Intrepid Tiger BLK X Hardware Development - Direction Finding Array	C/CPIF	TBD : TBD	0.000	0.000		0.000		2.000	Nov 2016	-		2.000	Continuing	Continuing	Continuing
Systems Engineering	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.000		1.300	Nov 2016	-		1.300	Continuing	Continuing	Continuing
Systems Engineering	WR	NAWCWD : Point Mugu, CA	0.000	0.000		0.000		6.437	Nov 2016	-		6.437	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		19.237		-		19.237	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	Various	Various : Various	0.000	0.000		0.000		0.425	Nov 2016	-		0.425	Continuing	Continuing	Continuing
Eng & Tech Services	Various	Various : Various	0.000	0.000		0.000		0.103	Nov 2016	-		0.103	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		0.528		-		0.528	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>	Project (Number/Name) 3327 / <i>MAGTF EW Aviation Development</i>

Intrepid Tiger II (ALQ-231)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestones																												
Milestones					ALQ-231(V)1 BLK X CCB ▲				ALQ-231(V)1 BLK X Trans from S&T Proj ▲				ALQ-231(V)1 BLK X IPR ▲				ALQ-231(V)1 BLK X TD Fit Rel ▲											
Systems Development																												
Hardware Development	ALQ-231(V)1 BLK X Hardware Development																											
Software Development	ALQ-231(V)1 BLK X SW Dev																											
Test & Evaluation																												
Technical Evaluation	ALQ-231(V)1 BLK X DT/Perf Test																											
Operational Evaluation	ALQ-231(V)1 BLK X IOT&E																											
Production Milestones																												
Contract Awards	ALQ-231(V)3 Lot 7 (Qty 5) ALQ-231(V)3 Lot 8 (Qty 5) ALQ-231(V)1 BLK X Lot 1 (Qty 12) ALQ-231(V)1 BLK X Lot 2 (Qty 12) ALQ-231(V)1 BLK X Lot 3 (Qty 12)																											
Deliveries																												
	ALQ-231(V)3 Lot 7 (Qty 5) ALQ-231(V)3 Lot 8 (Qty 5) ALQ-231(V)1 BLK X Lot 1 (Qty 12) ALQ-231(V)1 BLK X Lot 2 (Qty 12) ALQ-231(V)1 BLK X Lot 3 (Qty 12)																											

2017PB - 0604270N - 3327 ALQ-231(V)1 BLK X EDM units funded by PE 0603618D8Z PU P244 in FY 2016. The Intrepid Tiger II program was funded under PE 0604376M PU 3327 in FY 2016. All events prior to FY 2017 shown for clarity.

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>	Project (Number/Name) 3327 / <i>MAGTF EW Aviation Development</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Intrepid Tiger II (ALQ-231)</i>				
Acquisition Milestones: Milestones: ALQ-231(V)1 BLK X Configuration Control Board (CCB)	2	2016	2	2016
Acquisition Milestones: Milestones: ALQ-231(V)1 BLK X Transition from S&T project	1	2017	1	2017
Acquisition Milestones: Milestones: ALQ-231(V)1 BLK X TD Fleet Release	2	2019	2	2019
Acquisition Milestones: Milestones: ALQ-231(V)1 BLK X In Progress Review	3	2018	3	2018
Systems Development: Hardware Development: ALQ-231(V)1 BLK X Hardware Development	1	2017	4	2021
Systems Development: Software Development: ALQ-231(V)1 BLK X Software Development	1	2017	4	2017
Test & Evaluation: Technical Evaluation: ALQ-231(V)1 BLK X Developmental/ Performance Test	2	2017	2	2018
Test & Evaluation: Operational Evaluation: ALQ-231(V)1 BLK X IOT&E	4	2018	1	2019
Production Milestones: Contract Awards: ALQ-231(V)3 Production Lot 7 (Qty 5)	2	2017	2	2017
Production Milestones: Contract Awards: ALQ-231(V)3 Production Lot 8 (Qty 5)	2	2018	2	2018
Production Milestones: Contract Awards: ALQ-231(V)1 BLK X Production Lot 1 (12 units)	2	2019	2	2019
Production Milestones: Contract Awards: ALQ-231(V)1 BLK X Production Lot 2 (12 units)	2	2020	2	2020
Production Milestones: Contract Awards: ALQ-231(V)1 BLK X Production Lot 3 (12 units)	2	2021	2	2021
Deliveries: ALQ-231(V)3 Lot 7 Deliveries (Qty 5)	4	2017	3	2018
Deliveries: ALQ-231(V)3 Lot 8 Deliveries (Qty 5)	4	2018	3	2019
Deliveries: ALQ-231(V)1 BLK X Production Lot 1 Deliveries (12 units)	4	2019	3	2020

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>	Project (Number/Name) 3327 / <i>MAGTF EW Aviation Development</i>

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Deliveries: ALQ-231(V)1 BLK X Production Lot 2 Deliveries (12 units)	4	2020	3	2021
Deliveries: ALQ-231(V)1 BLK X Production Lot 3 Deliveries (12 units)	4	2021	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>	Project (Number/Name) 3371 / <i>MAGTF EW Interoperability Development</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3371: <i>MAGTF EW Interoperability Development</i>	0.000	0.000	0.000	1.657	-	1.657	1.628	0.945	0.965	0.986	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

PU 3371 was created in FY 2015 to administratively highlight specific work that was being done in Program Element (PE) 0604376M, Project Unit (PU) 3327. This PU has been moved to PE 0604270N in FY 2017 and continues efforts previously funded under PU 3327. It is not a new start for FY 2017.

A. Mission Description and Budget Item Justification

This project unit supports the United States Marine Corps air-ground interoperability by providing a variety of capabilities through multiple functions of the Software Reprogrammable Payload (SRP) when installed aboard SRP-capable aircraft. The spiral development plans allow adaptable, scalable, and open architecture philosophy to reduce stove-pipe solutions but enable future growth at a reduced operational and sustainment cost.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Software Reprogrammable Payload	0.000	0.000	1.657	0.000	1.657
Articles:	-	-	-	-	-
FY 2015 Accomplishments: N/A					
FY 2016 Plans: N/A					
FY 2017 Base Plans: Begin the development of the Spiral 3 SRP on the United States Marine Corps small form factor required platforms.					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.000	0.000	1.657	0.000	1.657

C. Other Program Funding Summary (\$ in Millions)

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>	Project (Number/Name) 3371 / <i>MAGTF EW Interoperability Development</i>

C. Other Program Funding Summary (\$ in Millions)

Remarks

D. Acquisition Strategy

This project unit is part of United States Marine Corps led efforts to ensure Marine Corps requirements are included in the budget process for the Future Year Defense Program and beyond. This effort is for the Software Reprogrammable Payload. This program is part of the Marine Corps initial steps to create a common interoperable system to distribute multiple data types across the battle-space through spiral development.

E. Performance Metrics

Successful completion of the Spiral 2 development and demonstration onboard MV-22 test platform.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>	Project (Number/Name) 3371 / <i>MAGTF EW Interoperability Development</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Systems Engineering	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.000		0.408	Nov 2016	-		0.408	Continuing	Continuing	Continuing
Systems Engineering	WR	NRL : Washington, DC	0.000	0.000		0.000		0.200	Nov 2016	-		0.200	Continuing	Continuing	Continuing
Systems Engineering	C/CPFF	Assurance Technology Corp : Carlisle, MA	0.000	0.000		0.000		0.849	Dec 2016	-		0.849	0.000	0.849	0.849
Subtotal			0.000	0.000		0.000		1.457		-		1.457	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Engineering and Tech Support	C/FFP	NSMA : Washington, DC	0.000	0.000		0.000		0.200	Dec 2016	-		0.200	0.000	0.200	0.200
Subtotal			0.000	0.000		0.000		0.200		-		0.200	0.000	0.200	0.200

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	0.000	0.000	1.657	-	1.657	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>	Project (Number/Name) 3371 / <i>MAGTF EW Interoperability Development</i>
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MAGTF EW Interoperability Development	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
Acquisition Milestones									SPIRAL 3 SYSTEM DEVELOPMENT																							
Systems Evaluation									SPIRAL 2 FIELD EVALUATION MV-22																							

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604270N / <i>Electronic Warfare (EW) Dev</i>	Project (Number/Name) 3371 / <i>MAGTF EW Interoperability Development</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>MAGTF EW Interoperability Development</i>				
Acquisition Milestones: SPIRAL 3 SYSTEM DEVELOPMENT	1	2017	4	2021
Systems Evaluation: SPIRAL 2 FIELD EVALUATION MV-22	1	2017	4	2017

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604273N / (U)Executive Helo Development
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	294.799	356.567	507.093	338.357	-	338.357	478.404	288.198	189.892	54.540	63.884	2,571.734
3300: <i>Presidential Helicopter VH-92A</i>	294.799	356.567	507.093	338.357	-	338.357	478.404	288.198	167.039	30.094	0.000	2,460.551
3390: <i>VH-92A Improvements</i>	0.000	0.000	0.000	0.000	-	0.000	0.000	0.000	22.853	24.446	63.884	111.183

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): P429

A. Mission Description and Budget Item Justification

The VH-92A is the replacement helicopter for the VH-3D and the VH-60N, the aircraft currently used by Marine Helicopter Squadron ONE (HMX-1) to transport the President, Vice President, and other distinguished officials as directed by the White House Military Office. The VH-3D and VH-60N are approaching the end of their service lives. Funding for the VH-92A program supports Engineering and Manufacturing Development Phase activities, including: integration of systems; production, qualification, and support of test articles; development of logistics products; and demonstration of system integration, interoperability, safety, and utility.

B. Program Change Summary (\$ in Millions)

	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>
Previous President's Budget	368.084	507.093	589.730	-	589.730
Current President's Budget	356.567	507.093	338.357	-	338.357
Total Adjustments	-11.517	0.000	-251.373	-	-251.373
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-11.517	0.000			
• Program Adjustments	0.000	0.000	-42.257	-	-42.257
• Rate/Misc Adjustments	0.000	0.000	-209.116	-	-209.116

Change Summary Explanation

Cost: The VH-92A program successfully completed the Integrated Baseline Review in November 2014, an independent Schedule Risk Assessment and Estimate at Complete (EAC) in July 2015, and the Preliminary Design Review in August 2015. Based on these reviews, the program re-phased \$40M from FY2017 into FY2020 and \$210M from FY2017 to better align program funding with future work. The program is executing within Acquisition Program Baseline objectives.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604273N / (U) <i>Executive Helo Development</i>
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Technical: Not applicable.

Schedule: Not applicable.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604273N / (U)Executive Helo Development	Project (Number/Name) 3300 / Presidential Helicopter VH-92A
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3300: Presidential Helicopter VH-92A	294.799	356.567	507.093	338.357	-	338.357	478.404	288.198	167.039	30.094	0.000	2,460.551
Quantity of RDT&E Articles		2	2	2	-	2	-	-	-	-		

Project MDAP/MAIS Code: P429

A. Mission Description and Budget Item Justification

Marine Helicopter Squadron One (HMX-1) is required to provide safe and timely transportation for the President and Vice President of the United States, heads of state and others as directed by the White House Military Office. Currently two Type, Model, Series aircraft are used by HMX-1 for the Presidential support mission - the VH-3D and the VH-60N. The VH-92A will replace the VH-3D and VH-60N. Funding supports Engineering and Manufacturing Development Phase (EMD) activities including integration of systems, production, qualification, and support of test articles, logistics products development, demonstration of system integration, interoperability, safety and utility. Two Engineering Development Model (EDM) and four System Demonstration Test Article (SDTA) aircraft will be delivered during EMD. The EDM and SDTA aircraft will be used for Developmental Test & Evaluation for verification of Performance Based Specifications (PBS), airworthiness certification and Supportability Verification. The SDTA aircraft will be used for Initial Operational Test and Evaluation (IOT&E) and be refurbished for Initial Operational Capability (IOC).

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Product Development	336.723	472.219	298.066	0.000	298.066
Articles:	2	2	2	-	2
FY 2015 Accomplishments:					
Perform modifications and conduct aircraft testing for co-site interference, communication systems integration and air vehicle performance. Conduct System Functional Review (SFR) and system-level Preliminary Design Review (PDR). Support engineering efforts on the Mission Communications System (MCS) and maturation efforts on hardware/software. Fund engineering and evaluation efforts to integrate and test Wideband Line of Sight (WBLoS), a strategic communications capability. Provide Government Furnished Equipment (GFE) to the prime contractor. Execute other Engineering and Manufacturing Development Phase (EMD) activities, including: integration of systems; production, qualification, and support of test articles; development of logistics products; and demonstration of system integration, interoperability, safety, and utility.					
FY 2016 Plans:					
Conduct system level Critical Design Review (CDR). Continue engineering support for MCS and hardware/software maturation. Continue WBLoS integration efforts. Continue providing GFE to prime contractor. Conduct Training system PDR. Begin modifying two engineering development model (EDM) aircraft to the VH-92A configuration. Execute other EMD Phase activities, including: integration of systems; production,					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604273N / (U)Executive Helo Development	Project (Number/Name) 3300 / Presidential Helicopter VH-92A

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
qualification, and support of test articles; development of logistics products; and demonstration of system integration, interoperability, safety, and utility. FY 2017 Base Plans: Begin Contractor Test (CT) for Federal Aviation Administration (FAA) airworthiness certification. Continue engineering support for MCS and hardware/software maturation. Continue modification of two EDM aircraft and commence modification of SDTA aircraft to the VH-92A configuration. Continue providing GFE to prime contractor. Execute Engineering and Manufacturing Development Phase activities, including: integration of systems; production, qualification, and support of test articles; development of logistics products; and demonstration of system integration, interoperability, safety, and utility. FY 2017 OCO Plans: N/A					
Title: Support Articles:	9.737	17.845	19.957	0.000	19.957
FY 2015 Accomplishments: Participate in programmatic reviews such as System Functional Review (SFR) and Integrated Baseline Review (IBR). Begin maintenance planning in preparation for the development of logistics products that include Automated Logistics Environment (ALE), maintenance plans, task analyses, maintenance summaries and Interactive Electronic Technical Manuals (IETMs). FY 2016 Plans: Continue baseline air vehicle (BAV) IETM development. Complete preliminary maintenance plans. Develop support equipment requirements data (SERDs). Procure common support equipment (CSE). Continue development of incremental products to include maintenance task analyses for individual systems of the aircraft. Continue the development and generation of logistics products identified during FY 2015 to include ALE, task analyses, maintenance summaries and IETMs. Continue support for programmatic reviews. FY 2017 Base Plans: Finalize ALE product development in order to support Integrated Test (IT) in FY 2018. Commence ALE stand up. Continue IETM development/verification. Continue development of SERDs. Continue procurement of CSE. Monitor new and modified support equipment development. Continue the development and generation of task analyses and maintenance summaries. Support programmatic and technical reviews. FY 2017 OCO Plans:	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604273N / (U)Executive Helo Development	Project (Number/Name) 3300 / Presidential Helicopter VH-92A

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
<p>Title: Test and Evaluation</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: Support planning and documentation for VH-92A Developmental Testing (DT), Operational Testing (OT), and Alternate Live Fire Test Evaluation (ALFT&E). Begin Mission Communications System (MCS) testing for co-site interference, communication systems integration and air vehicle performance. Initiate System Integration Lab (SIL) development. Commence ALFT&E activities by procuring select components, conducting ALFT&E events, analyzing test data, and generating requisite reports.</p> <p>FY 2016 Plans: Continue support of VH-92A DT/OT/ALFT&E test and evaluation planning and documentation. Perform initial Mission Communications System (MCS) integration and co-site interference testing. Continue System Integration Lab (SIL) development to include procurement of components for installation and integration. Continue ALFT&E activities by procuring needed components, conducting ALFT&E events, analyzing test result data, and generating requisite reports.</p> <p>FY 2017 Base Plans: Continue support of VH-92A DT/OT/ALFT&E test and evaluation planning and documentation. Continue ALFT&E events. Monitor contractor testing in support of airworthiness certification. Commence preparation efforts for Test Readiness Review/Flight Readiness Review (TRR/FRR).</p> <p>FY 2017 OCO Plans: N/A</p>	4.800	10.809	13.538	0.000	13.538
	-	-	-	-	-
<p>Title: Program Management</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: Participate in program reviews such as the Preliminary Design Review (PDR), System Functional Review (SFR), and Integrated Baseline Review (IBR). Perform project management tasks to support technical reviews, risk-reduction activities, contractor deliverables, configuration management, training, physical security, and</p>	5.307	6.220	6.796	0.000	6.796
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604273N / (U)Executive Helo Development	Project (Number/Name) 3300 / Presidential Helicopter VH-92A

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
information assurance/cyber security. Conduct two Schedule Risk Assessments (SRA) and perform Estimate at Complete (EAC) update. FY 2016 Plans: Participate in the Critical Design Review (CDR). Perform project management tasks to support technical reviews, risk-reduction activities, contractor deliverables, cost and schedule assessments, configuration management, training, physical security, and information assurance/cyber security. Conduct a SRA and perform an EAC update. FY 2017 Base Plans: Perform project management tasks to support technical reviews, risk-reduction activities, contractor deliverables, configuration management, training, physical security, and information assurance/cybersecurity. Perform planned SRA and EAC update. FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	356.567	507.093	338.357	0.000	338.357

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APN-4/04550: VH-92A Executive Helo	0.000	0.000	0.000	-	0.000	0.000	791.306	774.812	750.309	0.000	2,316.427
• APN-6/04550: Spares for VXX	0.000	0.000	0.000	-	0.000	0.000	54.500	80.000	65.500	0.000	200.000

Remarks

D. Acquisition Strategy
The VH-92A program is integrating mature subsystems into an existing commercial helicopter under a Fixed Price Incentive Firm (FPIF) contract. The program's Milestone (MS) B review was completed on 21 Mar 2014, the MS B Acquisition Decision Memorandum was signed on 17 Apr 2014, and the VH-92A contract for the Engineering and Manufacturing Development phase and priced options for production was awarded on 7 May 2014. The VH-92A Program has received a waiver for the Preliminary Design Review (PDR) and post-PDR assessment prior to MS B as approved by the Milestone Decision Authority (USD(AT&L)) on 17 Apr 2014.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604273N / (U)Executive Helo Development	Project (Number/Name) 3300 / Presidential Helicopter VH-92A

E. Performance Metrics

Program performance metrics are contained in the Acquisition Program Baseline (APB) that was approved by the Milestone Decision Authority (USD(AT&L)) on 17 Apr 2014. The program plans to conduct the Critical Design Review (CDR) in 2016.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604273N / (U)Executive Helo Development	Project (Number/Name) 3300 / Presidential Helicopter VH-92A
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary HW Dev - VH-92A EMD Contract	C/FPIF	Sikorsky Aircraft Corporation : Stratford, CT	52.527	283.855	Oct 2014	420.318	Oct 2015	253.137	Oct 2016	-		253.137	472.663	1,482.500	1,482.500
Primary HW Dev - Advanced Capabilities	Various	NSMA : Arlington, VA	61.878	11.412	Feb 2015	23.179	Feb 2016	20.000	Feb 2017	-		20.000	338.274	454.743	-
Primary HW Dev - VH-92A MCS Design	WR	NAWCAD : St. Inigoes, MD	27.804	12.500	Nov 2014	9.324	Nov 2015	5.056	Nov 2016	-		5.056	6.858	61.542	-
Primary HW Dev - Wideband Line of Sight	MIPR	US Army : APG, MD	0.000	10.110	Dec 2014	0.000		0.000		-		0.000	0.000	10.110	-
Primary HW Dev - VH-92A GFE	Various	Various : Various	1.760	1.639	Nov 2014	2.563	Nov 2015	0.229	Nov 2016	-		0.229	0.000	6.191	-
Systems Engineering	WR	NAWCAD : Patuxent River, MD	32.613	16.640	Nov 2014	16.174	Nov 2015	18.958	Nov 2016	-		18.958	27.960	112.345	-
Training	WR	NAWCTSD : Orlando, FL	0.439	0.567	Nov 2014	0.660	Nov 2015	0.686	Nov 2016	-		0.686	1.251	3.603	-
Prior year Hdw Dev cost no longer funded in the FYDP	Various	Various : Various	14.855	0.000		0.000		0.000		-		0.000	0.000	14.855	-
Subtotal			191.876	336.723		472.218		298.066		-		298.066	847.006	2,145.889	-

Remarks
 FUNDING PROFILE: Based on the updated estimates and schedules, FY 2017 funding request was reduced by \$210.1M to account for the availability of prior year execution balances and to better align program funding with future work. FY 2016 and FY 2017 will have a lag in expenditures due to this rephrase of funding. The current budget profile fully funds both FY 2016 and FY 2017.

FINANCIAL PERFORMANCE: VH-92A is evaluated against traditional Research and Development (R&D) program expenditure benchmarks. Unlike many traditional R&D programs, however, the VH-92A EMD contract is a FPIF contract with progress payments. Twenty percent of incurred costs are withheld until the end of the contract, when they are liquidated. Mandatory funding obligations and progress payment withholds will cause the program to lag traditional expenditure benchmarks, painting an inaccurate portrait of overall program health.

ACRONYMS:
 EMD = Engineering & Manufacturing Development
 MCS = Mission Communications System
 GFE = Government Furnished Equipment

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604273N / (U)Executive Helo Development	Project (Number/Name) 3300 / Presidential Helicopter VH-92A
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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Integrated Logistics Support	WR	NAWCAD : Patuxent River, MD	13.239	6.407	Nov 2014	6.614	Nov 2015	7.057	Nov 2016	-		7.057	17.678	50.995	-
Integrated Logistics Support	WR	FRC : Cherry Point, NC	2.596	2.079	Nov 2014	5.796	Nov 2015	7.322	Nov 2016	-		7.322	13.444	31.237	-
Integrated Logistics Support	WR	NAWCAD : Lakehurst, NJ	0.661	0.675	Nov 2014	4.845	Nov 2015	4.969	Nov 2016	-		4.969	6.688	17.838	-
Integrated Logistics Support	WR	SPAWAR : San Diego, CA	0.433	0.575	Nov 2014	0.591	Nov 2015	0.609	Nov 2016	-		0.609	1.185	3.393	-
Prior year support cost no longer funded in the FYDP	Various	Various : Various	5.589	0.000		0.000		0.000		-		0.000	0.000	5.589	-
Subtotal			22.518	9.736		17.846		19.957		-		19.957	38.995	109.052	-

Remarks

Integrated Logistics Support (NAWCAD Patuxent River) - Integrated logistics support (ILS) acquisition and management of the VH-92A aircraft. Evaluate contractor development of ILS efforts.
 Integrated Logistics Support (FRC Cherry Point) - VH-92A maintenance planning, reliability centered maintenance (RCM), logistics support analysis efforts, and IETMS development.
 Integrated Logistics Support (NAWCAD Lakehurst) - Support Equipment planning and analysis to include procurement of Common Support Equipment (CSE) and engine test cell development/procurement.
 Integrated Logistics Support (SPAWAR San Diego) - Architecture development and software integration to include certification and accreditation of the VH-92A Automated Logistics Environment.

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Development Test & Evaluation	WR	NAWCAD : Patuxent River, MD	7.153	2.301	Nov 2014	4.112	Nov 2015	6.204	Nov 2016	-		6.204	49.878	69.648	-
Development Test & Evaluation	WR	NAWCWD : Point Mugu, CA	0.054	0.033	Nov 2014	0.013	Nov 2015	0.013	Nov 2016	-		0.013	0.057	0.170	-
Development Test & Evaluation	MIPR	JITC : Ft. Huachuca, AZ	0.012	0.020	Nov 2014	0.024	Oct 2015	0.025	Oct 2016	-		0.025	0.232	0.313	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604273N / (U)Executive Helo Development	Project (Number/Name) 3300 / Presidential Helicopter VH-92A
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Alternate Live Fire Test & Evaluation	WR	NAWCWD : China Lake, CA	2.644	1.815	Nov 2014	5.895	Nov 2015	6.087	Nov 2016	-		6.087	7.202	23.643	-
Operational Test & Evaluation	WR	COTF : Norfolk, VA	0.213	0.632	May 2015	0.765	May 2016	1.209	May 2017	-		1.209	3.473	6.292	-
Subtotal			10.076	4.801		10.809		13.538		-		13.538	60.842	100.066	-

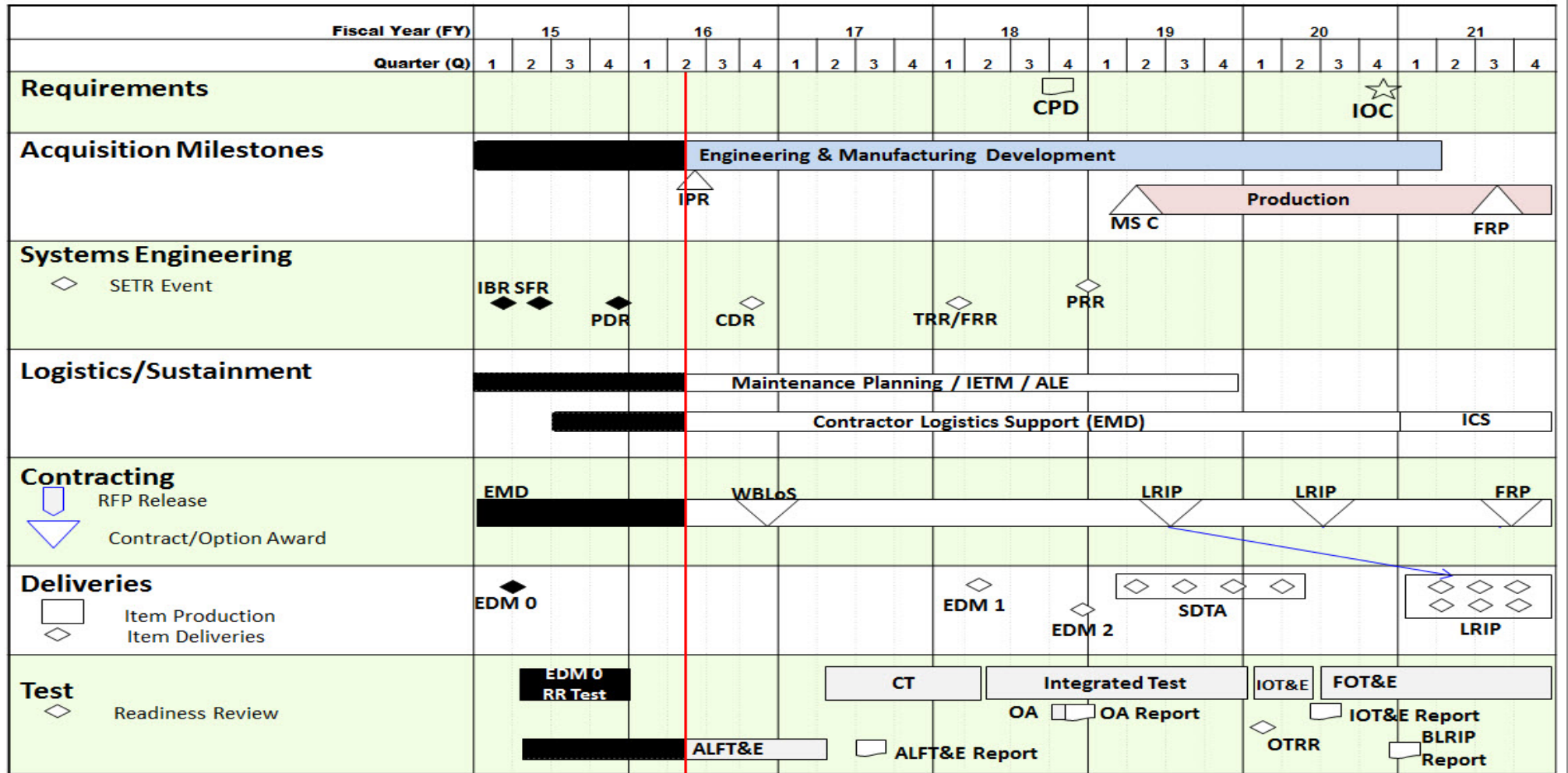
Remarks
 Development Test & Evaluation (NAWCAD Patuxent River) - Support for developmental test & evaluation, system integration lab, T&E instrumentation design, procurement, calibration, and tooling.
 Development Test & Evaluation (NAWCWD Point Mugu) - Cyber Security Test & Evaluation
 Development Test & Evaluation (JITC) - Joint Interoperability Test Certification
 Alternate Live Fire Test & Evaluation (NAWCWD China Lake) - ALFT&E test planning/documentation and conduct of ALFT&E test events.

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support	WR	NAWCAD : Patuxent River, MD	42.996	5.107	Nov 2014	6.095	Nov 2015	6.678	Nov 2016	-		6.678	16.485	77.361	-
Transportation	Various	NAVAIR : Patuxent River, MD	0.085	0.100	Oct 2014	0.025	Oct 2015	0.025	Oct 2016	-		0.025	0.100	0.335	-
Travel	Various	NAVAIR : Patuxent River, MD	0.149	0.100	Oct 2014	0.100	Oct 2015	0.093	Oct 2016	-		0.093	0.307	0.749	-
Prior year Mgmt Svcs cost no longer funded in the FYDP	Various	Various : Various	27.099	0.000		0.000		0.000		-		0.000	0.000	27.099	-
Subtotal			70.329	5.307		6.220		6.796		-		6.796	16.892	105.544	-

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals		294.799	356.567	507.093	338.357	-	338.357	963.735	2,460.551	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604273N / (U)Executive Helo Development	Project (Number/Name) 3300 / Presidential Helicopter VH-92A



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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604273N / (U)Executive Helo Development	Project (Number/Name) 3300 / Presidential Helicopter VH-92A

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Presidential Helicopter VH-92A				
Requirements: Capabilities Production Document	4	2018	4	2018
Requirements: Initial Operational Capability	4	2020	4	2020
Acquisition Milestones: Engineering & Manufacturing Development	1	2015	1	2021
Acquisition Milestones: Production	2	2019	4	2021
Acquisition Milestones: In Process Review	2	2016	2	2016
Acquisition Milestones: MS C	2	2019	2	2019
Acquisition Milestones: Full Rate Production Decision	3	2021	3	2021
Systems Engineering: Integrated Baseline Review	1	2015	1	2015
Systems Engineering: System Functional Review	2	2015	2	2015
Systems Engineering: Preliminary Design Review	4	2015	4	2015
Systems Engineering: Critical Design Review	4	2016	4	2016
Systems Engineering: Test Readiness Review/Flight Readiness Review (TRR/FRR)	1	2018	1	2018
Systems Engineering: Production Readiness Review	1	2019	1	2019
Logistics/Sustainment: Maintenance Planning / IETM / ALE	1	2015	4	2019
Logistics/Sustainment: Contractor Logistics Support (EMD)	3	2015	1	2021
Logistics/Sustainment: Interim Contractor Support	1	2021	4	2021
Contracting: Wideband Line of Sight	4	2016	4	2016
Contracting: LRIP Lot 1 APN	3	2019	3	2019
Contracting: LRIP Lot 2 APN	3	2020	3	2020
Contracting: FRP APN	3	2021	3	2021
Deliveries: EDM 0	1	2015	1	2015

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604273N / (U)Executive Helo Development	Project (Number/Name) 3300 / Presidential Helicopter VH-92A
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Deliveries: EDM 1	2	2018	2	2018
Deliveries: EDM 2	4	2018	4	2018
Deliveries: System Demonstration Test Article (SDTA) Aircraft 1	2	2019	2	2019
Deliveries: System Demonstration Test Article (SDTA) Aircraft 2	3	2019	3	2019
Deliveries: System Demonstration Test Article (SDTA) Aircraft 3	4	2019	4	2019
Deliveries: System Demonstration Test Article (SDTA) Aircraft 4	2	2020	2	2020
Deliveries: Low Rate Initial Production - Lot 1 (APN)	2	2021	4	2021
Test: Developmental Test - EDM 0 Risk Reduction Test	2	2015	4	2015
Test: Developmental Test - Contractor Test	2	2017	2	2018
Test: Developmental Test - Integrated Test	2	2018	1	2020
Test: Alternate Live Fire Test & Evaluation	2	2015	2	2017
Test: Alternate Live Fire Test & Evaluation Report	3	2017	3	2017
Test: Operational Assessment & Operational Assessment Report	4	2018	1	2019
Test: Operational Test Readiness Review	1	2020	1	2020
Test: Initial Operational Test & Evaluation	1	2020	2	2020
Test: Initial Operational Test & Evaluation Report	2	2020	3	2020
Test: Follow-on Test & Evaluation	3	2020	4	2021
Test: Beyond Low Rate Initial Production Report	1	2021	1	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604273N / (U)Executive Helo Development	Project (Number/Name) 3390 / VH-92A Improvements
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3390: VH-92A Improvements	0.000	0.000	0.000	0.000	-	0.000	0.000	0.000	22.853	24.446	63.884	111.183
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

VH-92A Product Improvement addresses pre-planned product improvement requirements written into the VXX Capabilities Development Document approved by Joint Requirements Oversight Committee in Jan 2013. The project addresses non-recurring engineering associated with Mission Communications System upgrades (both software and hardware), enhancements to Wideband Line of Sight (specifically upgrades associated with reducing Ground Entry Point transition time), enhanced visual system for pilots associated with degraded visual environments providing better situational awareness particularly in the take-off and landing phase of flight, additional mulit function display for better engine / drivetrain displays and providing pilot ability to silence Airborne Collision Avoidance System when in formation flight.

B. Accomplishments/Planned Programs (\$ in Millions)

N/A

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

VH-92A Product Improvement will include trade studies, cost-benefit analyses, and risk-reduction efforts to address improvements for aircraft capability, safety, operational weight, mission availability, component reliability, maintainability, software, and obsolescence.

E. Performance Metrics

Completion of required VH-92A Product Improvement efforts.

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604273N / (U)Executive Helo Development	Project (Number/Name) 3390 / VH-92A Improvements
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Proj 3390	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
																					Test Planning and Documentation (DT/OT/ALFT&E/FOT&E)				FOT&E							

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604273N / (U)Executive Helo Development	Project (Number/Name) 3390 / VH-92A Improvements

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3390				
Test Planning and Documentation (DT/OT/ALFT&E/FOT&E)	1	2020	4	2020
Follow-On Test & Evaluation	1	2021	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604274N / <i>Next Generation Jammer (NGJ)</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	657.141	224.578	387.770	577.822	-	577.822	544.124	543.219	353.876	212.939	0.000	3,501.469
0557: <i>Next Generation Jammer</i>	657.141	224.578	387.770	577.822	-	577.822	544.124	543.219	353.876	212.939	0.000	3,501.469

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): P445

A. Mission Description and Budget Item Justification

Decrease in NEXT GENERATION JAMMER (NGJ) by \$1.724M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

The Next Generation Jammer (NGJ) is the next step in the evolution of Airborne Electronic Attack (AEA) and is needed to meet current and emerging Electronic Warfare gaps, ensure kill chain wholeness against growing threat capabilities and capacity, and to keep pace with threat weapons systems advances and continuous expansion of the AEA mission area. NGJ is an evolutionary acquisition program providing capability in three increments: Increment 1 (Mid-Band), Increment 2 funded under PE 0604282N (Low-Band) and Increment 3 (High-Band). The order of development - mid, low, and then high - was determined by the threat and available capability.

NGJ Inc 1 capabilities will address Mid-Band AEA capability gaps, AEA sufficiency gaps, and address ALQ-99 Tactical Jamming System shortfalls in scalability, flexibility, supportability, interoperability, availability, and capability.

NGJ Inc 1 will deliver significantly improved radar and communications jamming capabilities with Open Systems Architecture that supports software and hardware updates to rapidly counter improving threats. NGJ Inc 1 will contribute across the spectrum of missions defined in the Defense Strategic Guidance to include strike warfare, projecting power despite anti-access/area denial challenges, and counterinsurgency/irregular warfare.

B. Program Change Summary (\$ in Millions)	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>
Previous President's Budget	230.713	411.767	515.085	-	515.085
Current President's Budget	224.578	387.770	577.822	-	577.822
Total Adjustments	-6.135	-23.997	62.737	-	62.737
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-23.997			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-6.135	0.000			
• Program Adjustments	0.000	0.000	34.900	-	34.900
• Rate/Misc Adjustments	0.000	0.000	27.837	-	27.837

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604274N / <i>Next Generation Jammer (NGJ)</i>	

Change Summary Explanation

Technical: Not applicable.

Schedule: Project Unit 0557: The IPR DAB LRIP Pre-FFP release event is no longer required before Milestone C. Program schedule review re-baselined Production Readiness Review (PRR) from 4th Qtr. 2018 to 2nd Qtr. 2019. Engineering Development Models (EDMs) final deliveries moved from 4th Qtr. 2019 to 2nd Qtr. 2020. The Test Readiness Review (TRR) and the Flight Readiness Review (FRR) were separated into an aeromechanical phase and a mission system phase. As each phase requires a distinct set of data, the program separated them to show more fidelity and visibility into the incremental test approach.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604274N / Next Generation Jammer (NGJ)	Project (Number/Name) 0557 / Next Generation Jammer
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
0557: Next Generation Jammer	657.141	224.578	387.770	577.822	-	577.822	544.124	543.219	353.876	212.939	0.000	3,501.469
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: P445

A. Mission Description and Budget Item Justification

NGJ Inc 1 capabilities will address Mid-Band AEA capability gaps, AEA sufficiency gaps, and address ALQ-99 Tactical Jamming System shortfalls in scalability, flexibility, supportability, interoperability, availability, and capability. NGJ Inc 1 will deliver significantly improved radar and communications jamming capabilities with Open Systems Architecture that supports software and hardware updates to rapidly counter improving threats. NGJ Inc 1 will contribute across the spectrum of missions defined in the Defense Strategic Guidance to include strike warfare, projecting power despite anti-access/area denial challenges, and counterinsurgency/irregular warfare.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Next Generation Jammer Inc 1 Primary Hardware Development	132.790	215.269	387.443	0.000	387.443
Articles:	-	-	15	-	15
FY 2015 Accomplishments: Continue Technology Development phase and continued development of Pod Prime Hardware to a Preliminary Design Review level of maturity.					
FY 2016 Plans: Continue maturation of Critical Technology Elements (CTEs) to a Technology Readiness of 6 in support of Milestone B. Award Engineering and Manufacturing Development Contract in 2nd Qtr FY 2016. Post Milestone B work will focus on continuing maturation of technologies and maturation of the system design of the Pod Prime Hardware in preparation for Critical Design Review in FY 2017 and ordering of material in support of test article builds.					
FY 2017 Base Plans: System design of the Pod Prime Hardware will continue through the Critical Design Review (CDR) in 2nd Qtr. FY 2017. Upon a successful CDR, the pod hardware procurement and assembly will commence for the 15 Engineering Development Models. Also during this time aeromechanical shapes are being developed to support the air worthiness testing during the IT-B1 and IT-B2 test phases.					
FY 2017 OCO Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604274N / Next Generation Jammer (NGJ)	Project (Number/Name) 0557 / Next Generation Jammer

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
<p>Title: Next Generation Jammer Inc 1 Systems Engineering</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: Perform System Engineering efforts in support of continued Next Generation Jammer Increment 1 development.</p> <p>FY 2016 Plans: Perform System Engineering efforts in support of continued NGJ Increment 1 development to include initial system security engineering development activities culminating in a Critical Design Review in FY 2017. A Technology Readiness Assessment will be performed during this timeframe, where the Technology Readiness Level (TRL) of the NGJ Critical Technology Elements (CTEs) will be determined.</p> <p>FY 2017 Base Plans: Perform Systems Engineering efforts, resulting in a Critical Design Review in 2nd Qtr. FY 2017, which will support development of the Engineering Development Models (EDMs) required for Developmental Testing. Systems engineering efforts will also be supporting the Integration Readiness Review (IRR) and the Test Readiness Review (TRR), to include update and traceability of specifications, event planning, execution, and closeout of Request For Action (RFAs) and Request for Information (RFIs).</p> <p>FY 2017 OCO Plans: N/A</p>	41.177	48.431	51.415	0.000	51.415
	-	-	-	-	-
<p>Title: Next Generation Jammer Inc 1 Test and Evaluation</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: Wind tunnel events in support of Critical Technology Element demonstrations to support Technology Readiness Assessment for Milestone B.</p> <p>FY 2016 Plans: Develop Test Evaluation Master Plan for Milestone B. A static loads test article will be prepared in support of initiation of static loads testing. The Integrated Test Team (ITT) will start build up in the aeromechanical disciplines and the flutter A/C will be modified in support of flutter testing.</p> <p>FY 2017 Base Plans:</p>	1.300	26.040	39.414	0.000	39.414
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016			
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604274N / Next Generation Jammer (NGJ)	Project (Number/Name) 0557 / Next Generation Jammer				
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)						
		FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Conduct High Speed Stability and Control(S&C) and Performance, Low Speed Performance, and Loads and Stores Separation wind tunnel testing. Develop wind tunnel test reports. A static loads test article will be delivered in support of initiation of static loads testing. Flutter, loads, noise and vibration, flying qualities, and jettison test articles will be developed and prepared in support of aeromechanical flight testing. Prepare the Flutter Test Aircraft to include reconfiguration with wing-tip ALQ-218 mass property models to represent an EA-18G and instrumentation modifications. Conduct Flutter Test Aircraft regression testing to include regression ground vibration test (GVT) and regression GVT analysis. The Integrated Test Team (ITT) will start build up in the mission systems disciplines in support of chamber, ground, and flight testing for installed system performance characterization.</p> <p>FY 2017 OCO Plans: N/A</p> <p>Title: Next Generation Jammer Inc 1 Aircraft Integration</p> <p align="right">Articles:</p>						
<p>FY 2015 Accomplishments: Perform Aircraft/Software Integration efforts to support Next Generation platform integration and meet IOC.</p> <p>FY 2016 Plans: Develop, design, procure, and test A-kit modifications and initiate flight clearance work in support of MS B program requirements and testing activities. Efforts include non-recurring engineering for proposed aircraft modifications, finalization of software requirements for the NGJ integration software build, and commencement of software development.</p> <p>FY 2017 Base Plans: Simultaneously working on three System Configuration Set (SCS) software builds in various stages; System Integration of Build #1, Design of Build #2, and System Specification and Design of Build #3. Conduct System Engineering reviews, Software Integration Lab (SIL) testing, and flight testing associated with each phase. Continuation of A-kit modification activities to include assembly of A-kits.</p> <p>FY 2017 OCO Plans: N/A</p>		45.448	93.590	95.020	0.000	95.020
		-	-	-	-	-
<p>Title: Next Generation Jammer Inc 1 Support & Management Services</p> <p align="right">Articles:</p>		3.863	4.440	4.530	0.000	4.530
		-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604274N / Next Generation Jammer (NGJ)	Project (Number/Name) 0557 / Next Generation Jammer

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<i>FY 2015 Accomplishments:</i> Provide Support and Management Services associated with the Next Generation Jammer Program.					
<i>FY 2016 Plans:</i> Provide Support and Management Services associated with the Next Generation Jammer Program.					
<i>FY 2017 Base Plans:</i> Provide Support and Management Services associated with the Next Generation Jammer Program.					
<i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	224.578	387.770	577.822	0.000	577.822

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APN/0591: Next Generation Jammer	0.000	0.000	0.000	-	0.000	0.000	216.591	424.767	533.518	4,300.934	5,475.810
• APN/0605: Spares and Repair Parts	0.000	0.000	0.000	-	0.000	0.000	31.598	34.396	18.362	0.000	84.356
• MCN/00620258: Next Generation Jammer	0.000	0.000	0.000	-	0.000	0.000	7.806	0.000	0.000	0.000	7.806

Remarks

D. Acquisition Strategy
Next Generation Jammer is designated a Pre-Major Defense Acquisition Program (MDAP), MDAP program number P445. The activity will focus on technology maturation plans to develop the Critical Technology Elements to a Technology Readiness Level of 6 in preparation for Milestone B in early FY16. Post Milestone B, the focus will be on system design of the pod toward a Critical Design Review level of maturity.

E. Performance Metrics
Post Milestone B continue system design of Pod Prime Hardware for favorable Critical Design Review (CDR) 2nd QTR 2017.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604274N / Next Generation Jammer (NGJ)	Project (Number/Name) 0557 / Next Generation Jammer
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary Hardware Development - Technology Development	C/CPIF	Raytheon : El Segundo, CA	141.567	132.790	Oct 2014	30.932	Oct 2015	0.000		-		0.000	0.000	305.289	305.289
Primary Hardware Development - Engineering and Manufacturing Development	C/CPIF	Raytheon : El Segundo, CA	0.000	0.000		184.337	Mar 2016	387.444	Nov 2016	-		387.444	833.532	1,405.313	1,405.313
Aircraft Integration	SS/CPIF	Boeing : St. Louis, MO	14.000	7.912	Jun 2015	7.043	Dec 2015	0.000		-		0.000	0.000	28.955	28.955
Aircraft Integration - EMD	C/CPIF	Boeing : St. Louis, MO	0.000	0.000		19.315	Mar 2016	30.097	Nov 2016	-		30.097	83.743	133.155	133.155
Aircraft Integration - FCNS	SS/FFP	Harris : Palm Bay, FL	6.099	0.000		4.300	Jun 2016	0.000		-		0.000	0.000	10.399	10.399
Software /Aircraft Integration	WR	NAWCWD : China Lake, CA	10.347	5.360	Nov 2014	5.778	Nov 2015	6.556	Nov 2016	-		6.556	30.076	58.117	-
Software Integration - Systems Integration Lab	Various	NAVSUP : Philadelphia, PA	0.000	0.000		29.358	Feb 2016	7.476	Feb 2017	-		7.476	0.000	36.834	36.834
Software Integration-Systems Integration Lab	Various	Boeing : St. Louis, MO	2.738	0.000		0.000		0.000		-		0.000	0.000	2.738	2.738
Software Integration-Systems Integration Lab	SS/FFP	Northrop Grumman : Bethpage, NY	20.049	9.800	Dec 2014	1.309	Feb 2016	2.250	Feb 2017	-		2.250	4.945	38.353	38.353
Software Integration - SOR	C/CPIF	Boeing : St. Louis, MO	11.740	12.424	Jul 2015	0.000		0.000		-		0.000	0.000	24.164	24.164
Software Integration - Blk Update	WR	NAWCWD : Pt. Mugu, CA	8.529	9.952	Nov 2014	14.353	Nov 2015	13.494	Nov 2016	-		13.494	45.536	91.864	-
Software integration H-14	C/CPIF	Boeing : St Louis, MO	0.000	0.000		9.182	Mar 2016	15.596	Feb 2017	-		15.596	37.918	62.696	62.696
Software Integration H-14	SS/FFP	Northrop Grumman : Bethpage, NY	0.000	0.000		2.370	Dec 2015	18.548	Dec 2016	-		18.548	44.126	65.044	65.044
Software Integration H-14	WR	NAWCWD : China Lake	0.000	0.000		0.583	Nov 2015	1.002	Nov 2016	-		1.002	2.202	3.787	-
Systems Engineering Trainer	Various	TBD : TBD	0.000	0.000		0.000		0.000		-		0.000	7.208	7.208	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604274N / Next Generation Jammer (NGJ)	Project (Number/Name) 0557 / Next Generation Jammer
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NAWCAD : Patuxent River, MD	60.765	20.128	Nov 2014	19.780	Nov 2015	17.775	Nov 2016	-		17.775	36.600	155.048	-
Systems Engineering	WR	NAWCWD : Pt. Mugu, CA	30.345	7.579	Nov 2014	8.344	Nov 2015	8.707	Nov 2016	-		8.707	29.296	84.271	-
Systems Engineering	WR	NSWC Crane : Crane, IN	24.512	3.900	Nov 2014	3.419	Nov 2015	3.688	Nov 2016	-		3.688	9.418	44.937	-
Systems Engineering	WR	NSWC Dahlgren : Dahlgren, VA	3.365	0.619	Nov 2014	0.167	Nov 2015	0.171	Nov 2016	-		0.171	0.719	5.041	-
Systems Engineering	SS/CPFF	Johns Hopkins University Applied Physics Lab : Laurel, MD	21.131	6.827	Jan 2015	11.680	Nov 2015	12.032	Nov 2016	-		12.032	43.288	94.958	94.958
Systems Engineering	WR	Naval Research Laboratory : Washington, DC	3.186	0.754	Nov 2014	0.686	Nov 2015	0.694	Nov 2016	-		0.694	2.174	7.494	-
Systems Engineering	Various	Various : Various	8.184	0.570	Nov 2014	0.457	Nov 2015	0.440	Nov 2016	-		0.440	1.850	11.501	-
Systems Engineering	Various	TBD : TBD	0.000	0.800	Mar 2016	3.897	Feb 2016	7.908	Feb 2017	-		7.908	16.871	29.476	-
Prior Year Prod Dev no longer funded in FYDP	Various	Various : Various	261.711	0.000		0.000		0.000		-		0.000	0.000	261.711	-
Subtotal			628.268	219.415		357.290		533.878		-		533.878	1,229.502	2,968.353	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Eng & Tech Svc (Non FFRDC)	Various	Various : Various	26.783	3.677	Dec 2014	4.103	Dec 2015	4.185	Dec 2016	-		4.185	8.623	47.371	47.371
Subtotal			26.783	3.677		4.103		4.185		-		4.185	8.623	47.371	47.371

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604274N / Next Generation Jammer (NGJ)	Project (Number/Name) 0557 / Next Generation Jammer
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Development T & E	WR	NAWCAD : Patuxent River, MD	0.000	0.000		22.565	Nov 2015	23.217	Nov 2016	-		23.217	234.506	280.288	-
Development T & E - Wind Tunnel	Various	Various : Various	1.113	1.300	Apr 2015	0.000		6.664	Nov 2016	-		6.664	0.000	9.077	-
Operational T & E	Various	Various : Various	0.000	0.000		0.648	Nov 2015	0.686	Nov 2016	-		0.686	77.161	78.495	-
Development T & E	Various	Boeing : St Louis, MO	0.000	0.000		2.826	Mar 2016	6.616	Feb 2017	-		6.616	65.507	74.949	74.949
Development T & E	Various	Boeing : St Louis MO	0.000	0.000		0.000		2.231	Dec 2016	-		2.231	37.414	39.645	39.645
Prior year T&E no longer funded in the FYDP	Various	Various : Various	0.558	0.000		0.000		0.000		-		0.000	0.000	0.558	-
Subtotal			1.671	1.300		26.039		39.414		-		39.414	414.588	483.012	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Travel	WR	Various : Various	0.412	0.186	Oct 2014	0.338	Oct 2015	0.345	Oct 2016	-		0.345	1.445	2.726	-
Prior years Mgmt Svcs no longer funded in the FYDP	WR	Various : Various	0.007	0.000		0.000		0.000		-		0.000	0.000	0.007	-
Subtotal			0.419	0.186		0.338		0.345		-		0.345	1.445	2.733	-

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	657.141	224.578	387.770	577.822	-	577.822	1,654.158	3,501.469	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604274N / Next Generation Jammer (NGJ)	Project (Number/Name) 0557 / Next Generation Jammer
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Next Generation Jammer (Increment 1)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021																			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q																
Acquisition Milestones																																												
Milestones	DRRDP ▲				MS B ▲												MS C ▲												IOC ▲															
Systems Development																																												
Hardware Development	Tech Development																																											
Software Development	Engineering & Manufacturing Development																																											
	EDM Deliveries (Qty 15)																																											
	H Build Integration																																											
Test & Evaluation																																												
Technical Evaluation	Integrated Testing																																											
					TEMP 1 ▼																																							
													TEMP 2 ▼																															
Operational Evaluation					EOA																												OA 1 ▼				OTRR ▼				IOT&E			

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604274N / Next Generation Jammer (NGJ)	Project (Number/Name) 0557 / Next Generation Jammer
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Next Generation Jammer (Increment 1) (cont)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	
Engineering Milestones																													
Reviews	SFR		SSR		PDR			IBR			CDR			AERO TRR		AERO FRR	MS TRR	MS FRR	PRR	SVR									Final PRR
Production Milestones																													
Contract Awards						E&MD Award											SDTA (15) RDTE				LRIP 1 (4) APN-5			LRIP 2 (10) APN-5				LRIP 3 (12) APN-5	
Deliveries																													
																													SDTA (4) RDTE Deliveries
																													LRIP 1
																													LRIP 2

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604274N / <i>Next Generation Jammer (NGJ)</i>	Project (Number/Name) 0557 / <i>Next Generation Jammer</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Next Generation Jammer (Increment 1)				
Acquisition Milestones: Milestones: Development RFP Release Decision Point	3	2015	3	2015
Acquisition Milestones: Milestones: Milestone B	2	2016	2	2016
Acquisition Milestones: Milestones: Milestone C	4	2019	4	2019
Acquisition Milestones: Milestones: Initial Operational Capability	4	2021	4	2021
Systems Development: Hardware Development: Technology Development	1	2015	2	2016
Systems Development: Hardware Development: Engineering & Manufacturing Development	2	2016	4	2021
Systems Development: Hardware Development: Engineering Development Model Deliveries	1	2019	2	2020
Systems Development: Software Development: H Build Integration	2	2016	4	2021
Test & Evaluation: Technical Evaluation: NGJ Test & Evaluation Master Plan -1	2	2016	2	2016
Test & Evaluation: Technical Evaluation: Integrated Testing	3	2016	4	2020
Test & Evaluation: Technical Evaluation: NGJ Test & Evaluation Master Plan -2	2	2018	2	2018
Test & Evaluation: Operational Evaluation: Early Operational Assessment	4	2015	1	2016
Test & Evaluation: Operational Evaluation: Operational Assessment 1	3	2019	3	2019
Test & Evaluation: Operational Evaluation: Operational Test Readiness Review	1	2021	1	2021
Test & Evaluation: Operational Evaluation: Initial Operational Test and Evaluation	1	2021	3	2021
Next Generation Jammer (Increment 1) (cont)				
Engineering Milestones: Reviews: System Functional Review	1	2015	1	2015
Engineering Milestones: Reviews: Software Specification Review	3	2015	3	2015
Engineering Milestones: Reviews: Preliminary Design Review	1	2016	1	2016
Engineering Milestones: Reviews: Integrated Baseline Review 2	4	2016	4	2016

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604274N / Next Generation Jammer (NGJ)	Project (Number/Name) 0557 / Next Generation Jammer
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Engineering Milestones: Reviews: Critical Design Review	2	2017	2	2017
Engineering Milestones: Reviews: AERO Test Readiness Review	2	2018	2	2018
Engineering Milestones: Reviews: AERO Flight Readiness Review	3	2018	3	2018
Engineering Milestones: Reviews: MS Test Readiness Review	4	2018	4	2018
Engineering Milestones: Reviews: MS Flight Readiness Review	1	2019	1	2019
Engineering Milestones: Reviews: System Verification Review	3	2019	3	2019
Engineering Milestones: Reviews: Production Readiness Review	2	2019	2	2019
Engineering Milestones: Reviews: Final Production Readiness Review FRP	3	2021	3	2021
Production Milestones: Contract Awards: Engineering & Manufacturing Development Contract Award	2	2016	2	2016
Production Milestones: Contract Awards: System Demonstration Test Article RD TEN Contract Award	2	2019	2	2019
Production Milestones: Contract Awards: Low Rate Initial Production 1 APN-5 Contract Award	4	2019	4	2019
Production Milestones: Contract Awards: Low Rate Initial Production 2 APN-5 Contract Award	2	2020	2	2020
Production Milestones: Contract Awards: Low Rate Initial Production 3 APN-5 Contract Award	2	2021	2	2021
Deliveries: System Demonstration Test Article RD TEN Deliveries	4	2020	1	2021
Deliveries: LRIP 1 Deliveries	2	2021	4	2021
Deliveries: LRIP 2 Deliveries	4	2021	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>					R-1 Program Element (Number/Name) PE 0604280N / <i>JT Tact Radio Sys (JTRS)</i>							
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	7.853	6.725	24.985	2.365	-	2.365	0.513	0.000	0.000	0.000	0.000	42.441
3078: <i>Digital Modular Radio</i>	7.853	6.725	24.985	2.365	-	2.365	0.513	0.000	0.000	0.000	0.000	42.441

A. Mission Description and Budget Item Justification

Digital Modular Radio (DMR) with Integrated Waveform (IW) and Mobile User Objective System (MUOS) capable hardware is the Navy's technical solution for the IW/MUOS requirement. The DMR AN/USC-61(C), is the first software defined radio to have become a communications system standard for the U.S. Military. The compact, multi-channel DMR provides multiple waveforms and multi-level information security for voice and data communications. DMR radios currently operate aboard U.S. Navy surface and subsurface vessels, fixed-sites and other Department of Defense communication platforms using frequencies ranging from 2 MHz to 2 GHz. Certified to pass secure voice and data at Multiple Independent Levels of Security (MILS) over High Frequency (HF), Very High Frequency (VHF), Ultra High Frequency (UHF), and Satellite Communications (SATCOM) channels, the DMR system was developed to the U.S. Navy's specifications and meets all the stringent environmental, Electromagnetic Interference (EMI) and performance requirements for use in the U.S. Fleet. This task is to continue the development/integration of the IW and MUOS waveforms for the DMR in accordance with Military Standards 188-181,2,3, and the High Frequency Distribution Amplifier Group (HFDAG). IW uses a Time Division Multiple Access (TDMA) communication system in an attempt to improve satellite bandwidth utilization over legacy SATCOM waveforms. This enables demand assigned services on UHF SATCOM networks to support new applications that require better performance and higher channel throughput. The MUOS waveform will enable MUOS satellites to provide worldwide communication satellite coverage for DoD requirements. MUOS will provide functionality comparable to commercial mobile phone systems. HFDAG is a follow-on HF solution to fulfill the HF communication capability from 2MHz - 30MHz (transmit) and 2MHz - 30MHz (receive) with ALE, Link 11, FSK, USB, LSB and ISB modes of operation for Navy Modernization Process (NMP) and platforms. HFDAG will utilize the existing DMR as the exciter/receiver.

The budget in FY17 provides funding for the development and integration of the Integrated Waveform (IW) and Mobile User Objective System (MUOS) as well as the software development of the DMR High Frequency Amplifier Link Establishment (HF ALE) GEN3.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	6.945	25.071	2.512	-	2.512
Current President's Budget	6.725	24.985	2.365	-	2.365
Total Adjustments	-0.220	-0.086	-0.147	-	-0.147
• Congressional General Reductions	-	-0.086			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.220	0.000			
• Rate/Misc Adjustments	0.000	0.000	-0.147	-	-0.147

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy Date: February 2016

Appropriation/Budget Activity
1319: *Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)*

R-1 Program Element (Number/Name)
PE 0604280N / *JT Tact Radio Sys (JTRS)*

Change Summary Explanation

Decrease in JT Tact Radio Sys (JTRS) by \$0.1M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604280N / JT Tact Radio Sys (JTRS)				Project (Number/Name) 3078 / Digital Modular Radio			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3078: <i>Digital Modular Radio</i>	7.853	6.725	24.985	2.365	-	2.365	0.513	0.000	0.000	0.000	0.000	42.441
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Digital Modular Radio (DMR) with Integrated Waveform (IW) and Mobile User Objective System (MUOS) capable hardware is the Navy's technical solution for the IW/ MUOS requirement. The DMR AN/USC-61(C), is the first software defined radio to have become a communications system standard for the U.S. Military. See R-2: A. Mission Description and Budget Item Justification for further details.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: DMR	6.725	24.985	2.365	0.000	2.365
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					
Continued the development/integration of the Integrated Waveform (IW) and Mobile User Objective System (MUOS) capabilities into the Digital Modular Radio (DMR) system including system engineering, software development, testing, design reviews, integration, porting and logistics efforts and support acquisition documentation development. Performed IW certification "Dry Run" with Joint Integration Test Command.					
FY 2016 Plans:					
Begin High Frequency Distribution Amplifier Group (HFDAG) test & evaluation including Environmental Testing as well as Shock and Vibe testing. Continue the development/integration of the Integrated Waveform (IW) and Mobile User Objective System (MUOS) capabilities into the Digital Modular Radio (DMR) including system engineering, software development, testing, design reviews, integration, porting and logistics efforts. Perform IW certification efforts with Joint Integration Test Command (JITC). Receive MUOS software drop from vendor for testing and Release Requirements Review (RRR) efforts. Begin DMR High Frequency Amplifier Link Establishment (HF ALE) GEN3 Software development efforts.					
FY 2017 Base Plans:					
Continue the development/integration of the Integrated Waveform (IW), complete development/integration of Mobile User Objective System (MUOS) and DMR High Frequency Amplifier Link Establishment (HF ALE) GEN3 Software development efforts. Continue IW certification efforts with Joint Integration Test Command (JITC) and receive MUOS software drop from vendor for testing and Release Requirements Review (RRR) efforts.					
FY 2017 OCO Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604280N / <i>JT Tact Radio Sys (JTRS)</i>	Project (Number/Name) 3078 / <i>Digital Modular Radio</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
Accomplishments/Planned Programs Subtotals	6.725	24.985	2.365	0.000	2.365

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• OPN/3010: <i>DMR</i> <i>OPN, PE:0303109N</i>	14.410	8.722	17.366	-	17.366	34.030	44.436	53.542	55.300	Continuing	Continuing

Remarks

D. Acquisition Strategy

General Dynamics C4 Systems (GDC4S) owns the technical data rights to the DMR. Due to this fact they are the only contractor with the unique capabilities and technical know how to perform the required design work to complete the IW upgrade and the MUOS interoperability efforts. This scope will be issued as the final increment to GDC4S under the sole source contract, N00039-10-C-0069, as authorized by SPAWAR J&A No. 16,976, signed 3 December 2012 by SPAWAR Executive Director and as authorized by SPAWAR J&A No. 16,351 signed 5 January 2010 by the Assistant Secretary of the Navy (ASN), Research Development and Acquisition (RD&A). SPAWAR Systems Center Pacific (SSC PAC) will continue performing HFDAG system test and evaluation.

E. Performance Metrics

MIL-STD conformance to meet JITC Certification for IW/UHF SATCOM waveform and the MUOS waveform.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604280N / JT Tact Radio Sys (JTRS)	Project (Number/Name) 3078 / Digital Modular Radio
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
IW/MUOS Development	C/CPIF	GDC4S : Scottsdale, AZ	7.853	4.106	Oct 2014	16.598	Oct 2015	0.500	Nov 2016	-		0.500	0.000	29.057	-
HF ALE Development	C/CPIF	GDC4S : Scottsdale, AZ	0.000	0.000		1.994	Mar 2016	1.124	Dec 2016	-		1.124	0.000	3.118	-
Subtotal			7.853	4.106		18.592		1.624		-		1.624	0.000	32.175	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
System Engineering Support	Various	SSC PAC : San Diego, CA	0.000	1.619	Nov 2014	3.540	Nov 2015	0.355	Nov 2016	-		0.355	0.000	5.514	-
Subtotal			0.000	1.619		3.540		0.355		-		0.355	0.000	5.514	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental Testing	Various	SSC PAC : San Diego, CA	0.000	0.500	Oct 2014	1.418	Oct 2015	0.142	Nov 2016	-		0.142	0.000	2.060	-
JITC Testing	WR	JITC : Ft. Huachuca, AZ	0.000	0.000		0.000		0.100	Dec 2016	-		0.100	0.000	0.100	-
Subtotal			0.000	0.500		1.418		0.242		-		0.242	0.000	2.160	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support	C/CPIF	BAH : San Diego, CA	0.000	0.500	Nov 2014	1.435	Nov 2015	0.144	Nov 2016	-		0.144	0.000	2.079	-
Subtotal			0.000	0.500		1.435		0.144		-		0.144	0.000	2.079	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity	R-1 Program Element (Number/Name)				Project (Number/Name)				
1319 / 5	PE 0604280N / JT Tact Radio Sys (JTRS)				3078 / Digital Modular Radio				
	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	7.853	6.725	24.985	2.365	-	2.365	0.000	41.928	-

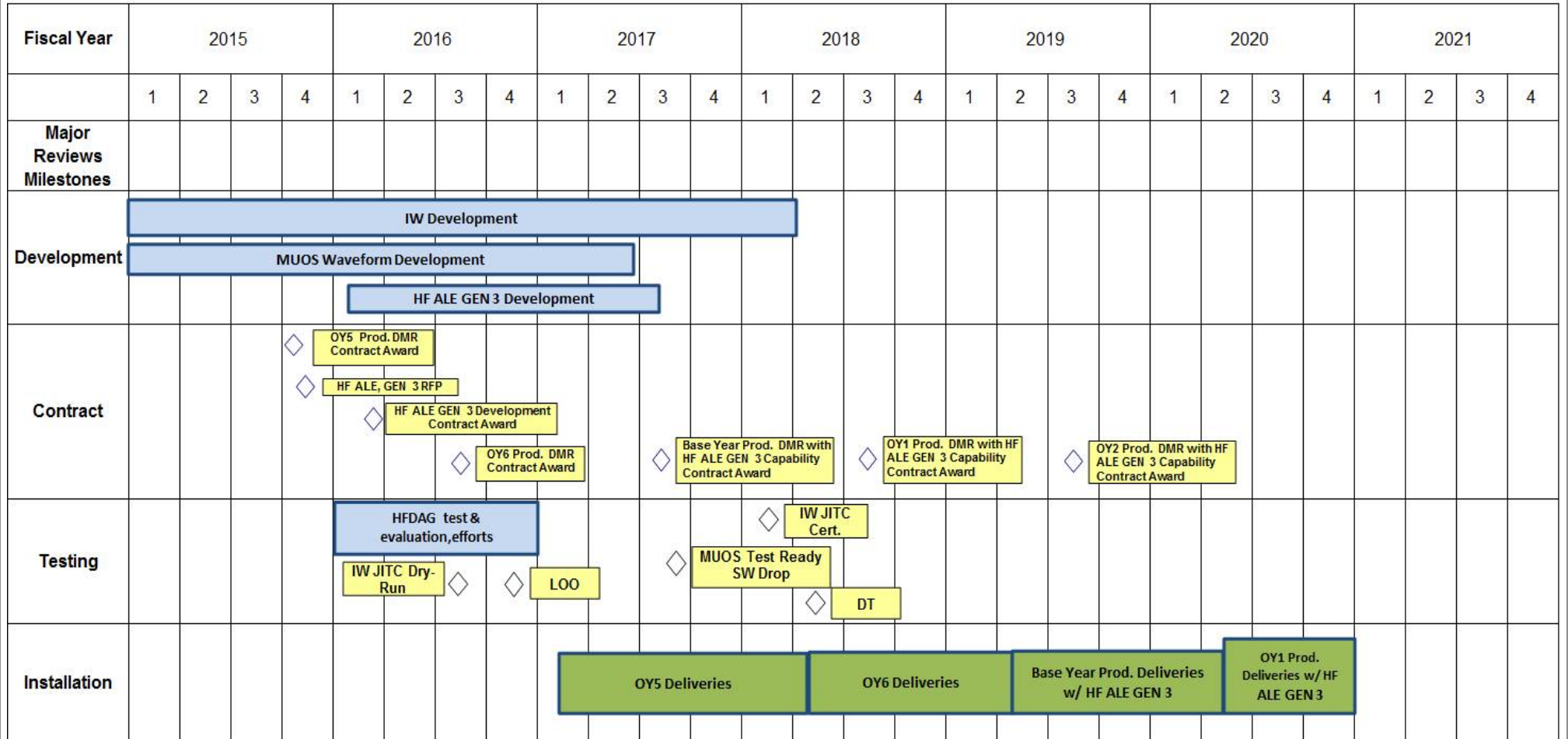
Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604280N / JT Tact Radio Sys (JTRS)	Project (Number/Name) 3078 / Digital Modular Radio
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DMR



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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604280N / <i>JT Tact Radio Sys (JTRS)</i>	Project (Number/Name) 3078 / <i>Digital Modular Radio</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Proj 3078</i>				
IW Development	1	2015	2	2018
MOUS Waveform Development	1	2015	2	2017
HFDAG Test and Evaluation	1	2016	4	2016
DMR Production Contract Award	4	2015	4	2015
HF ALE GEN 3 Development Request for Proposal (RFP)	4	2015	4	2015
MUOS Test Ready Software (SW) Drop	3	2017	3	2017
HF ALE GEN 3 Development Contract Award	1	2016	1	2016
HF ALE GEN 3 Development	1	2016	3	2017
Production Deliveries	1	2017	4	2020
Development Testing (DT)	2	2018	2	2018
IW Dry-Run	3	2016	3	2016
Letter of Observation (LOO)	4	2016	4	2016
IW Certification	1	2018	1	2018

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604282N / <i>Next Generation Jammer (NGJ) Increment II</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	13.000	52.065	-	52.065	76.424	156.730	230.696	194.291	886.204	1,609.410
3380: <i>Next Generation Jammer Inc II</i>	0.000	0.000	13.000	52.065	-	52.065	76.424	156.730	230.696	194.291	886.204	1,609.410

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): P520

A. Mission Description and Budget Item Justification

The Next Generation Jammer (NGJ) is the next step in the evolution of Airborne Electronic Attack (AEA) and is needed to meet current and emerging Electronic Warfare gaps, ensure kill chain wholeness against growing threat capabilities and capacity, and to keep pace with threat weapons systems advances and continuous expansion of the AEA mission area. NGJ is an evolutionary acquisition program providing capability in three increments: Increment 1 (Mid-Band), Increment 2 (Low-Band) and Increment 3 (High-Band). The order of development - mid, low, and then high - was determined by the threat and available capability. Increment 1 is funded under Program Element 0604274N Project Unit 0557.

Next Generation Jammer (NGJ) Increment II capabilities will address low-band AEA capability gaps, AEA sufficiency gaps, and address ALQ-99 Tactical Jamming System shortfalls in scalability, flexibility, supportability, interoperability, availability, and capability.

Next Generation Jammer (NGJ) Increment II will deliver significantly improved radar and communications jamming capabilities with Open Systems Architecture that supports software and hardware updates to rapidly counter improving threats. Additionally, NGJ Inc 2 will contribute across the spectrum of missions defined in the Defense Strategic Guidance to include strike warfare, projecting power despite anti-access/area denial challenges, and counterinsurgency/irregular warfare.

The Next Generation Jammer (NGJ) Increment II program was previously budgeted under PE 0604274N and was moved to PE 0604282N beginning in FY 2016.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604282N / <i>Next Generation Jammer (NGJ) Increment II</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	13.000	52.065	-	52.065
Total Adjustments	0.000	13.000	52.065	-	52.065
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	13.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Rate/Misc Adjustments	0.000	0.000	52.065	-	52.065

Change Summary Explanation

Technical: Not applicable.

Schedule: Schedule updated to reflect a 2Q FY2016 start due to FY2016 Continuing Resolution.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604282N / Next Generation Jammer (NGJ) Increment II				Project (Number/Name) 3380 / Next Generation Jammer Inc II			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3380: Next Generation Jammer Inc II	0.000	0.000	13.000	52.065	-	52.065	76.424	156.730	230.696	194.291	886.204	1,609.410
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: P520

A. Mission Description and Budget Item Justification

The NGJ Increment 2 addresses the mission need for a robust low band radar and communications jamming capability from an airborne platform that will require capabilities beyond the currently deployed system. More specifically, the NGJ will provide Airborne Electronic Attack (AEA) capabilities against advanced radar and digital threats. The development of the NGJ is being conducted in three increments of capability with each increment addressing AEA capability needs within specific "bands" of frequency coverage. Increment 2 provides capability in "Low Band".

The current program plan as phased in FY2017 President's Budget requires FY2016 and FY2017 funding for initial government studies, technology maturity assessments, and program planning. Efforts are required before the FY2018 start of contracted engineering and manufacturing development efforts.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Next Generation Jammer Inc 2 Primary Hardware Development	0.000	5.831	28.714	0.000	28.714
Articles:	-	-	-	-	-
FY 2015 Accomplishments: N/A					
FY 2016 Plans: Perform technology feasibility studies and prototyping efforts in support of validating technology readiness levels and development of technology roadmaps.					
FY 2017 Base Plans: Complete technology feasibility studies and prototyping efforts for major Next Generation Jammer Increment 2 components such as the Amplifier, Antenna/Radome, Hardback, Ram Air Turbine (RAT), and the Digital Payload. These efforts will support the validation of technology readiness levels and development of technology roadmaps leading to the release of the E&MD Request for Proposal in 3Q FY2017 and the development of the Test and Evaluation Master Plan (TEMP). It is anticipated that efforts commenced in FY2016 will ramp up in FY2017 as full staffing is realized and the technology feasibility studies near completion in 3Q FY2017.					
FY 2017 OCO Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604282N / <i>Next Generation Jammer (NGJ) Increment II</i>	Project (Number/Name) 3380 / <i>Next Generation Jammer Inc II</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
Title: Next Generation Jammer Inc 2 Systems Engineering Articles: FY 2015 Accomplishments: N/A FY 2016 Plans: Perform System Engineering efforts in support of Next Generation Jammer Increment 2 development to include Capability Development Document (CDD) updates, initial drafts of a performance specification and a System Engineering Plan and a reliability analysis. FY 2017 Base Plans: Continue Systems Engineering efforts in support of Next Generation Jammer Increment 2 development to include CDD updates and approvals, final performance specification, E&MD Statement of Work and a System Engineering Plan and a reliability analysis in preparation for Engineering and Manufacturing Development Contract Award in FY 2018. FY 2017 OCO Plans: N/A	0.000	6.635	20.352	0.000	20.352
	-	-	-	-	-
Title: Next Generation Jammer Inc 2 Support & Management Services Articles: FY 2015 Accomplishments: N/A FY 2016 Plans: Provide Support and Management Services associated with the Next Generation Jammer Inc 2 Program. FY 2017 Base Plans: Provide Support and Management Services associated with the Next Generation Jammer Inc 2 Program. FY 2017 OCO Plans: N/A	0.000	0.534	0.915	0.000	0.915
	-	-	-	-	-
Title: Next Generation Jammer Inc 2 Test & Evaluation Articles:	0.000	0.000	2.084	0.000	2.084
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604282N / <i>Next Generation Jammer (NGJ) Increment II</i>	Project (Number/Name) 3380 / <i>Next Generation Jammer Inc II</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<i>FY 2015 Accomplishments:</i> N/A					
<i>FY 2016 Plans:</i> N/A					
<i>FY 2017 Base Plans:</i> Develop and complete Next Generation Jammer Increment 2 Test and Evaluation Master Plan.					
<i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	0.000	13.000	52.065	0.000	52.065

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

Next Generation Jammer Increment 2 is a prospective Major Defense Acquisition Program (MDAP) with activity focused on identification of requirements and available technologies needed to counter threats in the "Low Band" frequency range.

E. Performance Metrics

Utilize studies and prototyping efforts to obtain sufficient information to develop system requirements and validate technology readiness levels prior to Milestone B and initiation of the Engineering and Manufacturing Development phase.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604282N / Next Generation Jammer (NGJ) Increment II	Project (Number/Name) 3380 / Next Generation Jammer Inc II
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary H/W Dev - AMP TM Study	Various	Various : Various	0.000	0.000		0.255	Feb 2016	2.070	Dec 2016	-		2.070	0.000	2.325	-
Primary H/W Dev - AMP TM Study	Various	JHU : Laurel, MD	0.000	0.000		0.254	Jul 2016	2.070	Dec 2016	-		2.070	0.000	2.324	2.324
Primary H/W Dev - ANT/RAD TM Study	Various	Various : Various	0.000	0.000		0.139	Feb 2016	0.786	Dec 2016	-		0.786	0.000	0.925	-
Primary H/W Dev - ANT/RAD TM Study	Various	JHU : Laurel, MD	0.000	0.000		0.138	Jul 2016	0.786	Dec 2016	-		0.786	0.000	0.924	0.924
Primary H/W Dev - Hardback TM Study	Various	Various : Various	0.000	0.000		0.138	Feb 2016	0.786	Dec 2016	-		0.786	0.000	0.924	-
Primary H/W Dev - Hardback TM Study	Various	JHU : Laurel, MD	0.000	0.000		0.139	Jul 2016	0.786	Dec 2016	-		0.786	0.000	0.925	0.925
Primary H/W Dev - RAT TM Study	Various	Various : Various	0.000	0.000		0.599	Feb 2016	4.326	Dec 2016	-		4.326	0.000	4.925	-
Primary H/W Dev - RAT TM Study	Various	JHU : Laurel, MD	0.000	0.000		0.599	Jul 2016	4.326	Dec 2016	-		4.326	0.000	4.925	4.925
Primary H/W Dev - Digital Payload	Various	Various : Various	0.000	0.000		0.577	Feb 2016	3.926	Dec 2016	-		3.926	0.000	4.503	-
Primary H/W Dev - Digital Payload	Various	JHU : Laurel, MD	0.000	0.000		0.578	Jul 2016	3.926	Dec 2016	-		3.926	0.000	4.504	4.504
Primary H/W Dev - RAT EMD	C/CPFF	Honeywell : TBD	0.000	0.000		0.000		0.000		-		0.000	22.571	22.571	22.571
Primary H/W Dev - Antenna/Radome Amplfier EMD	C/CPFF	TBD : TBD	0.000	0.000		0.000		0.000		-		0.000	350.968	350.968	350.968
Primary H/W Dev - Exciter EMD	C/CPFF	TBD : TBD	0.000	0.000		0.000		0.000		-		0.000	124.876	124.876	124.876
Primary H/W Dev - Hardback EMD	WR	NSWC Crane : Crane, IN	0.000	0.000		0.000		0.000		-		0.000	25.346	25.346	-
Primary H/W Dev - PSI	WR	TBD : TBD	0.000	0.000		2.414	Feb 2016	4.926	Dec 2016	-		4.926	144.776	152.116	-
Aircraft Int - EMD A/C Integration	C/CPFF	Boeing : St. Louis, MO	0.000	0.000		0.000		0.000		-		0.000	35.659	35.659	35.659

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604282N / Next Generation Jammer (NGJ) Increment II	Project (Number/Name) 3380 / Next Generation Jammer Inc II
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Aircraft Int - EMD A/C Integration	WR	NAWCWD : China Lake, CA	0.000	0.000		0.000		0.000		-		0.000	47.642	47.642	-
Software Int - EMD A/C Integration	Various	Boeing : St. Louis, MO	0.000	0.000		0.000		0.000		-		0.000	148.030	148.030	148.030
Aircraft Int - Loads Aircraft	Various	Boeing : St. Louis, MO	0.000	0.000		0.000		0.000		-		0.000	49.737	49.737	49.737
Systems Engineering	WR	NAWCAD : Patuxent River, MD	0.000	0.000		1.889	Feb 2016	9.159	Dec 2016	-		9.159	100.518	111.566	-
Systems Engineering	WR	NAWCWD : Point Mugu, CA	0.000	0.000		1.033	Feb 2016	4.782	Dec 2016	-		4.782	52.395	58.210	-
Systems Engineering	WR	NSWC Crane : Crane, IN	0.000	0.000		1.641	Feb 2016	3.133	Dec 2016	-		3.133	35.018	39.792	-
Systems Engineering	SS/CPFF	JHU : Laurel, MD	0.000	0.000		2.073	Jul 2016	1.988	Dec 2016	-		1.988	22.617	26.678	26.678
Systems Engineering	WR	NRL : Washington, DC	0.000	0.000		0.000		0.484	Dec 2016	-		0.484	5.240	5.724	-
Systems Engineering	Various	Various : Various	0.000	0.000		0.000		0.806	Dec 2016	-		0.806	8.733	9.539	-
Subtotal			0.000	0.000		12.466		49.066		-		49.066	1,174.126	1,235.658	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Eng & Tech Svc (Non FFRDC)	Various	Various : Various	0.000	0.000		0.480	Mar 2016	0.806	Dec 2016	-		0.806	8.733	10.019	10.019
Subtotal			0.000	0.000		0.480		0.806		-		0.806	8.733	10.019	10.019

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604282N / Next Generation Jammer (NGJ) Increment II	Project (Number/Name) 3380 / Next Generation Jammer Inc II
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Next Generation Jammer (Increment 2)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021					
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q		
Acquisition Milestones											DRRDP ▲				MS B ▲															
Systems Development					Trade Studies												Engineering & Manufacturing Development													
													H Build Integration																	
Test & Evaluation											TEMP ▼																			
Engineering Milestones															SRR-2 ■	IBR ■	SFR ■				PDR ■								CDR ■	
Production Milestones																														
Contract Awards															E&MD Award ●															

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604282N / <i>Next Generation Jammer (NGJ) Increment II</i>	Project (Number/Name) 3380 / <i>Next Generation Jammer Inc II</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Next Generation Jammer (Increment 2)</i>				
Acquisition Milestones: Development RFP Release Decision Point	3	2017	3	2017
Acquisition Milestones: Milestone B	3	2018	3	2018
Systems Development: Trade Studies	2	2016	3	2018
Systems Development: Engineering & Manufacturing Development	3	2018	4	2021
Systems Development: H Build Integration	3	2018	4	2021
Test & Evaluation: NGJ Increment 2 Test & Evaluation Master Plan	4	2017	4	2017
Engineering Milestones: System Readiness Review - 1	4	2016	4	2016
Engineering Milestones: System Readiness Review - 2	3	2018	3	2018
Engineering Milestones: System Functional Review	1	2019	1	2019
Engineering Milestones: Integrated Baseline Review	4	2018	4	2018
Engineering Milestones: Preliminary Design Review	4	2019	4	2019
Engineering Milestones: Critical Design Review	4	2021	4	2021
Contract Awards: Engineering and Manufacturing Development Contract Award	3	2018	3	2018

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)	R-1 Program Element (Number/Name) PE 0604307N / Surface Combatant Cmbt Sys Eng
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	3,174.785	178.430	386.576	282.764	-	282.764	321.628	311.809	261.907	261.246	Continuing	Continuing
1447: Surf Combatant Combat System Imp	3,171.052	169.663	371.899	272.306	-	272.306	313.809	305.235	256.826	256.050	Continuing	Continuing
3357: Aegis Training Improvement Program	3.733	8.767	14.677	10.458	-	10.458	7.819	6.574	5.081	5.196	Continuing	Continuing

Program MDAP/MAIS Code: 180

A. Mission Description and Budget Item Justification

This project provides Cruiser and Destroyer AEGIS Combat System (ACS) upgrades and integrates new equipment and systems to pace the threat and capture advances in technology. Examples of captured advanced technologies are: open architecture, advanced information assurance and initial cyber defense, fiber optics, distributed computing architecture, and high performance computing, all of which require corresponding AEGIS Weapon System (AWS) and ACS changes.

B. Program Change Summary (\$ in Millions)

	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>
Previous President's Budget	179.112	443.433	281.888	-	281.888
Current President's Budget	178.430	386.576	282.764	-	282.764
Total Adjustments	-0.682	-56.857	0.876	-	0.876
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-56.857			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	4.000	0.000			
• SBIR/STTR Transfer	-4.682	0.000			
• Program Adjustments	0.000	0.000	29.970	-	29.970
• Rate/Misc Adjustments	0.000	0.000	-29.094	-	-29.094

Change Summary Explanation

FY15 1447:

SBIR Reduction to support congressional law

\$2.000M: Ship Modernization, Operation and Sustainment Funding (SMOSF) increase to support AEGIS CG Modernization Plan.

\$2.000M: FY15 ATR to support the integration of SeaRAM onto DDG 51 class.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604307N / <i>Surface Combatant Cmbt Sys Eng</i>	
<p>FY16 1447: Increase in funding between FY15 and FY16 is due to the following: Development and Integration of Standard Missile (SM-6) BLK IA and Naval Integrated Fire Control - Counter Air (NIFC-CA) 2019 into AEGIS Advanced Capability Build (ACB) 16 (BL 9.C2) Program of Record in support of Ballistic Missile Defense (BMD) Sea Based Terminal capability and air defense improvements against large missile raids. Addition of Warfighting Improvements (NIFC-2019, BMD improved threat set, Surface Electronic Warfare Improvement Program (SEWIP) BLK II) into AEGIS ACB 20. AEGIS BL 9.A1 (Cruiser Backfit) Development and Integration Introduction of SEARAM into AEGIS BL 5.3 Program of Record. Increased operations and maintenance of the AEGIS Combat System Engineering Development Site (CSEDS) facility to support BL 9.C2, ACB 20, BL 9.A1 and SEARAM integration (4 modified or additional combat system suites) Far Term Interoperability Improvements Project to integrate Identify Friend or Foe (IFF) Mode 5/S.</p> <p>FY16 3357: Increase in funding between FY15 and FY16 is due to the following: Increase to address additional AEGIS ACB16 (BL 9.C2) Training Improvements in support of the additional warfighting scope.</p> <p>FY17 1447: Continue AEGIS Far-Term Interoperability Efforts to integrate IFF Mode 5/S Complete AEGIS BL 5.3 SEARAM Integration and Test Efforts Continue AEGIS BL 9.A1 Development, Integration and Test Efforts Continue AEGIS Advanced Capability Build 16 (BL 9.C2) Development, Integration and Test Efforts with limited Government oversight Continue AEGIS Advanced Capability Build 20 Development, Integration and Test Efforts Continue AEGIS Task Force Cyber Awakening (TFCA) Development, Integration and Test Efforts Begin AEGIS BL 5.3.X Upgrade Efforts FY17 increase is for the AEGIS BL 5.3.X and the Task Force Cyber Awakening projects FY17 decrease due to \$8.323M for Rate/Misc adjustments, \$12.8M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015 and \$7.971M to account for availability of prior year execution balances.</p> <p>FY17 3357: Continue AEGIS ACB16 (BL 9.C2) Training Improvements in support of the additional warfighting scope. Decrease in AEGIS Training Improvement Program by \$0.4M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604307N / <i>Surface Combatant Cmbt Sys Eng</i>				Project (Number/Name) 1447 / <i>Surf Combatant Combat System Imp</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
1447: <i>Surf Combatant Combat System Imp</i>	3,171.052	169.663	371.899	272.306	-	272.306	313.809	305.235	256.826	256.050	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides AEGIS Cruiser & Destroyer ACS upgrades and integrates new equipment and systems to pace the threat and capture advances in technology. The ACS capabilities have continually evolved starting with AEGIS Baseline (BL) 2 on Guided Missile Cruisers (CG) 52-58, BL 3 on CG 59-64, and BL 4 on CG 65-73. In FY 1992, AEGIS BL 5 was introduced on Guided Missile Destroyer (DDG) 51-78, BL 6 on DDG 79-90, BL 7 on DDG 91-112, and BL 9 113 and follow.

The AEGIS Modernization Baselines will provide new technology to replace aging military equipment, extend service life, and maintain combat viability of AEGIS combatants into the future. These baselines reduce combat system maintenance life cycle costs and streamline the development of capabilities. AEGIS BL 8 (Cruiser Modernization) upgraded CG 52-58, while AEGIS BL 9, consisting of an upgraded computing infrastructure and computer program enhancements, will modernize CGs 59,60,62 and DDG 51,52,53,57,61,65 and 69. AEGIS BL 9 will provide updated computer program to CG 52-58 to improve warfighter effectiveness by introducing Naval Integrated Fire Control - Counter Air (NIFC-CA), SM-6 and Fleet Urgent Operational Needs (UONs) and reduce the number of AEGIS Baselines within the AEGIS Fleet. AEGIS BL 9 will also be introduced on the new construction destroyers, starting with DDG 113 and follow.

AEGIS Advanced Capability Build (ACB) 16 and the required Technical Insertion (TI) 16 Computing and Display Plant will provide warfighter upgrades to AEGIS Cruisers and Destroyers to include improved Ballistic Missile Defense (BMD) capabilities (DDG only), SEWIP BLK II, MH-60R Integration, IFF Mode 5/S, SPQ-9B in the Fire Control Loop, Total Ship Training Capability (TSTC), Condition Based Maintenance, Combat System Boundary Defense, NIFC-CA 2019, and NIFC-CA Collateral #3. It will modernize DDG 66-68, 70-73, 79, 81-82, 84, 86-88, modernize CG 63-65, 66-69, 70-73, backfit to TI12 DDG 51-53, 57, 61, 65, 67 and forward fit to new construction DDG 119-123.

AEGIS Advanced Capability Build (ACB) 20 and Technical Insertion (TI) 20 will provide critical warfighter upgrades to AEGIS Destroyers. ACB 20 combat system development and integration efforts will support the Air Missile Defense Radar (AMDR) acquisition milestone requirements and build upon ACB 16 to form the foundation for the AEGIS Flight III DDG Combat System. Provide Computer program updates that can be backfit to AEGIS TI 16 hardware configurations.

AEGIS BL 7.2 will provide a common Computer Program build that consolidates 2 (BL 7.1.3 and BL 7.1R) to one software configuration (BL 7.2) for a 22 ship superset (DDG 91-112). Also addresses operations and maintenance deficiencies to improve warfighting readiness and delivers critical warfighting improvements in air defense.

AEGIS Far Term Interoperability Improvement Plan will address the remaining interoperability issues within fielded AEGIS Combat System configurations to integrate Identify Friend or Foe (IFF) Mode 5/S capabilities. These updates will be implemented in a phased approach to align with current and future AEGIS development efforts.

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AEGIS Task Force Cyber Awakening will assess and provide corrective actions to improve AEGIS Combat System Computer Program and Hardware configurations against emerging threat within the Cyber arena. These improvements will be implemented within AEGIS Combat Systems currently under development.

AEGIS BL 5.3.X will field a single AEGIS Computer Program that merges AEGIS BL 5.3.9 and BMD BL 4.1 enabling a near simultaneous shift from AAW to BMD to AEGIS Flight I/II DDGs to ensure viability against emerging threats until end of service life (ESL). These improvements will include Computer Program updates to integrate the improved radar performance provided by the hardware upgrades to the SPY-1D radar.

AEGIS BL 5.3 SEARAM Integration and Test program will introduce SEARAM as part of the AEGIS Combat System to address Combatant Commander Requirements to improve warfighter capabilities against advanced anti-ship cruise missiles. These updates will be focused on completing integration and test requirements to validate the performance of the integrated capability. These updates will support Demonstration and Operational Test efforts planned for FY16/17.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: AEGIS DEVELOPMENT SUPPORT	30.415	42.077	33.140	0.000	33.140
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					
AEGIS Development Support covered the following areas: AEGIS Technical Design Agent (TDA), AEGIS System Engineering to identify and evaluate emerging threats and support R3B decision process, Commercial Off The Shelf (COTS) Obsolescence evaluation, and AEGIS Development Site Operations and Maintenance.					
The AEGIS TDA continued to evaluate Combat System configuration and provided detailed information on overall performance, identified areas where improvements can be implemented to improve the performance of the Combat System in the Air, Surface and Underwater Combat areas.					
AEGIS System engineering continued to evaluate the Combat System threat capabilities and maintain the Capability Phasing Plan to ensure meaningful improvements are implemented within future Combat System upgrades to meet emergent threats. These efforts were focused on defining the next major upgrade to the AEGIS Combat System (ACB20).					
AEGIS Development Site Operation and Maintenance supported the NJ Land Based Test Sites (LBTS) to ensure adequate hours were available to support the planned development efforts. In FY15 ~2200 hours were required to support AEGIS ACB12 (BL 9.C0/9.C1), AEGIS BL 7.2A/B, AEGIS ACB16 (9.C2) and AEGIS ACB 20					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

(BL 9.CX, BL 10.C0) development efforts at Combat System Engineering Development Sites (CSEDS), Program Generation Center (PGC), and Naval System Computing Center (NSCC).

FY 2016 Plans:

AEGIS Development Support covers the following areas: AEGIS Technical Design Agent (TDA), AEGIS System Engineering to identify and evaluate emerging threats and support R3B decision process, COTS Obsolescence evaluation, and AEGIS Development Site Operations and Maintenance.

The AEGIS TDA will continue to evaluate Combat System configuration and provide detailed information on overall performance, identify areas where improvements can be implemented to improve the performance of the Combat System in the Air, Surface and Underwater Combat areas.

AEGIS System engineering will continue to evaluate the Combat System threat capabilities and maintain the Capability Phasing Plan to ensure meaningful improvements are implemented within future Combat System upgrades to meet emergent threats. These efforts are focused on defining the next major upgrade to the AEGIS Combat System ACB20.

AEGIS Development Site Operation and Maintenance will support NJ Land Based Test Sites (LBTS) to ensure adequate hours are available to support the planned development efforts. In FY16 ~3000 hours were are planned within budget to support AEGIS ACB12 (BL 9.C0/9.C1) AEGIS ACB12 (BL 9.A1), AEGIS BL 7.2A/B, AEGIS ACB16 (9.C2) and AEGIS ACB 20 (BL 9.CX, BL 10.C0) development efforts at Combat System Engineering Development Sites (CSEDS), Program Generation Center (PGC), SPY-1A Test Facility (STF), and Naval System Computing Center (NSCC).

FY 2017 Base Plans:

AEGIS Development Support covers the following areas: AEGIS Technical Design Agent (TDA), AEGIS System Engineering to identify and evaluate emerging threats and support R3B decision process, COTS Obsolescence evaluation, and AEGIS Development Site Operations and Maintenance.

The AEGIS TDA will continue to evaluate Combat System configuration and provide detailed information on overall performance, identify areas where improvements can be implemented to improve the performance of the Combat System in the Air, Surface and Underwater Combat areas.

FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
AEGIS System engineering will continue to evaluate the Combat System threat capabilities and maintain the Capability Phasing Plan to ensure meaningful improvements are implemented within future Combat System upgrades to meet emergent threats. These efforts are focused on defining the next major upgrade to the AEGIS Combat System ACB20.					
AEGIS Development Site Operation and Maintenance will support NJ Land Based Test Sites (LBTS) to ensure adequate hours are available to support the planned development efforts. In FY17 ~2400 hours are planned within budget to support AEGIS BL 5.3.X, AEGIS ACB12 (BL 9.A1), AEGIS ACB16 (9.C2) and AEGIS ACB 20 (BL 9.CX, BL 10.C0) development efforts at Combat System Engineering Development Sites (CSEDS), Program Generation Center (PGC), SPY-1A Test Facility (STF), Naval System Computing Center (NSCC), and Surface Combat System Center (SCSC).					
FY 2017 OCO Plans: N/A					
Title: FAR TERM INTEROPERABILITY IMPROVEMENT PLAN (FTIIP)	0.000	1.000	4.727	0.000	4.727
Articles:	-	-	-	-	-
FY 2015 Accomplishments: N/A					
FY 2016 Plans: Develop and provide comprehensive plan to implement corrective action in a phased approach to address IFF Mode 5/S in conjunction with ongoing AEGIS development efforts. Conduct cross-program Interim Progress Reviews (IPRs).					
FY 2017 Base Plans: Increase due to conducting cross program systems engineering, requirements analysis and definition, software corrections, testing and data analysis to provide functional improvements in the following area: - Correct High Priority Interoperability Computer Program Correction Records (CPCR)specific to IFF Mode 5 & S Conduct cross-program Interim Progress Reviews (IPRs).					
FY 2017 OCO Plans: N/A					
Title: AEGIS BASELINE 7.2A/B	6.400	6.800	0.000	0.000	0.000
Articles:	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p><i>FY 2015 Accomplishments:</i> Performed BL 7.2A installation on lead ship. Performed installations on first two BL 7.2B ships. Supported Lead Ship underway assessment and provided Computer Program updates as required to address Combat System issues identified during initial installations and underway assessment events. Initiated development of follow-on BL 7.2.1 Computer Program Maintenance (CPM) load.</p> <p><i>FY 2016 Plans:</i> Support ship installations and provide BL 7.2.1 Computer Program Maintenance update to address open priority issues identified during deployment workups in order to improve the Combat Systems Operational effectiveness.</p> <p><i>FY 2017 Base Plans:</i> N/A</p> <p><i>FY 2017 OCO Plans:</i> N/A</p>					
<p><i>Title:</i> AEGIS BL 5.3 SEARAM INTEGRATION & TEST</p> <p align="right"><i>Articles:</i></p>	2.000 -	13.000 -	3.000 -	0.000 -	3.000 -
<p><i>FY 2015 Accomplishments:</i> Provided Engineering support to plan and execute testing and integration efforts required to support the Integration of SEARAM with the AEGIS BL 5.3.8 Combat System. Funding required to support AEGIS Integration Test event execution.</p> <p><i>FY 2016 Plans:</i> Provide engineering support to complete integration and test of SEARAM on Forward Deployed Naval Forces (FDNF) AEGIS DDGs. Complete System Qualification Testing, Combat System Certification Panel (CSCP), Software System Safety Technical Review Panel (SSSTRP), and Weapon System Explosive Safety Review Board (WSESRB) to support the integration, testing and certification of the AEGIS Combat System and Computer Program. Conduct Test Readiness Reviews (TRRs), initial ship installation and Combat System Ship Qualification Test (CSSQT).</p> <p><i>FY 2017 Base Plans:</i> Complete ship installations</p> <p><i>FY 2017 OCO Plans:</i></p>					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
Title: TECHNOLOGY INSERTION 12 Articles: FY 2015 Accomplishments: Continued systems engineering support to ACB12 developed and integrated capabilities. FY 2016 Plans: N/A FY 2017 Base Plans: N/A FY 2017 OCO Plans: N/A	0.404	0.000	0.000	0.000	0.000
	-	-	-	-	-
Title: ADVANCED CAPABILITY BUILD 12 (BL 9.A0 / 9.C0) Articles: FY 2015 Accomplishments: Completed certification of BL 9A.0. Continued management and coordination efforts to support BL 9.C0 (Destroyers) at-sea testing and combat system certification. Ensured that ships receive required computer program updates to address radar video, voice communication and controls, console stability and general display stability issues. Completed BL 9C.0 certification. FY 2016 Plans: N/A FY 2017 Base Plans: N/A FY 2017 OCO Plans: N/A	5.722	0.000	0.000	0.000	0.000
	-	-	-	-	-
Title: ADVANCED CAPABILITY BUILD 12 (BL 9.C1) Articles: FY 2015 Accomplishments:	18.000	18.218	0.000	0.000	0.000
	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Continued engineering support to AEGIS ACB 12 (BL 9.C1) to integrate BMD 5.0 CU programs for Joint Assessment of Maintainability (JAM), SSSTRP and WSESRB. Conducted Engineering Assessment, At-Sea testing and Navy Link Certification testing in order to provide Objective Quality Evidence (OQE) toward BL 9.C1 certification. Implemented Computer Program updates to support computer program installation for AEGIS Light-Off (ALO) on DDG 113 and 115, and AEGIS Combat System (ACS) element integration.</p> <p>FY 2016 Plans: Complete initial certification of BL 9.C1 in support of modernized DDGs. Support combat system element changes from PARMs for future ships (DDG 57, 61, 69), including SEWIP Blk II and Consolidated Afloat and Enterprise Service (CANES), and certify these configurations in a follow-on combat system certification effort. Support test event planning and execution for Agile Prism and Surface Warfare test events in NOV 2015 and SM-6 Follow-on Operational Test & Evaluation (FOT&E) events in JAN 2016. For any issues found during events or during land-based testing, investigate issues, fix and if needed deliver critical emergent updates for follow-on events. Support shipboard Sea Trials for DDG 51, 113, 115, 57, 69. Support CSSQT for DDG 51. Conduct authorization efforts for new construction DDGs to support sea trials. Support NIFC-CA Collateral Tactical Demonstration (TACDEMO) test event, including computer program and safety authorization efforts and post-event certification efforts. Support Operational Test events including Cyber security (OCT 2015), Maintenance Demonstration (FEB 2016) and at-sea tracking and live fire events (MAR 2016).</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: ADVANCED CAPABILITY BUILD 12 (BL 9.A1)</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: Provided system engineering, development, integration and test support to implement AEGIS BL 9.A1 Combat System capability (NIFC-CA with SM-6, Agile Prism, Agile Storm & Low Slow Flyer (LSF)) using the existing TI 08 Hardware Configuration currently installed in CG 52-58 and LBTS. Provided Computer Program corrections to the AEGIS Common Source Library (CSL). Provided System Engineering, Requirements Definition, Integration and Test support to complete In-Progress Review (IPR) #1. Identified hardware changes required to update LBTS hardware (Combat System Engineering Development Site (CSEDS)/ Surface Combat System Center (SCSC) / AEGIS Training Readiness Center (ATRC) in support of FY16 Milestones. Began</p>	2.000	53.943	12.666	0.000	12.666
	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>developmental efforts to modify the B/L 9 AWS to accommodate the SPY-1A radar. These efforts were funded by FY 2014 Above Threshold Re-Programming (ATR) funds.</p> <p>FY15 CG Modernization Ship Modernization, Operation and Sustainment Funding (SMOSF) initiated engineering feasibility studies in support of CG Modernization (CG 63-73).</p> <p>FY 2016 Plans: Provide system engineering, development, integration and test support to implement AEGIS BL 9.A1. Support Land Based Test Site hardware updates. Conduct Computer Program Development efforts as a unique effort and then merge the code base with the AEGIS Common Source Library. Conduct System Level testing to validate Combat System requirements and support Combat System Certification process of generating Objective Quality Evidence (OQE). Provide System Engineering, Requirements Definition, Integration and Test support to complete In-Progress Review (IPR) #2 and the Engineering Evaluation of the upgraded B/L.</p> <p>FY 2017 Base Plans: Provide system engineering, development, integration and test support to test and certify AEGIS BL 9.A1. Support Land Based Test Site hardware update at Surface Combat System Center (SCSC). Conduct Computer Program certification efforts as part of the larger AEGIS Weapon System certification process. Support ship installations and provide Computer Program updates to address issues identified during certification assessments in order to improve the Combat Systems operational effectiveness. Procure and begin installation of upgraded hardware in CG 52 through 58.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: ADVANCED CAPABILITY BUILD 16 / TECHNOLOGY INSERTION 16 (BL 9.C2)</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: Provided program management, system engineering, development and test, and procurement activities to support the AEGIS ACB 16 (BL 9.C2) program development. Conducted AEGIS BL 9.C2 Preliminary Design Review (PDR). Continued development of TI-16 Hardware configuration and executed Operating Environment (OE) development. Commenced TI-16 hardware Environmental Qualification Testing (EQT) and updated Technical Data Packages (TDPs). Developed allocated baseline subsystem, hardware, and interface specifications. Developed AEGIS BL</p>	62.784 -	84.102 -	59.485 -	0.000 -	59.485 -

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>9.C2 Computer Program Build 1. Conducted TI 16 Common Display System (CDS) Preliminary Design Review (PDR) and Critical Design Review (CDR).</p> <p>FY 2016 Plans: Provide program management, system engineering, development and test, and procurement activities with limited government oversight to support the AEGIS ACB 16 (BL 9.C2) Capability Package (CP) 1 and 2 program development. In support of AEGIS BL 9.C2 CP 1 on TI12, conduct two Software Increment Reviews (SWIRs). Continue development and testing of computer program. Merge code with Common Source Library Mainline at Build 21.A with BMD 5.1. Complete installation on USS JOHN PAUL JONES (DDG 53) and support authorization efforts for At-Sea test event in Q4. Continue Development, Integration and Test of NIFC-CA and SEWIP Capabilities.</p> <p>FY 2017 Base Plans: Provide program management, system engineering, development and test, and procurement activities with limited government oversight to support the AEGIS ACB 16 (BL 9.C2) CP 1 and CP 2 program development. Complete development and testing of AEGIS BL 9.C2 CP1 Build 24. Support authorization efforts for At-Sea test events in Q2 and Q4. Conduct two Demos to demonstrate the full breadth of functionality and mitigate risk of test completion prior to certification. Continue development and testing of AEGIS BL 9.C2 CP 2 on TI12H and TI16. Conduct IPR #2 and #3. Merge code with Common Source Library Mainline at Build 24A.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: ADVANCED CAPABILITY BUILD 20 / TECHNOLOGY INSERTION 20</p> <p align="right">Articles:</p>	41.938	138.804	115.978	0.000	115.978
<p>FY 2015 Accomplishments: Provided system engineering support to develop the Combat System Interface Support Equipment (CS ISE) design artifacts, including A-Spec requirements, System/Sub-System Design Description (SSDD), B-1 system requirements, select B5 sub-system requirements, Combat System Early Integration Plan (CSEIP), and continued to develop the SPY-6 Advance Missile Defense Radar (AMDR) External Interface Requirement Specification (IRS) and Interface Design Description (IDD) for the CS ISE. Executed CS ISE SFR and Preliminary Design Review (PDR). Began developing CS ISE Computer Program Build 1 and initiated desktop testing. Provided system engineering support to complete ACB 20 Naval Capabilities Document (NCD) including all capabilities identified in the final R3B letter signed 03 March 2015 in support of final approval in Q1FY16 Continued to evaluate early Combat System Integration and Test strategies to support SPY-6 Milestone</p>	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>C. Provided system engineering support to the execution of SPY-6 Hardware/Software (HW/SW) Critical Design Review (CDR) and SPY-6 computer program development. Provided management, engineering and test support for the planning and execution of land based testing at Advanced Radar Detection Laboratory (ARDEL) to include Combat System Interface Support Equipment (CS ISE) development, maintenance and operations. Conducted ACB 20 IPR #1 and established initial baseline development plan in alignment with Flight III fielding.</p> <p>FY 2016 Plans: In support of DDG FLT III with AMDR, provide system engineering to finalize all B-1 system and B-5 sub-system requirement specifications, update the Interface Requirement Specification (IRS) and Interface Design Description (IDD) to execute CS ISE Critical Design Review (CDR). Complete CS ISE Computer Program Builds 1-3 and begin developing Computer Program Build 4. Complete CS ISE desktop testing and execute CS ISE Developmental Testing (DT) phase 1. Begin executing CS ISE DT phase 2. Execute two Joint Test Program Reviews (JTPRs) to verify status and alignment between all programs participating in SPY-6 Milestone C testing. Conduct ACB 20 IPR #2 to provide insight to the approved NCD capabilities and expected performance. Provide system engineering to complete artifacts to execute TI Next Systems Requirements Review (SRR) and ACB 20 Phase 0 SRR/System Functional Review (SFR). Support development of BMD 6 artifacts and execution of BMD 6 SRR. Provide system engineering to the execution of SPY-6 Integration & Testing. Continue to provide management, engineering and test support for the planning and execution of land based testing at Advanced Radar Detection Laboratory (ARDEL) to include CS ISE development, maintenance and operations. Provide systems engineering to support completion of Flight III ship design, including required updates to TI 16 in support of the lead Flight III ships, and conduct TI 16 (Flight III) IPR #1 to review required updates.</p> <p>FY 2017 Base Plans: Complete development of Combat System Interface Support Equipment (CS ISE) Builds 4 & 5 and complete CS ISE Developmental Testing (DT) phase 2. Participate in SPY-6 DT-3 test planning and analysis process. Prepare Test Plans and conduct CS ISE Combat System Integration Test (CIT) Test Readiness Reviews (TRRs) for CIT events 1 & 2. Execute CIT-1 at developer site with CS ISE and SPY-6 emulator, and execute CIT-2 at the Advanced Radar Detection Laboratory (ARDEL) at PMRF with CS ISE and SPY-6 EDM Conduct post event analysis and provide reporting to support the SPY-6 Milestone C decision. Support development of BMD 6 artifacts and execution of BMD 6 SFR. Update Technical Data Packages (TDPs) for TI 16 in support of Flight III fielding. Complete systems engineering to develop artifacts and execute the TI Next Preliminary Design Review (PDR). Complete systems engineering to develop artifacts for the ACB 20/BMD 6 PDR and TI Next Critical Design Review (CDR). Complete ACB 20 Modeling and Simulation required for performance analysis in support</p>					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
of the ACB 20 design. Support Mk 160 Guns Control System (GCS) and Cooperative Engagement Capability (CEC) SRRs. FY 2017 OCO Plans: N/A					
Title: AEGIS BL 5.3.X UPGRADE FY 2015 Accomplishments: N/A FY 2016 Plans: N/A FY 2017 Base Plans: Increase due to initial effort. Provide engineering support to AEGIS Baseline (BL) 5.3.X efforts to field a single Combat System, BL5.3.X. BMD BL 4.1 and AEGIS Weapon System (AWS) BL 5.3.9 will be merged into one single computer program, BL 5.3.X, enabling a near simultaneous shift from AAW to BMD. This effort provides system engineering analysis to develop SW upgrades to the AEGIS Weapon System computer program which will enhance warfighting capability. AEGIS B/L 5.3.X is planned for fielding on Flight I/II DDGs allowing these ships to remain relevant through their Expected Service Life (ESL). Update system performance requirements based upon the improved capabilities of the new AWS. Generate development, test and certification schedules in support of fielding plans. Provide engineering support for a joint Missile Defense Agency (MDA)/ United State Navy (USN) System Design Review (SDR) / Preliminary Design Review (PDR). FY 2017 OCO Plans: N/A	0.000	0.000	31.400	0.000	31.400
Articles:	-	-	-	-	-
Title: TASK FORCE CYBER AWAKENING FY 2015 Accomplishments: N/A FY 2016 Plans: Initiate development and integration of cybersecurity capabilities into all phases of the AEGIS Combat System of systems engineering process in order to detect and protect against cyber-attacks, enable operators to react	0.000	13.955	11.910	0.000	11.910
Articles:	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
to prevent damage and restore combat capability within an acceptable timeframe. Conduct Combat System Engineering to map interconnections, ports, protocols, interfaces and vulnerabilities that will characterize potential attack vectors, inform design decisions, and guide migration to CYBERSAFE specified criticality focused enclave architectures. Conduct combat system testing to evaluate legacy vulnerabilities and identify gaps to inform analysis of alternatives, design, develop, test, and integration of cybersecurity solutions. Initiate the development of Boundary Defense Capability (Firewall, Intrusion Detection System, External Cross Domain Solutions, Bulk Data Transfer Services), Centralized Cybersecurity Capabilities (Router/Switch, Internal Cross Domain Solutions, Host Based Intrusion Detection, Anti-Virus Management, Security Information and Event Manager, and Certificate Management), and Element System Capabilities (Networks, Hosts, Applications, Data in Transit, Data at Rest, Removable Media Control). Conduct cyber security hardware, software, and appliance trade studies to establish preliminary hardware design and logistics package development.					
<i>FY 2017 Base Plans:</i> Continue planning and preliminary design efforts using vulnerabilities and threats identified in FY16 to inform analysis of alternatives leading to final design. Consolidate findings of FY16 testing and system mapping to inform ongoing design and development decisions. Continue FY16 engineering effort to migrate combat system to CYBERSAFE specified criticality focused enclave architectures. Continue development leading to final design of Boundary Defense Capability (Firewall, Intrusion Detection System, External Cross Domain Solutions, Bulk Data Transfer Services), Centralized Cybersecurity Capabilities (Router/Switch, Internal Cross Domain Solutions, Host Based Intrusion Detection, Anti-Virus Management, Security Information and Event Manager, and Certificate Management), and Element System Capabilities (Networks, Hosts, Applications, Data in Transit, Data at Rest, Removable Media Control). Integrate IA Toolkit into baseline combat system security software. Finalize cyber security hardware, software, and appliance trade studies to establish hardware design. Develop logistics documentation and training material.					
<i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	169.663	371.899	272.306	0.000	272.306

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• R&D 0604501N: <i>Multi Mission Signal Processor</i>	9.372	13.432	2.279	-	2.279	2.424	2.503	2.567	2.856	Continuing	Continuing

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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017	FY 2017	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Cost To	
			Base	OCO	Total					Complete	Total Cost
• SCN 2122: <i>DDG 51</i>	2,924.381	4,207.664	3,227.251	-	3,227.251	3,532.909	3,545.913	3,595.403	3,665.113	3,736.315	98,562.978
• OPN 0900: <i>DDG Modernization</i>	324.219	421.195	367.766	-	367.766	636.893	585.026	585.003	658.303	4,517.590	9,611.783
• R&D 0604378N	14.903	23.695	25.750	-	25.750	27.359	29.092	25.767	25.694	Continuing	Continuing
PU 3159: <i>NIFC-CA</i>											
• OPN 5231: <i>Ship Missile Support Equipment (AEGIS Support Equipment)</i>	143.570	276.503	320.446	-	320.446	302.644	255.402	247.983	269.126	Continuing	Continuing
• SCN/5110: <i>Outfitting/Post Delivery</i>	474.629	613.758	666.158	-	666.158	580.625	587.932	578.393	563.368	619.001	5,198.906

Remarks

D. Acquisition Strategy

Combat system improvements are implemented in baselines as described in the project mission statement. After the combat system is completed and tested, the computer program and associated equipment are delivered to the new construction shipbuilders and modernization shipyards where the computer program and equipment are installed and tested along with all other elements of the shipboard combat system and associated combat support systems. The computer program is a Government Furnished Computer Program (GFCP) deliverable to the Production Test Center for equipment test and check out. Future Combat System deliveries will be provided in Advanced Capability Builds (ACBs) and Technology Insertions (TIs) using the Combat System Engineering Agent (CSEA) contract. Additional modifications to the existing contracts will address B/L 9 completion (new construction), ACB 16 additional warfighting improvements, and ACB 20 engineering development efforts related to DDG FLT III, as approved by OPNAV.

E. Performance Metrics

Combat system development efforts will complete major development milestones.

Major Milestones for ACB 12 (BL 9.A0/9.C0):

Completed BL 9.A0 Combat System Certification Panel second quarter of FY15.

Completed BL 9.C1 Combat System Certification Panel first quarter of FY16.

Major Milestones for ACB 12 (BL 9.C1):

Completed Engineering Assessment in first quarter of FY15.

Completed BL 9.C1 Combat System Certification Panel first quarter of FY16.

DDG 113 / 115 Sea Trials A/B/C second-fourth quarters of FY16.

Major Milestones for ACB 12 (BL 9.A1):

Completed In-Progress Review (IPR) #1 fourth quarter of FY15.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604307N / <i>Surface Combatant Cmbt Sys Eng</i>	Project (Number/Name) 1447 / <i>Surf Combatant Combat System Imp</i>
<p>LBTS Upgrades third quarter FY16. In-Progress Review (IPR) #2 second quarter of FY17. BL 9.A1 Combat System Certification Panel third quarter of FY18.</p> <p>Major Milestones for ACB 16 (BL 9.C2): Completed ACB 16 Preliminary Design Review (PDR) first quarter FY15. Completed ACB 16 Software Increment Review (SWIR) #1 third quarter FY15. Completed ACB 16 Delta System Requirements Review (SRR) third quarter FY15. Completed ACB 16 Delta System Functional Review (SFR) third quarter FY15. Completed ACB 16 Software Increment Review (SWIR) #2 fourth quarter FY15. ACB 16 In Progress Review (IPR) #1 Third quarter FY16. ACB16 In Progress Review (IPR) #2 first quarter FY17. ACB16 In Progress Review (IPR) #3 third quarter FY17. ACB16 In Progress Review (IPR) #4 first quarter FY18. ACB 16 BL 9.C2.0 Combat System Certification Panel (CSCP) TI12 Configuration third quarter FY18. ACB16 In Progress Review (IPR) #5 third quarter FY18. ACB16 In Progress Review (IPR) #6 first quarter FY19. ACB16 In Progress Review (IPR) #7 third quarter FY19. ACB 16 BL 9.C2.0 Combat System Certification Panel (CSCP) TI12H Configuration fourth quarter FY19. ACB 16 BL 9.C2.1 Combat System Certification Panel (CSCP) TI16 Configuration fourth quarter FY20.</p> <p>Major Milestones for ACB 20 / TI 20: Completed Combat System Interface Support Equipment System Functional Review (SFR) first quarter FY15. Completed Combat System Interface Support Equipment Preliminary Design Review (PDR) third quarter FY15. Combat System Interface Support Equipment Critical Design Review (CDR) second quarter FY16. ACB 20 System Requirements Review (SRR) fourth quarter FY16. ACB 20 System Functional Review (SFR) fourth quarter FY16. Combat System Interface Support Equipment Combat Interface Test (CIT) #1 second quarter FY17. Combat System Interface Support Equipment Delivery third quarter FY17. Combat System Interface Support Equipment Combat Interface Test (CIT) #2 fourth quarter FY17. ACB 20 Preliminary Design Review (PDR) first quarter FY18. ACB 20 Critical Design Review (CDR) second quarter FY19. ACB 20 Test Readiness Review (TRR) first quarter FY21. ACB 20 Demonstration Test (DEMO) second quarter FY21.</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604307N / <i>Surface Combatant Cmbt Sys Eng</i>	Project (Number/Name) 1447 / <i>Surf Combatant Combat System Imp</i>
<p>Major Milestones for AEGIS Baseline 7.2 (formerly 7.1R Backfit): Completed Lead Ship Installation from fourth quarter FY14 through second quarter FY15. Completed Combat System Certification Panel BL 7.2.1 third quarter FY15.</p> <p>Major Milestones for Far Term Interoperability Improvement Plan (FTIIP): Kickoff third quarter FY16. In-Progress Review (IPR) #1 fourth quarter FY16. In-Progress Review (IPR) #2 fourth quarter FY17. Multi-Site Interoperability Development and Certification Testing Event #1 first quarter FY18. In-Progress Review (IPR) #3 fourth quarter FY18. Multi-Site Interoperability Development and Certification Testing Event #2 first quarter FY19. In-Progress Review (IPR) #4 fourth quarter FY19. Combat System Certification Panel (CSCP) first quarter FY20.</p> <p>Major Milestones for AEGIS BL 5.3 SEARAM Integration: In Progress Review (IPR) #1 second quarter FY16. Test Readiness Review (TRR) second quarter FY16. Underway Testing third quarter FY16 to second quarter FY17.</p> <p>Major Milestones for AEGIS BL 5.3.X Upgrade (LNA): Software System Design Review (SDR) third quarter FY17. Software Preliminary Design Review (PDR) third quarter FY17. Software Critical Design Review (CDR) second quarter FY18. Software Test Readiness Review (TRR) third quarter FY18. Software Engineering Assessment second quarter of FY19. Hardware System Requirements Review second quarter FY19. Software Combat System Certification Panel (CSCP) fourth quarter FY19. Hardware System Design Review (SDR) second quarter FY20. Hardware Preliminary Design Review (PDR) second quarter FY20. Hardware Critical Design Review (CDR) second quarter FY21. Hardware Test Readiness Review (TRR) third quarter FY21.</p> <p>Major Milestones for Task Force Cyber Awakening (TFCA): Task Force Cyber Awakening Kick Off in second quarter FY16. In-Progress Review (IPR) #1 fourth quarter FY16. In-Progress Review (IPR) #2 second quarter FY17.</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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In-Progress Review (IPR) #3 fourth quarter FY17. In-Progress Review (IPR) #4 second quarter FY18. In-Progress Review (IPR) #5 fourth quarter FY18. In-Progress Review (IPR) #6 second quarter FY19. In-Progress Review (IPR) #7 fourth quarter FY19. In-Progress Review (IPR) #8 second quarter FY20. In-Progress Review (IPR) #9 fourth quarter FY20. In-Progress Review (IPR) #10 second quarter FY21.		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604307N / <i>Surface Combatant Cmbt Sys Eng</i>	Project (Number/Name) 1447 / <i>Surf Combatant Combat System Imp</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	C/CPIF	Lockheed Martin : Moorestown, NJ	2,075.214	97.159	Oct 2014	256.246	Oct 2015	185.322	Oct 2016	-		185.322	Continuing	Continuing	Continuing
Systems Engineering	SS/CPFF	APL : Baltimore, MD	68.217	7.398	Oct 2014	11.155	Oct 2015	13.892	Oct 2016	-		13.892	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC : Dahlgren, VA	379.944	29.816	Oct 2014	35.458	Oct 2015	36.247	Oct 2016	-		36.247	Continuing	Continuing	Continuing
Systems Engineering	SS/CPAF	BAE Systems : Rockville, MD	48.665	3.237	Oct 2014	4.968	Oct 2015	5.263	Oct 2016	-		5.263	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC : Port Hueneme, CA	70.224	4.941	Oct 2014	6.290	Oct 2015	7.846	Oct 2016	-		7.846	Continuing	Continuing	Continuing
Systems Engineering	WR	NWAS : Corona, CA	31.066	0.866	Oct 2014	2.950	Oct 2015	3.168	Oct 2016	-		3.168	Continuing	Continuing	Continuing
Systems Engineering	WR	SPAWAR : San Diego, CA	11.377	0.615	Oct 2014	0.315	Oct 2015	0.625	Oct 2016	-		0.625	Continuing	Continuing	Continuing
Systems Engineering	WR	Various : Various	141.440	13.355	Oct 2014	11.621	Oct 2015	10.879	Oct 2016	-		10.879	Continuing	Continuing	Continuing
Award fees	SS/CPAF	Lockheed Martin : Moorestown, NJ	232.817	6.432	Oct 2014	34.845	Oct 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Award fees	SS/CPAF	BAE Systems : Rockville, MD	2.479	0.124	Oct 2014	1.250	Oct 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Award fees	SS/CPAF	Alion Science : Washington DC	2.134	0.000	Oct 2014	0.786	Oct 2015	0.000		-		0.000	0.000	2.920	-
Award fees	WR	Various : Various	8.796	0.433	Oct 2014	0.251	Oct 2015	0.261	Oct 2016	-		0.261	Continuing	Continuing	Continuing
Subtotal			3,072.373	164.376		366.135		263.503		-		263.503	-	-	-

Remarks
 Various Performing Activities consist of multiple performing activities with funding for each no greater than \$1 million per year. These larger performing activities include CDSA Dam Neck and NSWC/Crane.

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation	WR	Department of Interior : Boise, Idaho	40.718	0.830	Oct 2014	0.950	Oct 2015	1.281	Oct 2016	-		1.281	Continuing	Continuing	Continuing

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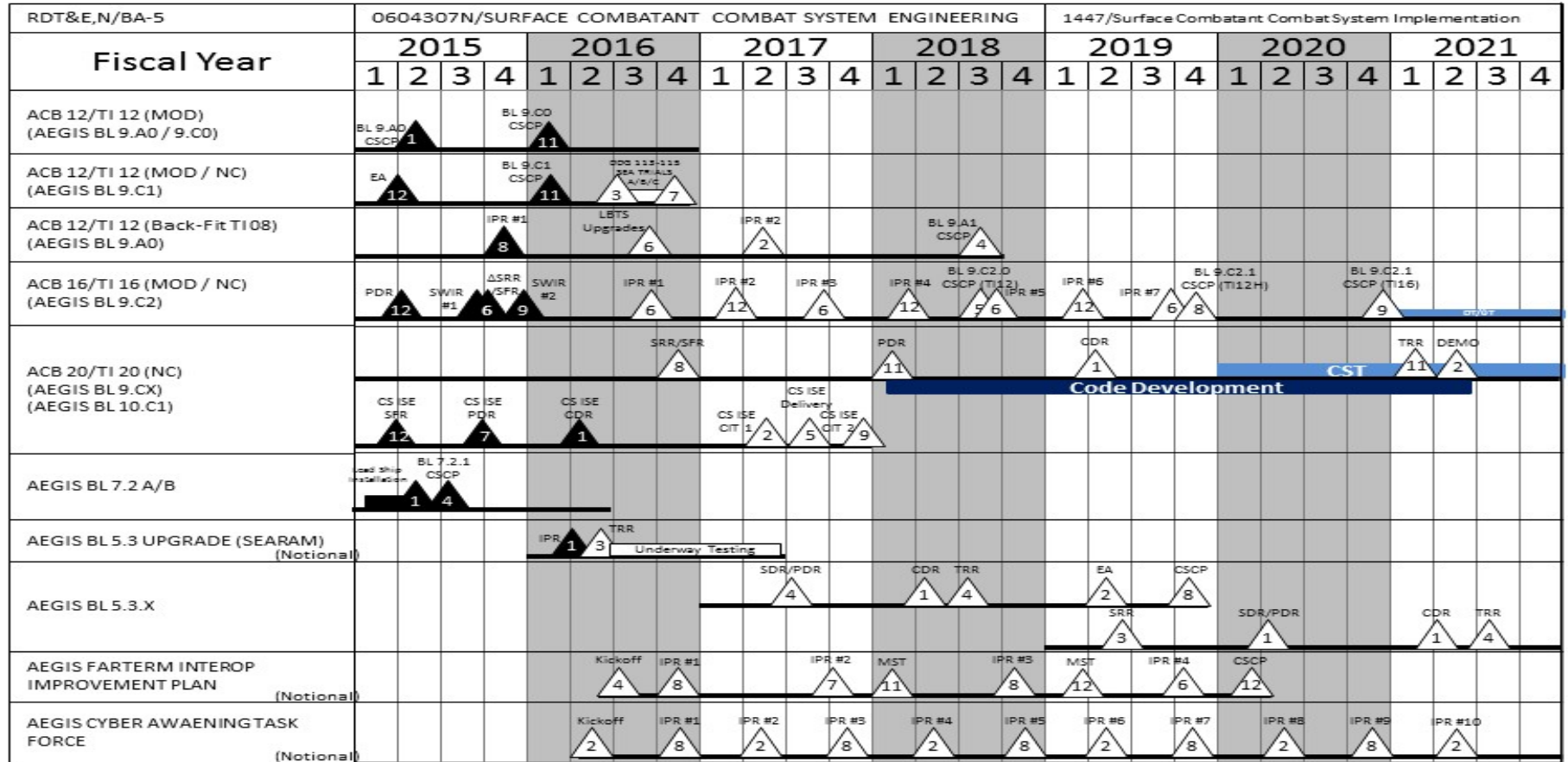
Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy

Date: February 2016

Appropriation/Budget Activity
1319 / 5

R-1 Program Element (Number/Name)
PE 0604307N / Surface Combatant Cmbt
Sys Eng

Project (Number/Name)
1447 / Surf Combatant Combat System Imp



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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604307N / <i>Surface Combatant Cmbt Sys Eng</i>	Project (Number/Name) 1447 / <i>Surf Combatant Combat System Imp</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 1447				
ADVANCE CAPABILITY BUILD 12 (BL 9.A0 / 9.C0): ACB 12 (BL 9.A0) COMPUTER PROGRAM CERTIFICATION PANEL	2	2015	2	2015
ADVANCE CAPABILITY BUILD 12 (BL 9.A0 / 9.C0): ACB 12 (BL 9.C0) COMPUTER PROGRAM CERTIFICATION PANEL	1	2016	1	2016
ADVANCE CAPABILITY BUILD 12 (BL 9.C1): ACB 12 (BL 9.C1) ENGINEERING ASSESSMENT	1	2015	1	2015
ADVANCE CAPABILITY BUILD 12 (BL 9.C1): ACB 12 (BL 9.C1) COMPUTER PROGRAM CERTIFICATION PANEL	1	2016	1	2016
ADVANCE CAPABILITY BUILD 12 (BL 9.C1): ACB 12 (BL 9.C1) DDG 113/115 SEA TRIALS A/B/C	2	2016	4	2016
ADVANCED CAPABILITY BUILD 12 (BL 9.A1): ACB 12 (BL 9.A1) IN-PROGRESS REVIEW #1	4	2015	4	2015
ADVANCED CAPABILITY BUILD 12 (BL 9.A1): ACB 12 (BL 9.A1) LAND BASED TEST SITE UPGRADE	3	2016	3	2016
ADVANCED CAPABILITY BUILD 12 (BL 9.A1): ACB 12 (BL 9.A1) IN-PROGRESS REVIEW #2	2	2017	2	2017
ADVANCED CAPABILITY BUILD 12 (BL 9.A1): ACB 12 (BL 9.A1) COMPUTER PROGRAM CERTIFICATION PANEL	3	2018	3	2018
ADVANCED CAPABILITY BUILD 16 (BL 9.C2): ACB 16 (BL 9.C2) PRELIMINARY DESIGN REVIEW	1	2015	1	2015
ADVANCED CAPABILITY BUILD 16 (BL 9.C2): ACB 16 (BL 9.C2) SOFTWARE INCREMENT REVIEW #1	3	2015	3	2015
ADVANCED CAPABILITY BUILD 16 (BL 9.C2): ACB 16 (BL 9.C2) DELTA SYSTEM REQUIREMENTS REVIEW	3	2015	3	2015

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604307N / <i>Surface Combatant Cmbt Sys Eng</i>	Project (Number/Name) 1447 / <i>Surf Combatant Combat System Imp</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
ADVANCED CAPABILITY BUILD 16 (BL 9.C2): ACB 16 (BL 9.C2) DELTA SYSTEM FUNCTIONAL REVIEW	3	2015	3	2015
ADVANCED CAPABILITY BUILD 16 (BL 9.C2): ACB 16 (BL 9.C2) SOFTWARE INCREMENT REVIEW #2	4	2015	4	2015
ADVANCED CAPABILITY BUILD 16 (BL 9.C2): ACB 16 (BL 9.C2) IN PROGRESS REVIEW #1	3	2016	3	2016
ADVANCED CAPABILITY BUILD 16 (BL 9.C2): ACB 16 (BL 9.C2) IN PROGRESS REVIEW #2	1	2017	1	2017
ADVANCED CAPABILITY BUILD 16 (BL 9.C2): ACB 16 (BL 9.C2) IN PROGRESS REVIEW #3	3	2017	3	2017
ADVANCED CAPABILITY BUILD 16 (BL 9.C2): ACB 16 (BL 9.C2) IN PROGRESS REVIEW #4	1	2018	1	2018
ADVANCED CAPABILITY BUILD 16 (BL 9.C2): ACB 16 (BL 9.C2.0) COMBAT SYSTEM CERTIFICATION PANEL (TI12)	3	2018	3	2018
ADVANCED CAPABILITY BUILD 16 (BL 9.C2): ACB 16 (BL 9.C2) IN PROGRESS REVIEW #5	3	2018	3	2018
ADVANCED CAPABILITY BUILD 16 (BL 9.C2): ACB 16 (BL 9.C2) IN PROGRESS REVIEW #6	1	2019	1	2019
ADVANCED CAPABILITY BUILD 16 (BL 9.C2): ACB 16 (BL 9.C2) IN PROGRESS REVIEW #7	3	2019	3	2019
ADVANCED CAPABILITY BUILD 16 (BL 9.C2): ACB 16 (BL 9.C2.1) COMBAT SYSTEM CERTIFICATION PANEL (TI12H)	4	2019	4	2019
ADVANCED CAPABILITY BUILD 16 (BL 9.C2): ACB 16 (BL 9.C2.1) COMBAT SYSTEM CERTIFICATION PANEL (TI16)	4	2020	4	2020
ADVANCED CAPABILITY BUILD 20: CS ISE SYSTEM FUNCTIONAL REVIEW	1	2015	1	2015
ADVANCED CAPABILITY BUILD 20: CS ISE PRELIMINARY DESIGN REVIEW	3	2015	3	2015
ADVANCED CAPABILITY BUILD 20: CS ISE CRITICAL DESIGN REVIEW	2	2016	2	2016
ADVANCED CAPABILITY BUILD 20: ACB 20 SYSTEM REQUIREMENTS REVIEW	4	2016	4	2016

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604307N / <i>Surface Combatant Cmbt Sys Eng</i>	Project (Number/Name) 1447 / <i>Surf Combatant Combat System Imp</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
ADVANCED CAPABILITY BUILD 20: ACB 20 SYSTEM FUNCTIONAL REVIEW	4	2016	4	2016
ADVANCED CAPABILITY BUILD 20: CS ISE COMBAT INTERFACE TEST #1	2	2017	2	2017
ADVANCED CAPABILITY BUILD 20: CS ISE DELIVERY	3	2017	3	2017
ADVANCED CAPABILITY BUILD 20: CS ISE COMBAT INTERFACE TEST #2	4	2017	4	2017
ADVANCED CAPABILITY BUILD 20: ACB 20 PRELIMINARY DESIGN REVIEW	1	2018	1	2018
ADVANCED CAPABILITY BUILD 20: ACB 20 CRITICAL DESIGN REVIEW	2	2019	2	2019
ADVANCED CAPABILITY BUILD 20: ACB 20 TEST READINESS REVIEW	1	2021	1	2021
ADVANCED CAPABILITY BUILD 20: ACB 20 DEMONSTRATION	2	2021	2	2021
AEGIS BL 7.2: AEGIS BL 7.2 LEAD SHIP INSTALLATION	1	2015	2	2015
AEGIS BL 7.2: AEGIS BL 7.2.1 COMBAT SYSTEM CERTIFICATION PANEL	3	2015	3	2015
FAR TERM INTEROPERABILITY IMPROVEMENTS PLAN: FTIIP KICKOFF	3	2016	3	2016
FAR TERM INTEROPERABILITY IMPROVEMENTS PLAN: FTIIP IN-PROGRESS REVIEW #1	3	2016	3	2016
FAR TERM INTEROPERABILITY IMPROVEMENTS PLAN: FTIIP IN-PROGRESS REVIEW #2	4	2017	4	2017
FAR TERM INTEROPERABILITY IMPROVEMENTS PLAN: FTIIP MULTI SITE TEST EVENT #1	1	2018	1	2018
FAR TERM INTEROPERABILITY IMPROVEMENTS PLAN: FTIIP IN-PROGRESS REVIEW #3	4	2018	4	2018
FAR TERM INTEROPERABILITY IMPROVEMENTS PLAN: FTIIP MULTI SITE TEST EVENT #2	1	2019	1	2019
FAR TERM INTEROPERABILITY IMPROVEMENTS PLAN: FTIIP IN-PROGRESS REVIEW #4	4	2019	4	2019
FAR TERM INTEROPERABILITY IMPROVEMENTS PLAN: COMBAT SYTEM CERTIFICATION PANEL	1	2020	1	2020
AEGIS BL 5.3.9 SEARAM INT & TEST EFFORT: BL 5.3.9 IN-PROGRESS REVIEW #1	2	2016	2	2016

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604307N / <i>Surface Combatant Cmbt Sys Eng</i>	Project (Number/Name) 1447 / <i>Surf Combatant Combat System Imp</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
AEGIS BL 5.3.9 SEARAM INT & TEST EFFORT: BL 5.3.9 TEST READINESS REVIEW	2	2016	2	2016
AEGIS BL 5.3.9 SEARAM INT & TEST EFFORT: BL 5.3.9 UNDERWAY TESTING SUPPORT	3	2016	2	2017
AEGIS BL 5.3.X UPGRADE: AEGIS BL 5.3.X SOFTWARE SYSTEM DESIGN REVIEW	3	2017	3	2017
AEGIS BL 5.3.X UPGRADE: AEGIS BL 5.3.X SOFTWARE PRELIMINARY DESIGN REVIEW	3	2017	3	2017
AEGIS BL 5.3.X UPGRADE: AEGIS BL 5.3.X SOFTWARE CRITICAL DESIGN REVIEW	2	2018	2	2018
AEGIS BL 5.3.X UPGRADE: AEGIS BL 5.3.X SOFTWARE TEST READINESS REVIEW	3	2018	3	2018
AEGIS BL 5.3.X UPGRADE: AEGIS BL 5.3.X SOFTWARE ENGINEERING ASSESSMENT	2	2019	2	2019
AEGIS BL 5.3.X UPGRADE: AEGIS BL 5.3.X HARDWARE SYSTEM REQUIREMENTS REVIEW	2	2019	2	2019
AEGIS BL 5.3.X UPGRADE: AEGIS BL 5.3.X SOFTWARE COMBAT SYSTEM CERTIFICATION PANEL	4	2019	4	2019
AEGIS BL 5.3.X UPGRADE: AEGIS BL 5.3.X HARDWARE SYSTEM DESIGN REVIEW	2	2020	2	2020
AEGIS BL 5.3.X UPGRADE: AEGIS BL 5.3.X HARDWARE PRELIMINARY DESIGN REVIEW	2	2020	2	2020
AEGIS BL 5.3.X UPGRADE: AEGIS BL 5.3.X HARDWARE CRITICAL DESIGN REVIEW	2	2021	2	2021
AEGIS BL 5.3.X UPGRADE: AEGIS BL 5.3.X HARDWARE TEST READINESS REVIEW	3	2021	3	2021
TASK FORCE CYBER AWAKENING (TFCA): TFCA KICKOFF	2	2016	2	2016
TASK FORCE CYBER AWAKENING (TFCA): TFCA IN-PROGRESS REVIEW #1	4	2016	4	2016

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
TASK FORCE CYBER AWAKENING (TFCA): TFCA IN-PROGRESS REVIEW #2	2	2017	2	2017
TASK FORCE CYBER AWAKENING (TFCA): TFCA IN-PROGRESS REVIEW #3	4	2017	4	2017
TASK FORCE CYBER AWAKENING (TFCA): TFCA IN-PROGRESS REVIEW #4	2	2018	2	2018
TASK FORCE CYBER AWAKENING (TFCA): TFCA IN-PROGRESS REVIEW #5	4	2018	4	2018
TASK FORCE CYBER AWAKENING (TFCA): TFCA IN-PROGRESS REVIEW #6	2	2019	2	2019
TASK FORCE CYBER AWAKENING (TFCA): TFCA IN-PROGRESS REVIEW #7	4	2019	4	2019
TASK FORCE CYBER AWAKENING (TFCA): TFCA IN-PROGRESS REVIEW #8	2	2020	2	2020
TASK FORCE CYBER AWAKENING (TFCA): TFCA IN-PROGRESS REVIEW #9	4	2020	4	2020
TASK FORCE CYBER AWAKENING (TFCA): TFCA IN-PROGRESS REVIEW #10	2	2021	2	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604307N / <i>Surface Combatant Cmbt Sys Eng</i>				Project (Number/Name) 3357 / <i>Aegis Training Improvement Program</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3357: <i>Aegis Training Improvement Program</i>	3.733	8.767	14.677	10.458	-	10.458	7.819	6.574	5.081	5.196	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The AEGIS Training Improvement project provides enhancements and upgrades to the Total Ship Training Capability (TSTC) training components within the combat system to address needs for increased training capability and functionality in conjunction with AEGIS Advanced Capability Builds (ACB). These enhancements will address current and future training requirements by implementing new functionality to enable the individual warfighter through distributed battle group events to engage in more complex training requirements to support fleet required training certification events. Capability Development and integration are related to Integrated Air and Missile Defense, Underwater, Surface, and other warfare areas. Capability enhancements and upgrades include development of re-useable common components that can be leveraged by SSDS MK2 combat systems, and/or integration of re-usable common components developed by the TSTC Battle Force Tactical Trainer (BFTT) Program and Ship Self Defense System (SSDS) MK2 TSTC Training Improvement programs to meet AEGIS combat system training requirements.

TSTC provides realistic joint warfare training across the spectrum of armed conflict, realistic unit level team training in all warfare areas (e.g. NIFC-CA and BMD missions to support IAMD). TSTC provides ships' Commanding Officers and Battle Group/Battle Force Commanders with the ability to conduct coordinated realistic, high stress, combat system level team training as an integral part of the Afloat Training Organization, the Tactical Training Groups and C2F/C3F Fleet Synthetic Trainers (FSTs).

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: AEGIS Training Improvement and ACB 16 integration	8.767	14.677	10.458	0.000	10.458
Articles:	-	-	-	-	-
Description: AEGIS Total Ship Training Capability (TSTC) provides enhancements to training components and increase training functionality in conjunction with AEGIS ACB16 development and integration. These enhancements will address current and future training requirements and implement new functionality to support more complex training requirements related to Underwater, Surface and other warfighter upgrades.					
FY 2015 Accomplishments: Continued systems engineering efforts for the development and integration of TSTC capabilities to support improved Integrated Air and Missile Defense (IAMD), Anti-Submarine Warfare (ASW) and Surface Warfare (SUW) training. These systems engineering efforts included requirements development of MH-60R constructive simulation, Identification Friend or Foe (IFF) simulator integration, and Cooperative Engagement Capability					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604307N / <i>Surface Combatant Cmbt Sys Eng</i>	Project (Number/Name) 3357 / <i>Aegis Training Improvement Program</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>(CEC) trainer integration and integration of Electronic Warfare (EW) and Anti-Submarine Warfare (ASW) trainer upgrades for AEGIS ACB 16/BL9.C2. Provided system engineering support to training improvement integration within AEGIS ACB16/BL9.C2. Provided Computer Program updates to implement training requirements associated with AEGIS ACB16 Program of Record. Prepared for and support Preliminary Design Review (PDR) and Critical Design Review (CDR) for AEGIS ACB16. Supported integration of Combat System training capabilities.</p> <p>Continued modifications to AEGIS BL 9 to support a NIFC-CA training capability. These modifications are being applied to AEGIS common source library to allow use on earlier AEGIS combat system baselines.</p> <p>FY 2016 Plans: Continue development, integration and testing of TSTC enhancements and components into AEGIS ACB 16/BL9.C2. Initiate development of requirements to support TSTC capability improvements to support tactical training requirements of AEGIS ACB 20, to include combat system modifications to support integration of the Air & Missile Defense Radar (AMDR) stimulation capability. Continue to make AEGIS combat system modifications to support migration of TSTC training capability, as components are modernized or new components developed, into a common core system to eliminate redundancies with SSDS. Initiate study to determine method of simulating real world environments within AEGIS shipboard sensors for Anti-Area / Area Denial (A2AD) training. Investigate options to integrate of Full Motion Video capability to provide required realism/fidelity for Surface Warfare Training.</p> <p>FY 2017 Base Plans: Continue development, integration and testing of TSTC enhancements and components into AEGIS BL9.C2. Finalize requirements to support TSTC capability improvements to support tactical training requirements of AEGIS ACB 20, to include combat system modifications to support integration of the Air & Missile Defense Radar (AMDR) stimulation capability. Continue to make AEGIS combat system modifications to support migration of TSTC training capability, as components are modernized or new components developed, into a common core system to eliminate redundancies with SSDS. Finalize requirements to support simulating real world environments within AEGIS shipboard sensors for Anti-Area / Area Denial (A2AD) training.</p> <p>FY 2017 OCO Plans: N/A</p>					
Accomplishments/Planned Programs Subtotals	8.767	14.677	10.458	0.000	10.458

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604307N / <i>Surface Combatant Cmbt Sys Eng</i>	Project (Number/Name) 3357 / <i>Aegis Training Improvement Program</i>

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017	FY 2017	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Cost To	
			Base	OCO	Total					Complete	Total Cost
• 0204571N/1427: <i>Surface Tactical Team Trainer (STTT)</i>	16.366	9.954	12.891	-	12.891	10.761	9.628	9.864	10.081	Continuing	Continuing

Remarks

D. Acquisition Strategy

Efforts will be completed on various contracts to support requirements updates to multiple products that will support Training Integration and Implementation within AEGIS ACB16.

E. Performance Metrics

Training Improvement Program efforts will complete major development milestones. Major Milestones for ACB 16 (BL 9.C2):

- Completed ACB 16 Preliminary Design Review (PDR) first quarter FY15.
- Completed ACB 16 Software Increment Review (SWIR) #1 third quarter FY15.
- Completed ACB 16 Delta System Requirements Review (SRR) third quarter FY15.
- Completed ACB 16 Delta System Functional Review (SFR) third quarter FY15.
- Completed ACB 16 Software Increment Review (SWIR) #2 fourth quarter FY15.
- ACB 16 In Progress Review (IPR) #1 Third quarter FY16.
- ACB16 In Progress Review (IPR) #2 first quarter FY17.
- ACB16 In Progress Review (IPR) #3 third quarter FY17.
- ACB16 In Progress Review (IPR) #4 first quarter FY18.
- ACB 16 BL 9.C2.0 Combat System Certification Panel (CSCP) TI12 Configuration third quarter FY18.
- ACB16 In Progress Review (IPR) #5 third quarter FY18.
- ACB16 In Progress Review (IPR) #6 first quarter FY19.
- ACB16 In Progress Review (IPR) #7 third quarter FY19.
- ACB 16 BL 9.C2.0 Combat System Certification Panel (CSCP) TI12H Configuration fourth quarter FY19.
- ACB 16 BL 9.C2.1 Combat System Certification Panel (CSCP) TI16 Configuration fourth quarter FY20.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)						Project (Number/Name)						
1319 / 5				PE 0604307N / Surface Combatant Cmbt Sys Eng						3357 / Aegis Training Improvement Program						
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Product Development	Various	Various : Various	1.956	3.819	Oct 2014	8.464	Oct 2015	3.347	Oct 2016	-		3.347	Continuing	Continuing	Continuing	
Subtotal			1.956	3.819		8.464		3.347		-		3.347	-	-	-	
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
System Engineering	Various	Various : Various	1.497	4.380	Oct 2014	5.564	Oct 2015	6.529	Oct 2016	-		6.529	Continuing	Continuing	Continuing	
Subtotal			1.497	4.380		5.564		6.529		-		6.529	-	-	-	
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Engineering Support	C/CPAF	SAIC : McLean VA.	0.200	0.406	Oct 2014	0.460	Nov 2015	0.582	Oct 2016	-		0.582	Continuing	Continuing	Continuing	
Professional Support	C/CPAF	TMB : Washington DC	0.080	0.162	Oct 2014	0.189	Oct 2015	0.000	Oct 2016	-		0.000	Continuing	Continuing	Continuing	
Subtotal			0.280	0.568		0.649		0.582		-		0.582	-	-	-	
Project Cost Totals			3.733	8.767		14.677		10.458		-		10.458	-	-	-	
Remarks																

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604307N / <i>Surface Combatant Cmbt Sys Eng</i>	Project (Number/Name) 3357 / <i>Aegis Training Improvement Program</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3357				
ACB16 BL 9.C2: Preliminary Design Review	1	2015	1	2015
ACB16 BL 9.C2: Software Increment Review #1	3	2015	3	2015
ACB16 BL 9.C2: Delta System Requirements Review	3	2015	3	2015
ACB16 BL 9.C2: Delta System Functional Review	3	2015	3	2015
ACB16 BL 9.C2: Software Increment Review #2	4	2015	4	2015
ACB16 BL 9.C2: In Progress Review #1	3	2016	3	2016
ACB16 BL 9.C2: In Progress Review #2	1	2017	1	2017
ACB16 BL 9.C2: In Progress Review #3	3	2017	3	2017
ACB16 BL 9.C2: In Progress Review #4	1	2018	1	2018
ACB16 BL 9.C2: Combat System Certification Panel (TI12)	3	2018	3	2018
ACB16 BL 9.C2: In Progress Review #5	3	2018	3	2018
ACB16 BL 9.C2: In Progress Review #6	1	2019	1	2019
ACB16 BL 9.C2: In Progress Review #7	3	2019	3	2019
ACB16 BL 9.C2: Combat System Certification Panel (TI12H)	4	2019	4	2019
ACB16 BL 9.C2: Combat System Certification Panel (TI16)	4	2020	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)	R-1 Program Element (Number/Name) PE 0604311N / LPD-17 Class Systems Integration
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	32.443	0.363	0.747	0.580	-	0.580	0.862	0.853	0.812	0.829	Continuing	Continuing
2283: LPD-17 Class System Integration	32.443	0.363	0.747	0.580	-	0.580	0.862	0.853	0.812	0.829	Continuing	Continuing

Program MDAP/MAIS Code: 542

A. Mission Description and Budget Item Justification

The LPD 17 Class ships are functional replacements for 41 ships of four classes of amphibious ships. These new ships embark, transport, and land elements of Marine landing forces in an assault by helicopters, landing craft, and amphibious vehicles. Tactics, techniques, and tools for naval expeditionary warfare continue to evolve. The LPD 17 Class configuration must continue to adapt to this evolutionary process, because these ships are expected to be in service until almost 2050. The LPD 17 design includes system configurations that reduce operating and support costs and facilitate operational performance improvements. System engineering and integration efforts that began in FY97 will develop further reductions in life cycle costs and will integrate performance upgrades in a rapid, affordable manner. Possible research and development investigations include improvements in Hull, Mechanical and Electrical systems, advanced sensors, advanced computers, advanced command and control software, advanced information system technologies, and ship based logistics support. Cost reduction and improved performance will be accomplished through sustained modeling and simulation efforts, resolutions of equipment obsolescence issues, prototype development, continued personnel reduction efforts, system performance tradeoff evaluations, and naval expeditionary warfare system engineering. Feedback from the Fleet for integrating system configurations will be accomplished through Naval Surface Warfare Centers (Philadelphia, Dahlgren, Port Hueneme, Panama City). These efforts will result in well defined specifications and drawings in system in system integration design packages that provide technical baseline for follow on ship procurements.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	0.376	0.747	0.767	-	0.767
Current President's Budget	0.363	0.747	0.580	-	0.580
Total Adjustments	-0.013	0.000	-0.187	-	-0.187
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.013	0.000			
• Rate/Misc Adjustments	0.000	0.000	-0.187	-	-0.187

Change Summary Explanation

FY 2015 funding request reflects a reduction of \$0.013 million for SBIR transfer.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604311N / <i>LPD-17 Class Systems Integration</i>	

FY 2017 funding request reflects reductions of \$0.150 million to account for the availability of prior year balances, \$0.013 million for rates/miscellaneous adjustments, and \$0.024 million for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604311N / LPD-17 Class Systems Integration				Project (Number/Name) 2283 / LPD-17 Class System Integration			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2283: LPD-17 Class System Integration	32.443	0.363	0.747	0.580	-	0.580	0.862	0.853	0.812	0.829	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The LPD 17 Class ships are functional replacements for 41 ships of four classes of amphibious ships. These new ships embark, transport, and land elements of Marine landing forces in an assault by helicopters, landing craft, and amphibious vehicles. Tactics, techniques, and tools for naval expeditionary warfare continue to evolve. The LPD 17 Class configuration must continue to adapt to this evolutionary process, because these ships are expected to be in service until almost 2050. The LPD 17 design includes system configurations that reduce operating and support costs and facilitate operational performance improvements. System engineering and integration efforts that began in FY97 will develop further reductions in life cycle costs and will integrate performance upgrades in a rapid, affordable manner. Possible research and development investigations include improvements in Hull, Mechanical and Electrical systems, advanced sensors, advanced computers, advanced command and control software, advanced information system technologies, and ship based logistics support. Cost reduction and improved performance will be accomplished through sustained modeling and simulation efforts, resolutions of equipment obsolescence issues, prototype development, continued personnel reduction efforts, system performance tradeoff evaluations, and naval expeditionary warfare system engineering. Feedback from the Fleet for integrating system configurations will be accomplished through Naval Surface Warfare Centers (Philadelphia, Dahlgren, Port Hueneme, Panama City). These efforts will result in well defined specifications and drawings in system in system integration design packages that provide technical baseline for follow on ship procurements.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Systems Engineering/Integration	0.363	0.747	0.580	0.000	0.580
Articles:	-	-	-	-	-
Description: Continued Naval Expeditionary Warfare Systems Engineering efforts and integration efforts for unique LPD 17 Class systems, including efforts to resolve obsolescence issues impacting the class.					
FY 2015 Accomplishments: Environmental Qualification Testing (EQT) and Information Assurance (IA) of Integrated Ship Electronics (SWAN, ECS, HM&E Network) and machinery obsolescence issues. Continued Reliability and Obsolescence studies for Mission Systems. Completed HM&E machinery control system network integration studies.					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604311N / <i>LPD-17 Class Systems Integration</i>	Project (Number/Name) 2283 / <i>LPD-17 Class System Integration</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Completed Propulsion system (MPDE, MRG, shafting) installation improvements and foundation.					
Completed High Efficiency Small-Capacity (HES-C) Air Conditioning Plant Prototype development, Pronghorn Air Conditioning Plant Chlorination System Prototype installation, testing, and Geislinger Coupling Alignment Studies.					
Continued development of HES-C AC Plant prototype testing and qualification. Continued development of Advanced Variable Speed Drive unit to control HES-C AC Plants that will be installed on LPD 17 class ships (LPD 26-28) and potentially on other Navy platforms. Initiated MPDE lube oil un-loader valve studies.					
FY 2016 Plans: Develop Fiber Optic Monitoring System prototype.					
Continued HES-C A/C plant development/procurement for installation in LPDs 26-28.					
Continue Reliability and Obsolescence studies for shipboard equipment. Tasks include Transparent Armored Window replacement studies, SSDG Seawater Piping Analyses, Pronghorn SBIR Phase III - AC Plant Chlorinator Sensor replacement.					
FY 2017 Base Plans: Continue development of Fiber Optic Cable Plant Monitoring System under SBIR Phase II and transition to Phase III.					
Continue HES-C A/C plant development/procurement for installation in LPDs 26-28.					
Continue evaluation of commercial electric motors/controllers and lube oil purifier improvements.					
Initiate shipboard studies for LPD 28 HM&E obsolescence and new commercial systems. Develop design, qualification, and testing projects to evaluate: structural changes for Boat Valley/RAS - FAS/and Troop Berthing; expanded use of commercial systems for cost savings; and machinery/engineering control system integration with new systems and networks.					
Initiate shipboard tests for Additive Manufacturing (3D Printing) of HM&E parts.					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604311N / <i>LPD-17 Class Systems Integration</i>	Project (Number/Name) 2283 / <i>LPD-17 Class System Integration</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Continue Reliability and Obsolescence studies.					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.363	0.747	0.580	0.000	0.580

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• SCN/5300: <i>Completion of Prior Year Shipbuilding Programs</i>	54.096	61.593	45.060	-	45.060	0.000	0.000	0.000	0.000	0.000	2,050.849
• SCN/3036: <i>LPD-17</i>	1,000.000	550.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	17,500.430

Remarks

D. Acquisition Strategy

FY15 and out: continue developmental sole source efforts

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604311N / LPD-17 Class Systems Integration	Project (Number/Name) 2283 / LPD-17 Class System Integration
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Systems Engineering and Integration	WR	NSWC Crane : Crane, IN	13.236	0.000		0.000		0.000		-		0.000	0.000	13.236	-
Systems Engineering and Integration	C/CPFF	Raytheon Company : San Diego, CA	2.286	0.146	Dec 2014	0.150	Dec 2015	0.213	Nov 2016	-		0.213	Continuing	Continuing	Continuing
LSD(X) Systems Integration (Next Gen.)	C/CPFF	CSC, Alion Science : Washington, DC	0.549	0.000		0.000		0.000		-		0.000	0.000	0.549	-
LSD(X) Systems Integration (Next Gen.)	WR	NSWC Carderock, NSWC Dahlgren : NSWC Beth, MD; NSWC Dahlgren, VA	0.100	0.000		0.000		0.000		-		0.000	0.000	0.100	-
DAWF	Various	Various : Various	0.005	0.000		0.000		0.000		-		0.000	0.000	0.005	-
Systems Engineering and Integration	C/CPFF	Huntington Ingalls Industries : Pascagoula, MS	0.097	0.100	Dec 2014	0.377	Dec 2015	0.175	Dec 2016	-		0.175	0.000	0.749	-
Systems Engineering and Integration	WR	NSWC, Philadelphia : Philadelphia, PA	0.678	0.117	Nov 2014	0.220	Nov 2015	0.192	Nov 2016	-		0.192	Continuing	Continuing	Continuing
Systems Engineering and Integration	WR	NSWC, Port Hueneme : Port Hueneme, CA	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Subtotal			16.951	0.363		0.747		0.580		-		0.580	-	-	-

Remarks
 FY2017 key events include Initiating shipboard studies for LPD 28 HM&E obsolescence and new commercial systems. Developing design, qualification, and testing projects to evaluate: structural changes for Boat Valley/RAS - FAS/and Troop Berthing; expanded use of commercial systems for cost savings; and machinery/engineering control system integration with new systems and networks. Initiating shipboard tests for Additive Manufacturing (3D Printing) of HM&E parts.

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
OT&E/Interoperability	WR	OPTEVFOR : WR	15.492	0.000		0.000		0.000		-		0.000	0.000	15.492	-
Subtotal			15.492	0.000		0.000		0.000		-		0.000	0.000	15.492	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy							Date: February 2016				
Appropriation/Budget Activity 1319 / 5			R-1 Program Element (Number/Name) PE 0604311N / <i>LPD-17 Class Systems Integration</i>				Project (Number/Name) 2283 / <i>LPD-17 Class System Integration</i>				
	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract		
Project Cost Totals	32.443	0.363	0.747	0.580	-	0.580	-	-	-		

Remarks
 The funds for FY 17 are in support of the continuation of the development of Fiber Optic Cable Plant Monitoring System and the continuation of the development of a new Advanced Variable Speed Drive unit to control HES-C AC Plants that will be installed on LPD 17 class ships LPD 26-28 and potentially on other Navy platforms.

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604311N / LPD-17 Class Systems Integration	Project (Number/Name) 2283 / LPD-17 Class System Integration

Fiscal Year	2015				2016				2017				2018				2019				2020				2021			
	Quarter	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4			
HES-C												▲																
Fiber Optic Monitoring												▲																
Future Obsol. issue resolution																												▲
Deliveries							▲					▲																

LPD-28 Delivers FY22

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604311N / <i>LPD-17 Class Systems Integration</i>	Project (Number/Name) 2283 / <i>LPD-17 Class System Integration</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2283				
Delivery (LPD 26)	3	2016	3	2016
Delivery (LPD 27)	4	2017	4	2017
Fiber Optic Monitoring	1	2016	4	2017
Future Obsol. Issue Resolution	1	2015	4	2021
HES-C	1	2015	4	2017

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604329N / <i>Small Diameter Bomb (SDB)</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	167.799	53.950	57.144	97.622	-	97.622	113.006	110.340	80.165	65.799	Continuing	Continuing
1663: <i>SDB II F-18 Integration</i>	0.000	33.626	19.642	52.616	-	52.616	50.446	34.114	5.797	5.940	Continuing	Continuing
3072: <i>Small Diameter Bomb (SDB)</i>	142.835	11.159	29.329	37.605	-	37.605	57.913	72.769	70.921	56.340	21.856	500.727
3082: <i>JMM BRU</i>	24.964	9.165	8.173	7.401	-	7.401	4.647	3.457	3.447	3.519	Continuing	Continuing

Program MDAP/MAIS Code: 439

A. Mission Description and Budget Item Justification

Small Diameter Bomb Increment II (SDB II) is an ACAT 1D joint Department of the Air Force (USAF) and Department of the Navy (DoN), with the USAF as the lead service. SDB II provides the warfighter with the capability to attack mobile targets in all-weather from Stand-Off range. SDB II addresses the following warfighter requirements: attack mobile targets, adverse weather operations, multiple kills per pass, multiple ordnance carriage, precision munitions capability, capability against fixed targets, reduced munitions footprint, increased weapons effectiveness, minimized potential for collateral damage, reduced susceptibility of munitions to countermeasures, and provides a net-centric operations capability. The threshold aircraft for the USAF is the F-15E and for the USN are the F-35B and F-35C. SDB II will be compatible with the Joint Miniature Munitions Bomb Rack Unit (JMM BRU) (BRU-61A/A).

The DoN has adjusted the platform integration strategy through the inclusion of F/A-18 E/F to deliver the capability to the warfighter aligned to adjusted F-35 program's schedule.

BUDGET ACTIVITY JUSTIFICATION: This program is funded under SYSTEM DEVELOPMENT AND DEMONSTRATION because it includes those projects that have passed Milestone B approval and are conducting engineering and manufacturing development tasks aimed at meeting validated requirement prior to full-rate production decision.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604329N / <i>Small Diameter Bomb (SDB)</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	56.286	97.002	104.032	-	104.032
Current President's Budget	53.950	57.144	97.622	-	97.622
Total Adjustments	-2.336	-39.858	-6.410	-	-6.410
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-39.858			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-1.182	0.000			
• SBIR/STTR Transfer	-1.154	0.000			
• Program Adjustments	0.000	0.000	-0.635	-	-0.635
• Rate/Misc Adjustments	0.000	0.000	-5.775	-	-5.775

Change Summary Explanation

Decrease in Small Diameter Bomb by \$2.512M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

Schedule: SDB II Milestone C was approved June 2015.

Changes in the funding profile in FY 2016 to SDB II F-18 Integration will result in the delay of Jettison Test Vehicles (JTV's) procurements from FY 2016 to FY 2017, a reduction in Operational Flight Plan (OFP) support in SDB II F-18 Integration, and a delay of type II carriage OFP coding by both Raytheon Missile Systems (RMS) and Raytheon Technical Services Corporation (RTSC). The remaining funding for OFP support will maintain the development of Universal Armament Interface (UAI) coding in H14 which is a critical component for the H14 software build and crucial to maintain schedule of H14 and SDB II integration. Changes in the funding profile to JMM BRU will result in the delay of F-35 Environmental Qualification testing to from FY 2016 to FY 2017.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604329N / <i>Small Diameter Bomb (SDB)</i>	Project (Number/Name) 1663 / <i>SDB II F-18 Integration</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
1663: <i>SDB II F-18 Integration</i>	0.000	33.626	19.642	52.616	-	52.616	50.446	34.114	5.797	5.940	Continuing	Continuing
Quantity of RDT&E Articles		21	27	64	-	64	-	-	-	-		

A. Mission Description and Budget Item Justification

The DoN has adjusted the platform integration strategy by inclusion of Small Diameter Bomb II (SDB II) and the Joint Miniature Munitions Bomb Rack Unit (JMM BRU) on F/A-18 E/F to deliver the capability to the warfighter in light of continued F-35 program delays. This program funds the aircraft software and weapon testing required to successfully integrate SDB II/JMM BRU on the F/A-18 E/F to meet a FY 2020 IOC.

FY2014 funding resides in PE 0204136N, PU 1662 F/A-18 Improvement.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: F/A-18 Integration	33.626	19.642	52.616	0.000	52.616
Articles:	21	27	64	-	64
FY 2015 Accomplishments:					
Began H-14+ Operational Flight Plan (OFP) coding for Universal Armament Interface (UAI) and SDB II/JMM BRU integration. Contract with SDB and JMM BRU prime contractors for models and support required for wind tunnels. Wind Tunnel testing for Modeling Separation and Loads at Arnold AFB. Contract with SDB and JMM BRU prime contractors for 11 SDB Jettison Test Vehicles (JTV), 5 SDB Instrumented Measurement Vehicles (IMV), and 5 JMM BRU IMVs for flight testing.					
FY 2016 Plans:					
Continue OFP software coding, to include UAI. Purchase weapon and rack test assets required. Wind Tunnel testing for Modeling High Speed Performance at NASA Ames will begin. Deliver 11 JTV, and 5 IMVs for Flight Testing. Conduct ground testing, fit checks and flutter flights at NAS Pax River, MD. Contract with SDB prime contractor for, 16 SDB Weapons System Simulators (WSS), and 2 SDB Electromagnetic Environment Effects (E3)/Hazard of Electromagnetic Radiation to Ordnance (HERO) test assets for flight testing. Contract with JMM BRU prime contractor for 5 JMM BRU WSSs, and 4 Telemetry JMM BRU assets fro flight testing.					
FY 2017 Base Plans:					
Continue H-14+ OFP software coding. Complete Cantilever Ground Vibration Test (GVT). Begin Developmental Test (DT) efforts to include Loads, Flying Qualities, Noise and Vibe, Captive Carry and Weapon Separation					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604329N / <i>Small Diameter Bomb (SDB)</i>	Project (Number/Name) 1663 / <i>SDB II F-18 Integration</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
testing. Contract with SDB Prime contractor for 49 SDB JTVs for flight testing. Contract with JMM BRU Prime contractor for 15 JTVs for flight testing. FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	33.626	19.642	52.616	0.000	52.616

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• PE0204136N/1662: <i>SDB II Integration</i>	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	9.300

Remarks

D. Acquisition Strategy

Integration of SDB II and the JMM BRU is software driven by ground and flight test requirements.

E. Performance Metrics

Earned value will be used for the contracted efforts.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604329N / <i>Small Diameter Bomb (SDB)</i>	Project (Number/Name) 1663 / <i>SDB II F-18 Integration</i>
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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
OFP Development and Support	SS/IDIQ	Boeing : St. Louis, MO	0.000	12.334	Feb 2015	7.000	Jan 2016	15.012	Jan 2017	-		15.012	32.876	67.222	67.222
SDB II Prime Contractor Support	SS/IDIQ	Raytheon Missile Systems : Tuscon, AZ	0.000	5.000	Jun 2015	1.607	May 2016	13.232	Jan 2017	-		13.232	24.955	44.794	44.794
JMM BRU Prime Contractor Support	SS/IDIQ	Raytheon Technical Services Company, LLC : Indianapolis, IN	0.000	5.554	Jun 2015	1.111	May 2016	6.822	Jan 2017	-		6.822	16.681	30.168	30.168
SDB II/JMM BRU Integration Support	WR	NAWC AD : Patuxent River, MD	0.000	2.000	Nov 2014	2.200	Nov 2015	2.788	Nov 2016	-		2.788	Continuing	Continuing	Continuing
SDB II/JMM BRU Software Support	WR	NAWC WD : China Lake, CA	0.000	2.538	Nov 2014	2.186	Nov 2015	2.773	Nov 2016	-		2.773	Continuing	Continuing	Continuing
Subtotal			0.000	27.426		14.104		40.627		-		40.627	-	-	-

Remarks
 Funding for SDB II (Raytheon Missile Systems) and JMM BRU (Raytheon Technical Services Corporation) Prime Contractors includes support of Super Hornet Integration efforts. Increase from FY 2016 to FY 2017 is to procure test articles in support of DT and OT testing.

Funding for Boeing includes software coding of Operational Flight Program Build H-14+, to include Universal Armament Interface (UAI) and F/A-18 E/F aircraft support required to meet the FY 2020 IOC.

Funding for NAWC AD supports engineering support for F/A-18 E/F Super Hornet. Funding for NAWC WD supports engineering support for SDB II and the Advanced Weapons Lab (AWL) at China Lake.

Schedule: SDB II Milestone C was approved June 2015.

Change in funding profile in FY 2016 to PU 1663 will result in the delay of Jettison Test Vehicles (JTV's) procurements from FY 2016 to FY 2017, a reduction in Operational Flight Plan (OFP) support in PU 1663, and a delay of type II carriage OFP coding by both Raytheon Missile Systems (RMS) and Raytheon Technical Services Corporation (RTSC). The remaining funding for OFP support will maintain the development of Universal Armament Interface (UAI) coding in H14 which is a critical component for the H14 software build and crucial to maintain schedule of H14 and SDB II integration. Change in funding profile in FY 2016 to PU 3082 will result in the delay of F-35 Environmental Qualification testing to from FY 2016 to FY 2017.

FY2014 Support funding is included in PE0204136N, PU1662.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604329N / <i>Small Diameter Bomb (SDB)</i>	Project (Number/Name) 1663 / <i>SDB II F-18 Integration</i>
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Wind Tunnel Test	MIPR	AEDC : Arnold AFB, TN	0.000	6.200	Mar 2015	0.000		0.000		-		0.000	0.000	6.200	-
Wind Tunnel Test	MIPR	NASA Ames : Moffett Field, CA	0.000	0.000		0.878	Mar 2016	0.000		-		0.000	0.000	0.878	-
Development Test	WR	VX-23 : Patuxent River, MD	0.000	0.000		4.660	Jan 2016	11.989	Jan 2017	-		11.989	4.399	21.048	-
Operational Test	WR	COMOPTEVFOR : Norfolk, VA	0.000	0.000		0.000		0.000		-		0.000	13.635	13.635	-
Subtotal			0.000	6.200		5.538		11.989		-		11.989	18.034	41.761	-

Remarks
 Wind Tunnel Testing for Arnold Engineering Development Center (AEDC) is for the Separation and Loads Wind Tunnel Testing. Testing will occur 4th Qtr FY 2015. Wind Tunnel Testing for NASA Ames is for the High Speed Performance Wind Tunnel Testing. Testing will occur 2nd Qtr FY 2016.
 Developmental Test (DT) includes activities such as Loads, Flying Qualities, Noise and Vibe, Captive Carry and Weapon Separation.
 Operational Test funding includes flight tests and support to validate integration of SDB II and F/A-18 E/F.

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	33.626	19.642	52.616	-	52.616	-	-	-

Remarks

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604329N / <i>Small Diameter Bomb (SDB)</i>	Project (Number/Name) 1663 / <i>SDB II F-18 Integration</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>F/A-18 E/F SDB II Integration</i>				
Acquisition Milestones: IOC	4	2020	4	2020
Systems Development: OFP Development and Integration	1	2015	1	2019
Test & Evaluation: Test Article Deliveries	1	2016	3	2019
Test & Evaluation: Wind Tunnels	4	2015	3	2016
Test & Evaluation: Developmental Test	1	2016	4	2019
Test & Evaluation: Operational Test	4	2019	3	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604329N / <i>Small Diameter Bomb (SDB)</i>				Project (Number/Name) 3072 / <i>Small Diameter Bomb (SDB)</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3072: <i>Small Diameter Bomb (SDB)</i>	142.835	11.159	29.329	37.605	-	37.605	57.913	72.769	70.921	56.340	21.856	500.727
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

SDB II is an ACAT ID program providing the warfighter a capability to attack mobile targets in all weather from Stand-Off range. The Air Force is the lead service, Raytheon in Tucson, AZ is the prime contractor. SDB II addresses the following warfighter requirements: attack mobile targets, multiple kills per pass, multiple ordnance carriage, all weather operations, near-precision munitions capability, capability against fixed targets, reduced munitions footprint, increased weapons effectiveness, minimized potential for collateral damage, reduced susceptibility of munitions to countermeasures, and a migration path to net centric ops capability.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: SDB II Weapon Support	7.035	12.123	13.863	0.000	13.863
Articles:	-	-	-	-	-
Description: Funding provides for SDB II Engineering Manufacturing and Development (EMD) efforts including weapon vendor support, test assets, and government support.					
FY 2015 Accomplishments: Continue support of EMD and integration of SDB II with F-35B and F-35C. Continue support of SDB II prime contractor and government support of weapon development efforts. Begin specific F-35B and F-35C efforts with SDB II prime contractor which were delayed to FY15 to accommodate the JSF OFP change from Block 3 to Block 4.					
FY 2016 Plans: Continue support of EMD and integration of SDB II with F-35B and F-35C. Continue detailed F-35B and F-35C efforts to include specific weapon software changes to accommodate F-35 Block 4 Operational Flight Program.					
FY 2017 Base Plans: Continue support of EMD and integration of SDB II with F-35B and F-35C. Continue detailed F-35B and F-35C efforts to include specific weapon software changes to accommodate F-35 Block 4 Operational Flight Program and bay modifications.					
FY 2017 OCO Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604329N / <i>Small Diameter Bomb (SDB)</i>	Project (Number/Name) 3072 / <i>Small Diameter Bomb (SDB)</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
<p>Title: JSF Integration</p> <p align="right">Articles:</p> <p>Description: Funding provided for integration of SDB II on F-35B and F-35C, specifically for Lockheed Martin to develop F-35 Operational Flight Program (OFP) software, flight missions, and support and analysis of missions.</p> <p>FY 2015 Accomplishments: Continue F-35 UAI OFP development and coding and support fit checks and testing with SDB II Weapon vendor. Full manning of JSF prime contractor team to support SDB II and JMM BRU development and integration.</p> <p>FY 2016 Plans: Continue F-35 UAI OFP development and coding. Begin F-35 bay modifications required for SDB II/JSF/JMM BRU integration and modification of test aircraft to support SDB II. Manning of JSF prime contractor team to support SDB II and JMM BRU development and integration.</p> <p>FY 2017 Base Plans: Continue F-35 UAI OFP development and coding. Continue F-35 bay modifications required for SDB II/JSF/JMM BRU integration and modification of test aircraft to support SDB II, to include modification of test aircraft and engineering change proposal for future production aircraft. Full manning of JSF prime contractor team to support SDB II weapon development and integration. Begin contract with Lockheed Martin for Block 4 Operational Flight Plan (OFP) software development.</p> <p>FY 2017 OCO Plans: N/A</p>	4.124	17.206	23.742	0.000	23.742
	-	-	-	-	-
Accomplishments/Planned Programs Subtotals	11.159	29.329	37.605	0.000	37.605

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• RDTE,AF/0604329F: <i>Small Diameter Bomb</i>	61.774	32.624	31.378	-	31.378	13.606	15.840	18.967	6.496	0.000	1,147.224
• MPAF/0207327F: <i>Small Diameter Bomb</i>	35.125	65.523	93.114	-	93.114	79.561	69.873	171.174	317.988	1,194.200	2,026.558
• WPN/2238: <i>Small Diameter Bomb</i>	0.000	0.000	0.000	-	0.000	20.910	92.117	121.647	117.741	413.163	765.578

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604329N / <i>Small Diameter Bomb (SDB)</i>	Project (Number/Name) 3072 / <i>Small Diameter Bomb (SDB)</i>

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

D. Acquisition Strategy

The SDB Increment II acquisition strategy was to conduct a full and open competition to select up to two contractors to compete during a planned 42-month risk reduction phase prior to entering EMD. This competition began April 17, 2006 with the signature of contracts to the competing contractors: 1) Raytheon and 2) the team of Boeing and Lockheed Martin. A Fixed Price Incentive Firm Target type contract for EMD, including Firm Fixed Price procurement options for Lots 1-3 was awarded to Raytheon August 9, 2010. Lots 4 & 5 are included in the contract, but are Not-To-Exceed options. Milestone C was approved 4 June 2015, with Lot 1 (Air Force only) awarded 12 June 2015.

The Navy funding will support Navy-unique efforts for SDB Increment II, such as aircraft integration, ship suitability, studies and analysis, and program management and government in-house support. These efforts will be performed on several cost-type contracts or through cost reimbursable work requests to government activities and contractors.

E. Performance Metrics

Earned value management has been implemented on the EMD contract with Raytheon.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary Hardware Development - SDB II EMD	C/FPIF	Raytheon : Tucson, AZ	28.764	2.600	Mar 2015	4.121	Mar 2016	7.725	Mar 2017	-		7.725	113.160	156.370	156.656
Aircraft Integration - JSF	C/CPFF	Lockheed Martin : Fort Worth, TX	18.155	1.704	Jul 2015	12.143	Jan 2016	7.005	Jan 2017	-		7.005	0.000	39.007	39.007
Prior year Prod Dev cost no longer funded in the FYDP	Various	Various : Various	15.497	0.000		0.000		0.000		-		0.000	0.000	15.497	-
Subtotal			62.416	4.304		16.264		14.730		-		14.730	113.160	210.874	-

Remarks
 Primary Hardware Development to Raytheon in Tucson, AZ reflects the SDB II prime contractor and includes test assets. Primary Hardware Development reflects additional prime contractor costs to support F-35 and JMM BRU integration.

 Funding for Lockheed Martin F-35 includes Associate Contractor Agreements (ACA), bay modifications, logistics efforts, and adapter hardware. It does not include OFF, UAI software coding, nor test missions which are represented in Support and Test sections, respectively. Bay modifications with Lockheed Martin will begin in FY16 to move hydraulic lines and latches to accommodate the SDB II weapon and JMM BRU rack.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Software Development - JSF	C/CPFF	Lockheed Martin : Ft. Worth, TX	6.114	2.420	Feb 2015	7.000	Jan 2016	17.316	Jan 2017	-		17.316	61.279	94.129	92.709
Prior year Support cost no longer funded in the FYDP	Various	Various : Various	17.410	0.000		0.000		0.000		-		0.000	0.000	17.410	-
Subtotal			23.524	2.420		7.000		17.316		-		17.316	61.279	111.539	-

Remarks
 Studies and Analyses include Navy activities to define CONOPS and better define Navy-specific and interoperability requirements, such as weapon data link advanced concept technology demonstration, seeker trade studies, and data link trade studies. Prior year Software Development efforts are in support of JSuW Joint Capability Technology Demonstrations incorporation of J.11 Message Set into Strike Weapons and Weapon Data Link Network efforts.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604329N / <i>Small Diameter Bomb (SDB)</i>	Project (Number/Name) 3072 / <i>Small Diameter Bomb (SDB)</i>
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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Software Development for JSF is the UAI, OFP, and mission planning which supports the SDB II program. Incrementally funded contract was awarded in FY14 to initialize, target, and release the weapon. It will cover 95% of the UAI messages and will support all other UAI compliant weapons in JSF Block 4 and prior, e.g., SDB I, JDAM, and LJDAM.

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental Test & Evaluation - JSuW/WDLN	Various	Various : Various	2.864	0.000		0.000		0.000		-		0.000	36.715	39.579	-
Operational Test & Evaluation - SDBII	WR	COMOPTEVFOR : China Lake, CA	1.010	0.000		0.000		0.000		-		0.000	23.959	24.969	-
Developmental Test & Evaluation - SDB II	C/CPFF	Lockheed Martin : Ft. Worth, TX	0.000	0.000		0.000		0.000		-		0.000	23.704	23.704	23.704
Prior Year T&E cost no longer funded in the FYDP	Various	Various : Various	8.049	0.000		0.000		0.000		-		0.000	0.000	8.049	-
Subtotal			11.923	0.000		0.000		0.000		-		0.000	84.378	96.301	-

Remarks
 Developmental T&E (DT) and Operational T&E (OT) include all aspects of the weapon system - SDB II, JMM BRU, and F-35B and F-35C aircraft OFP. There will be no separate DT or OT period for JMM BRU.

 Developmental Test squadrons and locations for F-35B and F-35C are still uncertain as squadrons are being established.

 Operational test is scheduled to begin in FY21 to support FY22 IOC.

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Contractor Services	Various	Various : Various	2.195	0.505	Nov 2014	0.520	Nov 2015	0.530	Nov 2016	-		0.530	1.732	5.482	-
Government Support	WR	NAWC WD : China Lake, CA	23.650	2.730	Nov 2014	2.882	Nov 2015	2.598	Nov 2016	-		2.598	8.567	40.427	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604329N / <i>Small Diameter Bomb (SDB)</i>	Project (Number/Name) 3072 / <i>Small Diameter Bomb (SDB)</i>
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Small Diameter Bomb II	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021															
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q												
Acquisition Milestones																																								
Milestones	MS C (USAF only) ▲																																							
Systems Development																																								
Hardware Development	Engineering Manufacturing and Development (EMD)																																							
Universal Armament Interface (UAI)	F-35 UAI Software Coding																																							
Test & Evaluation																																								
Technical Evaluation																					Developmental Test				Operational Test															
Production Milestones																																								
Contract Awards	Lot 1 (USAF Only, MPAF) ●				Lot 2 Contract Award (USAF Only) ●				Lot 3 Contract Award (USAF Only) ●				Lot 4 Contract Award (USAF and DoN) (MPAF and WPN) ●				Lot 5 Contract Award (USAF and DoN) (MPAF and WPN) ●				Lot 6 Contract Award (USAF and DoN) ●				Lot 6 Contract Award (USAF and DoN) ●															
Deliveries																																								
									Lot 1 Deliveries (USAF 144 units)								Lot 2 Deliveries (USAF 250 units)								Lot 3 Deliveries (USAF 312 units)								Lot 4 Deliveries (USAF 370; DoN 90 units)				Lot 5 Deliveries (USAF 300; DoN 750 units)			

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604329N / <i>Small Diameter Bomb (SDB)</i>	Project (Number/Name) 3072 / <i>Small Diameter Bomb (SDB)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Small Diameter Bomb II</i>				
Acquisition Milestones: Milestones: MS C (USAF only)	3	2015	3	2015
Systems Development: Hardware Development: Engineering Manufacturing and Development (EMD)	1	2015	4	2021
Systems Development: Universal Armament Interface (UAI): F-35 OFP Software Coding	2	2015	1	2021
Test & Evaluation: Technical Evaluation: Developmental Test	2	2020	4	2021
Test & Evaluation: Technical Evaluation: Operational Test	4	2021	4	2021
Production Milestones: Contract Awards: Lot 1 Contract Award (USAF Only) (Missile Procurement, AF)	4	2015	4	2015
Production Milestones: Contract Awards: Lot 2 Contract Award (USAF Only) (Missile Procurement, AF)	2	2016	2	2016
Production Milestones: Contract Awards: Lot 3 Contract Award (USAF Only) (Missile Procurement, AF)	1	2017	1	2017
Production Milestones: Contract Awards: Lot 4 Contract Award (USAF and DoN) (MPAF and WPN)	1	2018	1	2018
Production Milestones: Contract Awards: Lot 5 Contract Award (USAF and DoN) (MPAF and WPN)	1	2019	1	2019
Production Milestones: Contract Awards: Lot 6 Contract Award (USAF and DoN) (MPAF and WPN)	1	2020	1	2020
Production Milestones: Contract Awards: Lot 7 Contract Award (USAF and DoN) (MPAF and WPN)	1	2021	1	2021
Deliveries: Lot 1 Deliveries (USAF only 144 units)	3	2016	3	2017
Deliveries: Lot 2 Deliveries (USAF only 250 units)	3	2017	3	2018

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604329N / <i>Small Diameter Bomb (SDB)</i>	Project (Number/Name) 3072 / <i>Small Diameter Bomb (SDB)</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Deliveries: Lot 3 Deliveries (USAF only 312 units)	3	2018	3	2019
Deliveries: Lot 4 Deliveries (USAF 370; DoN 90 units)	3	2019	3	2020
Deliveries: Lot 5 Deliveries (USAF 300; DoN 750 units)	3	2020	3	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604329N / <i>Small Diameter Bomb (SDB)</i>	Project (Number/Name) 3082 / <i>JMM BRU</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3082: <i>JMM BRU</i>	24.964	9.165	8.173	7.401	-	7.401	4.647	3.457	3.447	3.519	Continuing	Continuing
Quantity of RDT&E Articles		5	6	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Joint Miniature Munitions Bomb Rack Unit (JMM BRU) is an Air Force (AF) led ACAT III program. It is required for the Department of the Navy's (DoN) carriage of the SDB II weapon in the internal bay of the F-35B and F-35C and operation in the DoN environment. The SDB II Capability Development Document (CDD) states that SDB II must be operable on the Miniature Munitions Smart Rack BRU-61/A. The BRU-61/A, currently in sustainment for the AF, does not meet the needs to operate with SDB II within the F-35 internal bay in the DoN environment. The JMM BRU, designated BRU-61A/A, fills the capability gap required by the DoN. Efforts include development of a dual power capability to meet the SDB II operating environment on the F-35.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Joint Miniature Munitions Bomb Rack Unit (JMM BRU) Government Support	4.013	4.144	4.605	0.000	4.605
Articles:	-	-	-	-	-
Description: Funding provided for the SDB II Carriage System support and integration into Navy environments.					
FY 2015 Accomplishments: Complete TD phase and enter Engineering and Manufacturing Development (EMD) phase with prime contractor. Successful completion of Milestone B, to include System Engineering Technical Review (SETR) events, Cost Sufficiency Review and Program Sufficiency Review and all associated documentation and permission to enter EMD phase with prime contractor. Conduct DoN logistics efforts to include design and development of Peculiar Support Equipment (PSE) for JMM BRU. Begin development of Common Aviation Armament Test Set (CAATS) software required for JMM BRU.					
FY 2016 Plans: Continue Engineering and Manufacturing Development (EMD) phase with prime contractor. Continue DoN logistics efforts to include design and development of Peculiar Support Equipment (PSE) for JMM BRU. Continue development of Common Aviation Armament Test Set (CAATS) software required for JMM BRU.					
FY 2017 Base Plans: Continue Engineering Management Development (EMD) phase with prime contractor. EMD Flight Test Phase with prime contractor will be awarded.					
FY 2017 OCO Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604329N / <i>Small Diameter Bomb (SDB)</i>	Project (Number/Name) 3082 / JMM BRU

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
<p>Title: Joint Miniature Munitions Bomb Rack (JMM BRU) Prime Contractor</p> <p align="right">Articles:</p> <p>Description: Prime Contractor Support of JMM BRU (BRU-61A/A) TD/EMD contract.</p> <p>FY 2015 Accomplishments: Complete Technology Development (TD) and incorporate changes to the design of the JMM BRU filter and the Suspension and Release Assembly (S&RA). Purchase 2 JMM BRU prototypes and 3 Weapon System Simulators (WSS). Complete Preliminary Design Review (PDR). Execute Engineering and Manufacturing Development (EMD) contract. JMM BRU prime contractor fully manned to complete EMD phase.</p> <p>FY 2016 Plans: Continue execution of EMD contract. Purchase 2 Instrumented Measurement Vehicles and 4 Telemetry JMM BRUs. JMM BRU prime contractor fully manned to continue EMD phase.</p> <p>FY 2017 Base Plans: Continue Engineering Management Development (EMD) phase with prime contractor; deliver 2 Instrumented Measurement Vehicles and 4 Telemetry JMM BRUs.</p> <p>FY 2017 OCO Plans: N/A</p>	5.152 5	4.029 6	2.796 -	0.000 -	2.796 -
Accomplishments/Planned Programs Subtotals	9.165	8.173	7.401	0.000	7.401

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APN/072000: War Consumables/BRU-61 A/A	0.000	0.000	0.000	-	0.000	13.517	17.337	17.672	17.971	47.040	113.537
Remarks											

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604329N / <i>Small Diameter Bomb (SDB)</i>	Project (Number/Name) 3082 / <i>JMM BRU</i>

D. Acquisition Strategy

The JMM BRU is an Air Force led ACAT III program. Industry day was held 4Q FY2010, acquisition strategy approved 1Q FY 2011 and Material Development Decision (MDD) 2Q FY 2011. Competitive source selection conducted with Technology Development contract award 3Q FY2013. Milestone B was completed and Engineering, Manufacturing, and Development (EMD) contract awarded 4Q FY2015.

E. Performance Metrics

Earned value management is being implemented on the TD/EMD contract.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604329N / <i>Small Diameter Bomb (SDB)</i>	Project (Number/Name) 3082 / <i>JMM BRU</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Joint Miniature Munitions Bomb Rack Unit (JMM BRU)	C/FPIF	Raytheon Technical Services Company LLC : Indianapolis, IN	11.532	5.204	Jul 2015	4.029	Apr 2016	2.927	Apr 2017	-		2.927	7.456	31.148	33.565
Subtotal			11.532	5.204		4.029		2.927		-		2.927	7.456	31.148	33.565

Remarks

Funding provided to Raytheon Technical Services Company LLC for development of a JMM BRU SDB II carriage system which satisfies DoN environments. JMM BRU will carry four SDB II's and will be capable of being used both internally and externally.

Changes in FY 2016 funding profile to PU 3082 resulted in delay of F-35 Environmental Qualification testing to FY 2017.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CAATS	Various	NAWC AD : Lakehurst	1.323	0.000		0.777	Feb 2016	1.125	Feb 2017	-		1.125	0.919	4.144	-
Subtotal			1.323	0.000		0.777		1.125		-		1.125	0.919	4.144	-

Remarks

Common Aircraft Armament Test Set (CAATS) is the intermediate level test set required for JMM BRU to verify rack functionality. CAATS must be modified to support additional power requirements and interfaces of the JMM BRU.

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Flight Test	Various	Various : Various	0.000	0.000		0.000		0.631	Mar 2017	-		0.631	0.644	1.275	-
Subtotal			0.000	0.000		0.000		0.631		-		0.631	0.644	1.275	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604329N / <i>Small Diameter Bomb (SDB)</i>	Project (Number/Name) 3082 / <i>JMM BRU</i>
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks
 DT and OT efforts are budgeted for in the SDB II project unit as DT and OT will be for total weapon system. There will be no dedicated JMM BRU DT and OT. Funding in FY 2017 and cost to complete will fund captive carry flight testing.

 Developmental Test squadrons and locations for F-35B and F-35C are still uncertain as squadrons are being established.

 Flight Test conducted will be fit checks on F-35B and F-35C with the new JMM BRU.

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Government Support	WR	NAWC WD : China Lake, CA	6.305	2.915	Nov 2014	2.395	Nov 2015	2.002	Nov 2016	-		2.002	Continuing	Continuing	Continuing
Government Support	WR	Various : Various	5.231	0.842	Nov 2014	0.872	Nov 2015	0.616	Nov 2016	-		0.616	1.923	9.484	-
Contractor Services	MIPR	AFLCMC : Eglin AFB, FL	0.377	0.129	Dec 2014	0.000	Nov 2015	0.000		-		0.000	0.750	1.256	-
Travel	MIPR	ASC20OG : Eglin AFB, FL	0.196	0.075	Oct 2014	0.100	Oct 2015	0.100	Oct 2016	-		0.100	1.250	1.721	-
Subtotal			12.109	3.961		3.367		2.718		-		2.718	-	-	-

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals		24.964	9.165	8.173	7.401	7.401	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604329N / <i>Small Diameter Bomb (SDB)</i>	Project (Number/Name) 3082 / <i>JMM BRU</i>
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Joint Miniature Munitions Bomb Rack Unit (JMM BRU)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestones																												
Milestones																												
	Milestone B ▲								Milestone C ▲								FRP Decision ◆											
Systems Development																												
Hardware Development	Technology Development																											
	Engineering Manufacturing and Development (EMD)																											
Reviews	Preliminary Design Review (PDR) ■				Critical Design Review (CDR) ■																							
Test & Evaluation																												
Technical Evaluation	Design Verification								Environmental Qualification								EMD Flight Test											
Procurement																												
													LRIP 1 Contract Award (APN) ●				LRIP 2 Contract Award (APN) ●				FRP Contract Award (Lot 3) (APN) ●				FRP Contract Award (Lot 4) (APN) ●			
Deliveries																												
																	LRIP 1				LRIP 2				Lot 3			

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604329N / <i>Small Diameter Bomb (SDB)</i>	Project (Number/Name) 3082 / <i>JMM BRU</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Joint Miniature Munitions Bomb Rack Unit (JMM BRU)</i>				
Acquisition Milestonees: Milestones: Milestone B	4	2015	4	2015
Acquisition Milestonees: Milestones: Milestone C	2	2018	2	2018
Acquisition Milestonees: Milestones: Full Rate Production (FRP) Decision	1	2020	1	2020
Systems Development: Hardware Development: Technology Development	1	2015	3	2015
Systems Development: Hardware Development: Engineering Manufacturing and Development (EMD)	3	2015	2	2018
Systems Development: Reviews: Preliminary Design Review (PDR)	2	2015	2	2015
Systems Development: Reviews: Critical Design Review (CDR)	1	2016	1	2016
Test & Evaluation: Technical Evaluation: Design Verification	1	2015	1	2016
Test & Evaluation: Technical Evaluation: Environmental Qualification	1	2017	4	2017
Test & Evaluation: Technical Evaluation: EMD Flight Test	4	2017	4	2021
Procurement: LRIP 1 Contract Award	2	2018	2	2018
Procurement: LRIP 2 Contract Award	2	2019	2	2019
Procurement: FRP Contract Award (Lot 3)	2	2020	2	2020
Procurement: FRP Contract Award (Lot 4)	2	2021	2	2021
Deliveries: LRIP 1 Deliveries	4	2019	4	2020
Deliveries: LRIP 2 Deliveries	4	2020	4	2021
Deliveries: FRP (Lot 3) Deliveries	4	2021	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604366N / <i>Standard Missile Improvements</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	2,186.356	50.241	115.644	120.561	-	120.561	173.761	135.735	88.932	102.128	Continuing	Continuing
0439: <i>Standard Missile Improvement</i>	1,117.377	11.434	19.626	24.987	-	24.987	64.465	73.613	83.390	96.317	Continuing	Continuing
3092: <i>Standard Missile 6 Program</i>	1,068.979	38.807	96.018	95.574	-	95.574	109.296	62.122	5.542	5.811	Continuing	Continuing

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): 197, 391

A. Mission Description and Budget Item Justification

STANDARD Missile (SM) is Navy's premier Anti-Air Warfare (AAW) missile, providing both area defense for the Fleet and self-defense for individual AEGIS CGs and DDGs, as required by the Joint Theater Air Missile Defense (TAMD), Mission Need Statement (MNS), Defense Planning Guidance (DPG), Quadrennial Defense Review (QDR), and Ship Class AAW Self Defense Capstone Requirements Document. SM-6 provides an air defense force multiplier to the U.S. Navy to greatly expand the AWS battlespace. Combining a modified AMRAAM active seeker onto the proven STANDARD Missile airframe, SM-6 provides an extended range anti-air warfare capability both over sea and overland. This low-risk approach relying on non-developmental items supported an FY 2011 Initial Operating Capability. With integrated fire control support, SM-6 provides the Navy with an increased battlespace against Anti-Air Warfare (AAW) threats over-the-horizon.

<u>B. Program Change Summary (\$ in Millions)</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>
Previous President's Budget	36.698	129.649	114.759	-	114.759
Current President's Budget	50.241	115.644	120.561	-	120.561
Total Adjustments	13.543	-14.005	5.802	-	5.802
• Congressional General Reductions	-	-0.005			
• Congressional Directed Reductions	-	-14.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	14.727	0.000			
• SBIR/STTR Transfer	-1.184	0.000			
• Program Adjustments	0.000	0.000	14.900	-	14.900
• Rate/Misc Adjustments	0.000	0.000	-9.098	-	-9.098

Change Summary Explanation

Decrease in Standard Missile Improvements by \$4.124M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy Date: February 2016

Appropriation/Budget Activity
1319: *Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)*

R-1 Program Element (Number/Name)
PE 0604366N / *Standard Missile Improvements*

SBIR reduction (\$1.184) in FY15. FY 15 increase to Standard Missile 6 program (\$14.727) is for Future Capabilities Demonstration to support a TACDEMO event. FY 16 decrease to Standard Missile 6 program (\$14.005) is for Congressional reduction for 4 excess SM-6 design and analysis. FY17 increase to Standard Missile Improvement (\$14.900) is for SM-2 improvements to mitigate obsolescence and address emerging threats. FY 17 decrease to Standard Missile Improvement and Standard Missile 6 program (\$4.133) for other rate/miscellaneous reductions.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604366N / <i>Standard Missile Improvements</i>				Project (Number/Name) 0439 / <i>Standard Missile Improvement</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
0439: <i>Standard Missile Improvement</i>	1,117.377	11.434	19.626	24.987	-	24.987	64.465	73.613	83.390	96.317	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 197

A. Mission Description and Budget Item Justification

Modifications to SM-2 BLK IIIA are required for use on DDG-1000 class destroyers. The Joint Universal Waveform Link (JUWL) will be integrated with the Evolved Sea Sparrow Missile (ESSM) and Standard Missile (SM) to communicate with the DDG-1000 SPY-3 radar. SM-2 missile software will be updated with Interrupted Continuous Wave Illumination (ICWI) in order to allow operation with DDG-1000.

Missile Integration with Air and Missile Defense S-Band Radar (ADMDR-S) for DDG 51 Flight III ships will include requirements review/updates and analysis, verification; technical documentation, design review and working group SME support, missile/radar integration, missile test hardware procurement, risk assessment, safety, test and evaluation planning, analysis, and data collection. Deliverables include interface control documents (ICDs) changes, missile specifications changes, and engineering documents updates to support AEGIS Configuration Baseline (ACB) 20 PDR (FY16), CDR (FY18); Engineering Development Model (EDM) testing (FY16/17); Surface Combat Systems Center, Wallops Island, Virginia (SCSC) Combat System/missile integration testing (FY18/19); Waterfront Integration Testing (WIT) FY 21 and ACB 20 for DDG 51 FLT III Electromagnetic Environmental Effects (E3) and Hazard of Electromagnetic Radiation to Ordnance (HERO) Testing, analysis, and reports. Missile variants: ESSM BLK 1 and 2; SM-2 BLK IIIB MU2; SM-6 BLK I and IA (Current AEGIS configuration).

STANDARD Missile 2 (SM-2) engineering changes funding is for the design, systems engineering, analysis, integration, and test of replacements for obsolete components as well as performance improvements to address emerging threats. Analysis will include evaluation of transition to an active seeker baseline leveraging the investment made with the SM-6 and ESSM Block II missiles. Initial funding is for the requirements generation, risk reduction/mitigation, and documentation leading to the commencement of the obsolescence project. Capability improvements: Enhanced Stream-Raid performance against numerous threats to include Agile Prism via target resolution in range and Doppler and missile/target pairing logic, over-the-horizon capability for increased depth of fire, enhanced capability against electronic attack, improved firepower due to decreased dependence on illuminators, and enhanced fuzing via guidance integrated fuzing.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: DDG-1000 Pre Plan Product Improvement (P3I) Link Integration/ICWI	8.566	0.170	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Conducted SM guidance and round level qualification testing and Electromagnetic Interface (EMI)/E3 testing.					
FY 2016 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy				Date: February 2016		
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604366N / <i>Standard Missile Improvements</i>	Project (Number/Name) 0439 / <i>Standard Missile Improvement</i>				
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)						
		FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Complete Engineering Change Proposal (ECP) for qualified SM-2 BLK IIIAZ configuration. Prepare for SM-2 BLK IIIAZ SSSTRP and WSESRB in FY16. FY 2017 Base Plans: N/A FY 2017 OCO Plans: N/A						
Title: Standard Missile-2 Improvement		0.000	0.000	13.293	0.000	13.293
		Articles: -	-	-	-	-
FY 2015 Accomplishments: N/A FY 2016 Plans: N/A FY 2017 Base Plans: Complete operational requirements generation and staffing for approval. Complete Missile Performance Specification for 2018 project commencement. Conduct risk reduction/mitigation activities to clearly identify and reduce risk entering into project start in 2018. Complete respective acquisition documentation for the project. Finalize completion contract for the project with the prime contractor. Combat System and System of System kill chain coordination. Insensitive Munitions (IM) effort to enhance the safety and reaction of our weapons including design and development efforts for a single pulse Electronic Ignition Safety Device (EISD), potentially for MK-104 dual thrust rocket motor (DTRM) in an emergent SM-2 improvements effort. FY 2017 OCO Plans: N/A						
Title: Air and Missile Defense Radar (AMDR) Integration		2.868	19.456	11.694	0.000	11.694
		Articles: -	-	-	-	-
FY 2015 Accomplishments: Developed and updated missile interface documentation to support the detailed requirements development for ACB Next and integration with AMDR. Provided design and program review support with radar and CS prime contractors and engineering studies. FY 2016 Plans:						

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604366N / <i>Standard Missile Improvements</i>	Project (Number/Name) 0439 / <i>Standard Missile Improvement</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Update missile models with AMDR and Combat System (CS) elements as available; generate missile fly out data; configure missile communication test set for radar risk reduction testing. Support and prepare for land based testing, provide engineering studies for integration of SM and ESSM with AMDR. Perform Electromagnetic environmental effects and Hazard of Electromagnetic Radiation to Ordnance (HERO) testing. Review E3/HERO design, analyses, and qualification tests. Develop new missile Interface Control Documents (ICDs) for SM-2, SM-6, and ESSM. Participate in and provide analysis to support the radar design evolution. Provide Principal for Safety (PFS) and systems safety engineering support. Interface with Weapon System Explosive Safety Review Board (WSESRB) board members and review safety documentation as required. FY 2017 Base Plans: Support and conduct early stage radar/Combat System/Missile integration/risk reduction testing with Missile Communication Test Set (MCTS). Complete E3/HERO design, analysis, and qualification testing. Conduct planning and configure SM-2/ESSM/SM-6 Internal Missile Initializer and Power Supply (IMIPS) Inert Operating Missile (IOM) in preparation for land based testing at Surface Combat Systems Center, Wallops Island, Virginia (SCSC) in FY 18. Support verification analysis; technical documentation updates, design review and working group SME support, risk assessment, safety, test and evaluation planning, analysis, and data collection. FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	11.434	19.626	24.987	0.000	24.987

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

Production representative missiles will be built for ESSM between FY12 and FY15 and for SM-2 between FY14 and FY18.

Engineering and integration testing for X-Band Transceiver (XBT) ESSM in FY14-FY17 and SM-2 in FY14-FY16. 67 ESSM missiles and 37 SM missiles are required to support Developmental Test & Operational Test (DT & OT) FY17-FY18 and continue follow-on ship integration and design update effort in FY19.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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<p>SM Development, integration, and test is expected to conclude by early FY18 for the X-band JUWL and ICWI. ESSM initial engineering design for X-Band JUWL capability was completed and development completed in FY15. XBT JUWL ESSM land-based integration testing is expected to conclude by FY16, and shipboard testing to conclude by early FY19.</p> <p>Engineering and integration testing for SM-2 Improvements in FY17-FY21 to support Developmental Test in FY20 and continue follow-on ship integration and design update effort in FY21.</p> <p>E. Performance Metrics</p> <p>SM-2 Design verification of component, plate, guidance section, and all up round with a final qualification test in December 2015 - July 2016.</p> <p>Conduct SM-2 Software System Safety Technical Review Panel (SSSTRP) and Weapon System Explosive Review Board (WSESRB) in FY16.</p> <p>Conduct SM-2 Software System Safety Technical Review Panel (SSSTRP) and Weapon System Explosive Review Board (WSESRB) in FY17.</p> <p>SM-2 BLK III ICWI JUWL Program to complete in July 2016.</p> <p>Conducting interim WSESRB for XBT JUWL ESSM in FY16. Held preliminary SSSTRP and WSESRB for Dual-Band Transceiver (DBT - supports X-Band JUWL and S-Band) ESSM in FY15, conduct interim SSSTRP and WSESRB for DBT ESSM in FY16, conduct final SSSTRP and WSESRB for DBT ESSM in FY17.</p> <p>Develop AMDR new missile ICDs for SM-2, SM-6, and ESSM BLK I in FY15/16. Develop new missile ICDs for ESSM BLK II in FY16.</p> <p>Perform E3/HERO design, analyses, E3/HERO qualification tests for AMDR in FY16-17.</p> <p>AMDR WSESRB in FY16.</p> <p>AMDR MCTS testing is planned for FY16/17.</p> <p>AMDR IOM testing is planned for FY18-21.</p> <p>Combat System Integration for AMDR is planned for FY19-20.</p> <p>Waterfront Integration Testing for AMDR is planned for FY22.</p> <p>SM-2 Improvements PDR in FY18.</p> <p>SM-2 Improvements SSSTRP in FY19.</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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SM-2 Improvements WSESRB in FY19.

SM-2 Improvements Developmental Test in FY20.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Design and Analysis1	SS/CPAF	RAYTHEON : Tucson, AZ	277.984	9.172	Nov 2014	3.440	Mar 2016	20.389	Nov 2016	-		20.389	Continuing	Continuing	Continuing
Design and Analysis2	C/CPFF	JHU/APL : Laurel, MD	7.806	0.310	Nov 2014	3.781	Mar 2016	3.250	Nov 2016	-		3.250	0.000	15.147	-
Design and Analysis3	MIPR	MIT/Lin Lab : Lexington, MA	0.050	0.000		0.000		0.000		-		0.000	0.000	0.050	-
Design and Analysis4	WR	NSWC : Dahlgren	788.667	0.601	Nov 2014	0.784	Feb 2016	0.238	Nov 2016	-		0.238	0.000	790.290	-
Design and Analysis5	WR	NSWC : Indian Head	0.940	0.000		0.000		0.000		-		0.000	0.000	0.940	-
Design and Analysis6	WR	NAWC : China Lake	4.225	0.474	Nov 2014	1.109	Feb 2016	0.250	Nov 2016	-		0.250	0.000	6.058	-
Design and Analysis7	Various	LOCKHEED MARTIN : Moorestown, NJ	17.775	0.000		0.000		0.000		-		0.000	0.000	17.775	-
Design and Analysis8	WR	CNO : Washington, DC	0.010	0.000		0.000		0.000		-		0.000	0.000	0.010	-
Design and Analysis9	WR	CMDP : Phoenix, AZ	4.795	0.000		0.000		0.000		-		0.000	0.000	4.795	-
Design and Analysis11	WR	NSWC : Crane	0.257	0.000		0.000		0.000		-		0.000	0.000	0.257	-
Design and Analysis12	WR	DOI&CNAP : Washington, DC	0.487	0.000		0.000		0.000		-		0.000	0.000	0.487	-
Design and Analysis13	WR	COMPTEVFOR : Norfolk, VA	0.100	0.000		0.000		0.100	Nov 2016	-		0.100	0.000	0.200	-
Design and Analysis14	C/CPFF	LOCKHEED MARTIN : Moorestown, NJ	2.000	0.000		0.000		0.000		-		0.000	0.000	2.000	-
Design and Analysis15	WR	CARDEROCK : Bethesda, MD	0.050	0.000		0.000		0.000		-		0.000	0.000	0.050	-
Design and Analysis16	WR	NWAS : Corona	0.385	0.351	Nov 2014	0.000		0.200	Nov 2016	-		0.200	0.000	0.936	-
Design and Analysis17	C/CPFF	CORVID : Mooresville, NC	0.100	0.000		0.000		0.000		-		0.000	0.000	0.100	-
Design and Analysis18	C/CPFF	BAE : Rockville, MD	0.131	0.041	Nov 2014	0.000		0.000		-		0.000	0.000	0.172	-
Design and Analysis19	MIPR	MDA : Dahlgren, VA	1.257	0.000		0.000		0.000		-		0.000	0.000	1.257	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Design and Analysis20	WR	IWS3D : ARLINGTON, VA	1.500	0.000		0.000		0.000		-		0.000	0.000	1.500	-
Design and Analysis21	WR	VARIOUS : IWS 1.0	0.000	0.000		10.052	Mar 2016	0.100	Nov 2016	-		0.100	0.000	10.152	-
Design and Analysis21	WR	IWS3A : Arlington, Va	0.000	0.000		0.000		0.100	Nov 2016	-		0.100	0.000	0.100	-
Subtotal			1,108.519	10.949		19.166		24.627		-		24.627	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DEVELOPMENTAL TEST & EVALUATION1	WR	NSWC : Port Hueneme	0.185	0.000		0.000		0.000		-		0.000	0.000	0.185	-
DEVELOPMENTAL TEST & EVALUATION2	WR	WSMR : New Mexico	1.600	0.000		0.000		0.000		-		0.000	0.000	1.600	-
DEVELOPMENTAL TEST & EVALUATION3	WR	NAWC : Pt Mugu	0.098	0.000		0.000		0.000		-		0.000	0.000	0.098	-
DEVELOPMENTAL TEST & EVALUATION4	WR	PMRF : Hawaii	0.338	0.000		0.000		0.000		-		0.000	0.000	0.338	-
DEVELOPMENTAL TEST & EVALUATION5	WR	NSWC : PHD/ Techrep	0.567	0.000		0.000		0.000		-		0.000	0.000	0.567	-
Subtotal			2.788	0.000		0.000		0.000		-		0.000	0.000	2.788	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CONTRACTOR ENGINEERING SUPPORT	C/CPAF	VARIOUS : VARIOUS	2.630	0.000		0.000		0.000		-		0.000	0.000	2.630	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604366N / <i>Standard Missile Improvements</i>	Project (Number/Name) 0439 / <i>Standard Missile Improvement</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Proj 0439																												
JUWL SSSTRP 2				■																								
JUWL WSESRB 2					■																							
JUWL IOC													■															
JUWL SSSTRP 3							■																					
JUWL WSESRB 3							■																					
AMDR MISSILE MODELS		■	■																									
JUWL Guidance and Round Level Testing		■	■																									
JUWL EMV Test/Analysis and Uplink/Downlink Verification				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
JUWL Program	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
JUWL WIETC	■																											
AMDR Land Based Testing								■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
JUWL SDTS INCO Firing												■																
JUWL ITB 3													■															
AMDR IOM Delivery							■																					
AMDR 2ND IOM Delivery												■																
SM-2 Improvements PDR												■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
SM-2 Improvements WSESRB													■															
SM-2 Improvements WSESRB 2																								■				
SM-2 Improvements CDR																								■				
SM-2 Improvements SSSTRP																									■			
SM-2 Improvements WSESRB 3																										■		
SM-2 Improvements SSSTRP 2																											■	
SM-2 Improvements DT																											■	■

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy																							Date: February 2016					
Appropriation/Budget Activity 1319 / 5										R-1 Program Element (Number/Name) PE 0604366N / <i>Standard Missile Improvements</i>										Project (Number/Name) 0439 / <i>Standard Missile Improvement</i>								
	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
SM-2 Improvements WSESRB 4																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 0439				
JUWL SSSTRP 2	1	2016	1	2016
JUWL WSESRB 2	2	2016	2	2016
JUWL IOC	4	2018	4	2018
JUWL SSSTRP 3	3	2016	3	2016
JUWL WSESRB 3	3	2016	3	2016
AMDR MISSILE MODELS	3	2015	4	2015
JUWL Guidance and Round Level Testing	3	2015	3	2015
JUWL EMV Test/Analysis and Uplink/Downlink Verification	1	2016	4	2017
JUWL Program	1	2015	1	2017
JUWL WIETC	1	2015	1	2015
AMDR Land Based Testing	1	2017	4	2019
JUWL SDTS INCO Firing	3	2017	3	2017
JUWL ITB 3	4	2017	4	2017
AMDR IOM Delivery	3	2016	3	2016
AMDR 2ND IOM Delivery	3	2017	3	2017
SM-2 Improvements PDR	4	2017	1	2018
SM-2 Improvements WSESRB	2	2018	2	2018
SM-2 Improvements WSESRB 2	2	2019	2	2019
SM-2 Improvements CDR	2	2019	2	2019
SM-2 Improvements SSSTRP	4	2019	4	2019
SM-2 Improvements WSESRB 3	2	2020	2	2020

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
SM-2 Improvements SSSTRP 2	3	2020	3	2020
SM-2 Improvements DT	4	2020	3	2021
SM-2 Improvements WSESRB 4	2	2021	2	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604366N / <i>Standard Missile Improvements</i>				Project (Number/Name) 3092 / <i>Standard Missile 6 Program</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3092: <i>Standard Missile 6 Program</i>	1,068.979	38.807	96.018	95.574	-	95.574	109.296	62.122	5.542	5.811	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
Project MDAP/MAIS Code: 391												

A. Mission Description and Budget Item Justification

This program leverages existing missile technology and advanced missile technology. It aligns missile technology roadmaps across the services (NAVSEA, NAVAIR, USAF, USMC and USA) and missile variants within the services, taking advantage of the Navy's investment in the AEGIS Weapons System (AWS), Cooperative Engagement Capability (CEC), and airborne early warning systems. This missile will provide an extended range engagement capability to provide the air superiority and the umbrella of protection for joint U.S. forces and allies against the full spectrum of manned-fixed and rotary-wing aircraft, unmanned aerial vehicles, and land attack and anti-ship cruise missiles in flight, thereby contributing to the continuous protection of forward deployed ground maneuver forces as well as theater rear assets as discussed in the Joint Theater Air Missile Defense (TAMD) Mission Need Statement (MNS), Defense Planning Guide (DPG), Quadrennial Defense Review (QDR), TAMD Capstone Requirements Document, Forward From the Sea, Joint Vision 2010/2020, the 2002/2003 Naval Transformational Roadmap, the Operational Requirements Document for SM-6 BLK 1, and the SM-6 Capability Production Document.

SM-6 portion of Joint and Naval Integrated Fire Control (IFC) is to support the integration, land-based and at-sea test, and analysis in support of the NIFC-CA test and evaluation strategy. NIFC-CA Increment 1 was successfully executed between 2009 and 2015. NIFC-CA Increment 2 commences in FY 16 and will be delivered as a FY19 and FY22 capability. It integrates sensor improvements, SM-6 BLK IA, CEC and AWS ACB 16 into an advanced from the sea (FTS) Kill chain. Efforts include support for the WSMR upgrade, Trackex events, Integration Events and Live Fire test at land based and at-sea tests. FY16 will also execute an IFC FTS Kill Chain Demo with JSF.

Insensitive Munitions (IM) effort supports transition of technology associated with Office of Naval Research (ONR) HARDKILL Future Naval Capabilities reflected in a signed level B, Technology Transition Agreement (TTA), endorse by PEO IWS 3.0, OPNAV N96, ONR, and MDA AX.

Portable All Up Round Bit Tester (PABTs) eliminates the need for missiles to be removed from the ship and transported to the Intermediate Logistics Maintenance Facility (ILMF) to undergo testing, reprogramming, and maintenance checks. PABTs development and subsequent delivery in FY16 will increase missile/asset availability to the fleet and result in significant maintenance savings over the SM-6 lifecycle.

Future capabilities demonstration project supports SM demonstrations, captive flight tests, data collection, and analysis tasks.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

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SM-6 System Engineering and Flight Test Support project supports the completion of SM-6 Follow-On Test and Evaluation (FOT&E) flight tests and Runs for the Record (RFR) required for SM-6 Full Operational Capability (FOC), the completion of OT-5/15 regression flight tests and associated RFR required for SM-6 FOC, and other SM-6 flight test events.

SM-6 OT-5/15 Development project supports the system engineering and software development to correct a deficiency discovered during Operational Tests 5 and 15. Correction of this deficiency is required for SM-6 FOC.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Title: SM-6 System Engineering and Flight Test Support</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: Completed two FOT&E events. Prepared for the remaining four FOT&E events and FY16 flight test events.</p> <p>FY 2016 Plans: Complete preparation for and support the remaining four FOT&E events. Complete SM-6 FOT&E Runs for the Record in support of SM-6 Full Operational Capability declaration. Complete preparation for and support the FY16 flight test events.</p> <p>FY 2017 Base Plans: Prepare for and support OT-5/15 Regression Flight Tests in conjunction with the Future Capabilities Demo CTV flight tests at the Pacific Missile Range Facility. Collection of data, performance analysis, and reliability assessments. Complete any required OT-5/15 Runs for the Record.</p> <p>FY 2017 OCO Plans: N/A</p>	6.087	21.300	10.500	0.000	10.500
<p>Title: Insensitive Munitions (IM)</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: The prime contractor continued the development effort to complete the ISD technology concept. Safety plans and reviews with the safety community are being executed regarding the ISD effort.</p> <p>FY 2016 Plans: The prime contractor will continue the development effort of the ISD technology concept. Safety plans and reviews with the safety community will be planned and executed.</p> <p>FY 2017 Base Plans:</p>	0.957	1.000	0.000	0.000	0.000

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Effort combined with SM-2 Improvements starting in FY 17. FY 2017 OCO Plans: N/A					
Title: Portable All-Up Round Bit Tester (PABTs) Articles:	0.958 -	0.000 -	0.000 -	0.000 -	0.000 -
FY 2015 Accomplishments: Completed hardware/software Preliminary Design review (PDR) and interface development and support efforts for hardware/software Critical Design Review (CDR). FY 2016 Plans: N/A FY 2017 Base Plans: N/A FY 2017 OCO Plans: N/A					
Title: SM-6 OT-5/15 Development Articles:	3.300 -	8.900 -	0.000 -	0.000 -	0.000 -
FY 2015 Accomplishments: Began development of software correction for deficiencies found during IOT&E events OT-5 and OT-15. Additional details are held at a higher classification. FY 2016 Plans: Complete development of the OT-5/15 correction FY 2017 Base Plans: N/A FY 2017 OCO Plans: N/A					
Title: Naval Integrated Fire Control - Counter Air (NIFC-CA) Articles:	1.943 -	2.106 -	2.215 -	0.000 -	2.215 -
FY 2015 Accomplishments:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016		
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)					
Developed initial Capabilities and Limitations. Supported successful first deployment of the NIFC-CA Capability. Integrated missile 6-DoF upgrade to NIFC-CA Federation. Successfully conducted Live Fire Test-3 at the White Sands Missile Range. Successfully executed engineering and integration tracking exercises to support live fire events and for validation of SoS simulation.					
FY 2016 Plans: Continue NIFC-CA Increment 1 live fire tests and updates to capabilities and limitations. Commence NIFC-CA Increment 2 2019/2022 capability. Support the WSMR Desert Ship Upgrade III in support of NIFC-CA Increment 2. Integrate the SM-6 Block IA missile simulation into the NIFC-CA Federation. Support development of NIFC-CA Increment 2 test strategy, Performance Assessment, Data Analysis, and Systems Engineering Working Groups.					
FY 2017 Base Plans: Support Increment 2 SoS integration and test activities associated with the WSMR Desert Ship Upgrade Integrate SM-6 6DoF updates into the NIFC-CA Federation Support Quarterly Program Reviews, Performance Assessment Working Groups, Modeling and Simulation Working Group, and System Engineering Integration and Test Working Group. Provide MSU and support to engineering test events and post event performance analysis.					
FY 2017 OCO Plans: N/A					
Title: Future Capability Demonstration					
Articles:					
	25.562	62.712	82.859	0.000	82.859
	-	-	-	-	-
FY 2015 Accomplishments: Controlled Test Vehicle (CTV) flight tests at the Pacific Missile Range Facility, data collections, performance analysis tasks, reliability assessment, and Combat Systems Integration Test (CSIT). Integration testing of the entire architecture interfaces missile, data network, AEGIS, and airborne sensor. Prepared for TACDEMO. Additional details are held at a higher classification.					
FY 2016 Plans: Complete preparation for and support the TACDEMO. Begin development of additional capabilities in SM-6 Blk IA. Additional details are held at a higher classification.					
FY 2017 Base Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Prepare for and support two additional CTV flight tests at the Pacific Missile Range Facility. Collection of data, performance analysis, and reliability assessments. Continue development of additional capabilities in SM-6 Blk IA missile. Additional details are held at a higher classification					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	38.807	96.018	95.574	0.000	95.574

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017	FY 2017	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Cost To	
			Base	OCO	Total					Complete	Total Cost
• WPN 2234: <i>Standard Missile</i>	404.464	417.252	501.212	-	501.212	511.633	522.957	535.995	544.561	3,766.962	8,641.651
• Standard Missile: <i>QTY</i>	100.000	113.000	125.000	-	125.000	125.000	125.000	125.000	125.000	632.000	1,830.000

Remarks

D. Acquisition Strategy

SM-6 Acquisition Strategy signed by OSD AT&L 14 March 2012.

E. Performance Metrics

Accomplishments

- Future Capability Demonstration Captive Flight Test 2nd quarter 2015 - 1st quarter 2016
- Future Capability Demonstration Captive Test Vehicle events Feb 2015
- DT (FOT&E) 2015

Upcoming Milestones

- Integrated Fire Control (IFC) Increments I (Oct 2008-Sep 2015) and II (Oct 2015-Sep 2022)
- Future Capability Demonstration At-Sea Test (2) Jan 2016
- Future Capability Demonstration At-Sea Test (3) May 2017
- Future Capability Demonstration At-Sea Test (4) May 2018
- Future Capability Demonstration At-Sea Test (5) Aug 2019
- Operational Test (OT- 5/15) May 2017
- OT (FOT&E)2016
- NIFC-CA Live Fire Test (4) Jun 2016

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<ul style="list-style-type: none">- NIFC-CA Joint Strike Fighter Demo Sep 2016- NIFC-CA Live Fire Test Jun 2017		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604366N / <i>Standard Missile Improvements</i>	Project (Number/Name) 3092 / <i>Standard Missile 6 Program</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Design & Analysis	C/CPFI	RAYTHEON : Tucson, AZ	686.272	14.663	Feb 2015	26.888	Dec 2015	38.122	Nov 2016	-		38.122	Continuing	Continuing	Continuing
Design & Analysis	C/CPFF	JHU/APL : Laurel MD	49.062	2.445	Feb 2015	3.574	Dec 2015	4.037	Nov 2016	-		4.037	0.000	59.118	-
Design & Analysis	MIPR	MIT/Lin Lab : Lexington, MA	0.550	0.000		0.000		0.000		-		0.000	0.000	0.550	-
Design & Analysis	WR	NAWC : China Lake	4.637	0.000		0.768	Nov 2015	0.548	Nov 2016	-		0.548	0.000	5.953	-
Design & Analysis	WR	NSWC : Dahlgren	11.325	0.329	Feb 2015	0.135	Nov 2015	0.150	Nov 2016	-		0.150	0.000	11.939	-
Design & Analysis	WR	NSWC : Indian Head	3.862	0.055	Feb 2015	0.025	Nov 2015	0.000		-		0.000	0.000	3.942	-
Design & Analysis	WR	NSWC : PHD	9.282	0.600	Feb 2015	1.035	Nov 2015	0.125	Nov 2016	-		0.125	0.000	11.042	-
Design & Analysis	WR	NSWC : Crane	1.256	0.000		0.000		0.000		-		0.000	0.000	1.256	-
Design & Analysis	MIPR	JSPO : Eglin AFB	24.049	0.000		0.000		0.000		-		0.000	0.000	24.049	-
Design & Analysis	C/CPFF	LOCKHEED Martin : Moorestown, NJ	6.074	0.000		0.000		0.000		-		0.000	0.000	6.074	-
Design & Analysis	WR	NSWC : Corona	16.659	1.449	Feb 2015	2.125	Nov 2015	0.500	Nov 2016	-		0.500	0.000	20.733	-
Design & Analysis	Reqn	ONR : Arlington, VA	5.320	0.000		0.000		0.000		-		0.000	0.000	5.320	-
Design & Analysis	Reqn	NRL : Washington, DC	0.090	0.000		0.050	Nov 2015	0.000		-		0.000	0.000	0.140	-
Design & Analysis	WR	COMPTEVFOR : Norfolk, VA	2.155	0.215	Nov 2014	0.125	Nov 2015	0.000		-		0.000	0.000	2.495	-
Design & Analysis	WR	CARDEROCK : Philadelphia, PA	2.549	0.509	Feb 2015	0.600	Nov 2015	0.200	Nov 2016	-		0.200	0.000	3.858	-
Design & Analysis	WR	NSWC : Pt Mugu	0.613	0.000		0.000		0.000		-		0.000	0.000	0.613	-
Design & Analysis	C/CPFF	BAE : Rockville, MD	6.446	0.000		0.040	Jan 2016	0.000		-		0.000	0.000	6.486	-
Design & Analysis	MIPR	ARMY : Redstone	0.050	0.300	Feb 2015	0.000		0.000		-		0.000	0.000	0.350	-
Design & Analysis	WR	NAWCAD : Pax River, MD	0.392	1.056	Feb 2015	2.264	Nov 2015	0.000		-		0.000	0.000	3.712	-
Design & Analysis	C/CPFF	CORVID : Mooresville, NC	2.900	1.200	Nov 2014	3.000	Nov 2015	3.000	Nov 2016	-		3.000	0.000	10.100	-
Design & Analysis	C/CPFF	RNB : Arlington, VA	0.010	0.000		0.000		0.000		-		0.000	0.000	0.010	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604366N / <i>Standard Missile Improvements</i>	Project (Number/Name) 3092 / <i>Standard Missile 6 Program</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Design & Analysis	WR	SPAWAR : Arlington, VA	0.007	0.000		0.000		0.000		-		0.000	0.000	0.007	-
Design & Analysis	WR	ARMY : Cecom	0.066	0.000		0.000		0.000		-		0.000	0.000	0.066	-
Design & Analysis	C/FP	GENERAL DYNAMICS : Falls Church, VA	1.660	0.000		0.000		0.000		-		0.000	0.000	1.660	-
Design & Analysis	WR	VARIOUS : (IWS 1A)	69.563	4.702	Feb 2015	15.904	Dec 2015	0.000		-		0.000	0.000	90.169	-
Design & Analysis	WR	VARIOUS : (VLS)	24.927	0.347	Feb 2015	0.050	Mar 2016	0.575	Nov 2016	-		0.575	0.000	25.899	-
Design & Analysis	WR	NSWC : WSMR	0.100	0.000		0.000		0.500	Nov 2016	-		0.500	0.000	0.600	-
Design & Analysis	WR	PMRF : Hawaii	0.000	0.772	Feb 2015	2.334	Nov 2015	0.000		-		0.000	0.000	3.106	-
Design & Analysis	WR	DOI : Washington D.C.	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Subtotal			929.876	28.642		58.917		47.757		-		47.757	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental Test & Evaluation	WR	NSWC : Port Hueneme	2.065	0.641	Feb 2015	1.723	Nov 2015	0.750	Nov 2016	-		0.750	0.000	5.179	-
Developmental Test & Evaluation	WR	NSWC : WSMR	26.042	0.250	Feb 2015	0.375	Mar 2016	0.625	Nov 2016	-		0.625	0.000	27.292	-
Developmental Test & Evaluation	WR	PMRF : Hawaii	38.201	0.757	Feb 2015	2.186	Nov 2015	5.500	Nov 2016	-		5.500	0.000	46.644	-
Developmental Test & Evaluation	WR	NAWC : Pt Mugu	2.769	0.375	Feb 2015	0.847	Nov 2015	0.200	Nov 2016	-		0.200	0.000	4.191	-
Developmental Test & Evaluation	C/CPAF	RAYTHEON : Tucson, AZ	18.961	1.331	Feb 2015	17.606	Dec 2015	5.500	Nov 2016	-		5.500	0.000	43.398	-
Developmental Test & Evaluation	C/CPFF	JHU/APL : Laurel, MD	7.436	2.845	Feb 2015	3.182	Dec 2015	4.138	Nov 2016	-		4.138	0.000	17.601	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604366N / <i>Standard Missile Improvements</i>	Project (Number/Name) 3092 / <i>Standard Missile 6 Program</i>
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental Test & Evaluation	WR	NSWC : Corona	6.718	0.500	Feb 2015	3.158	Nov 2015	4.261	Nov 2016	-		4.261	0.000	14.637	-
Developmental Test & Evaluation	WR	NSWC : Dahlgren	1.508	0.000		0.380	Nov 2015	0.400	Nov 2016	-		0.400	0.000	2.288	-
Developmental Test & Evaluation	WR	VLS : Arlington, VA	2.044	0.000		0.325	Mar 2016	0.100	Nov 2016	-		0.100	0.000	2.469	-
Developmental Test & Evaluation	WR	COMPTEVFOR : Norfolk, Va	1.364	0.000		0.150	Nov 2015	0.100	Nov 2016	-		0.100	0.000	1.614	-
Developmental Test & Evaluation	WR	VARIOUS : (IWS 1A)	0.902	1.330	Feb 2015	0.850	Dec 2015	20.600	Nov 2016	-		20.600	0.000	23.682	-
Developmental Test & Evaluation	WR	NSWC : Carderock	2.000	0.000		0.280	Nov 2015	0.100	Nov 2016	-		0.100	0.000	2.380	-
Developmental Test & Evaluation	WR	NAWC : China Lake	0.000	0.000		0.194	Nov 2015	1.430	Nov 2016	-		1.430	0.000	1.624	-
Developmental Test & Evaluation	WR	ONR : Arlington, Va	0.000	0.536	Feb 2015	1.318	Nov 2015	0.000		-		0.000	0.000	1.854	-
Developmental Test & Evaluation	WR	DOI : Washington D.C.	0.000	0.000		0.545	Nov 2015	0.000		-		0.000	0.000	0.545	-
Subtotal			110.010	8.565		33.119		43.704		-		43.704	0.000	195.398	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Contractor Engineering Services	C/CPAF	VARIOUS : Various	26.781	1.500	Feb 2015	3.912	Apr 2016	4.050	Nov 2016	-		4.050	0.000	36.243	-
Travel	Various	IWS3 : Arlington, VA	1.182	0.100	Feb 2015	0.070	Nov 2015	0.063	Nov 2016	-		0.063	0.000	1.415	-
DAWDF	C/FP	Not Specified : Not Specified	1.130	0.000		0.000		0.000		-		0.000	0.000	1.130	-
Subtotal			29.093	1.600		3.982		4.113		-		4.113	0.000	38.788	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy								Date: February 2016					
Appropriation/Budget Activity 1319 / 5				R-1 Program Element (Number/Name) PE 0604366N / <i>Standard Missile Improvements</i>				Project (Number/Name) 3092 / <i>Standard Missile 6 Program</i>					
	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	1,068.979	38.807		96.018		95.574		-		95.574	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604366N / <i>Standard Missile Improvements</i>	Project (Number/Name) 3092 / <i>Standard Missile 6 Program</i>
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FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
Proj 3092																												
Full Operational Capability (FOC)																■												
DT/OT DI (FOT&E)	■	■	■	■	■	■	■	■																				
Runs for the Record								■																				
Runs for the Record Final Report												■																
Future Capability Demonstration Captive Flight Test (CFT) 2		■	■	■																								
Future Capability Demonstration Captive Flight Test (CFT) 3												■	■	■	■	■												
Future Capability Demonstration Base Test (LBT) 1																				■								
Future Capability Demonstration At-Sea test 1		■																										
Future Capability Demonstration At-Sea test 2								■																				
Future Capability Demonstration At-Sea test 3												■																
Future Capability Demonstration At-Sea test 4																■												
Future Capability Demonstration At-Sea test 5																												■
Future Capability Demonstration PDR			■																									
Future Capability Tri-Capable Missile Regression Flight Tests												■																
OT-5/15 Flight Test												■																
Integrated Fire Control Increment I and II	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
NIFC-CA Live Fire (WSMR) (inc 1)	■																											

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604366N / <i>Standard Missile Improvements</i>	Project (Number/Name) 3092 / <i>Standard Missile 6 Program</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
NIFC-CA Live Fire 4 (WSMR) (Inc 1)																												
NIFC-CA Joint Strike Fighter Demo																												
NIFC-CA Live Fire Test (Inc 1)																												
NIFC-CA Integration & Test (Inc 2)																												
NIFC-CA Increment 2 Live Firing Testing (WSMR)																												
Integrated Fire Control Increment 2																												
Low-Rate Initial Production IV Deliveries																												
Full Rate Production (FRP) 1 Deliveries																												
Full Rate Production (FRP) 2 Deliveries																												
Full Rate Production (FRP) 3 Deliveries																												
Full Rate Production (FRP) 4 Deliveries																												
Full Rate Production (FRP) 5 Deliveries																												
Full Rate Production (FRP) 6 Deliveries																												
Full Rate Production (FRP) 3 Award																												
Full Rate Production (FRP) 4 Award																												
Full Rate Production (FRP) 5 Award																												
Full Rate Production (FRP) 6 Award																												
Full Rate Production (FRP) 7 Award																												
Full Rate Production (FRP) 8 Award																												
Full Rate Production (FRP) 9 Award																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604366N / <i>Standard Missile Improvements</i>	Project (Number/Name) 3092 / <i>Standard Missile 6 Program</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3092				
Full Operational Capability (FOC)	1	2018	1	2018
DT/OT DI (FOT&E)	1	2015	2	2016
Runs for the Record	3	2016	3	2016
Runs for the Record Final Report	1	2017	1	2017
Future Capability Demonstration Captive Flight Test (CFT) 2	2	2015	4	2015
Future Capability Demonstration Captive Flight Test (CFT) 3	2	2017	4	2017
Future Capability Demonstration Base Test (LBT) 1	2	2019	2	2019
Future Capability Demonstration At-Sea test 1	2	2015	2	2015
Future Capability Demonstration At-Sea test 2	2	2016	2	2016
Future Capability Demonstration At-Sea test 3	3	2017	3	2017
Future Capability Demonstration At-Sea test 4	3	2018	3	2018
Future Capability Demonstration At-Sea test 5	4	2019	4	2019
Future Capability Demonstration PDR	3	2015	3	2015
Future Capability Tri-Capable Missile Regression Flight Tests	3	2017	3	2017
OT-5/15 Flight Test	3	2017	3	2017
Integrated Fire Control Increment I and II	1	2015	4	2021
NIFC-CA Live Fire (WSMR) (inc 1)	2	2015	2	2015
NIFC-CA Live Fire 4 (WSMR) (Inc 1)	3	2016	3	2016
NIFC-CA Joint Strike Fighter Demo	4	2016	4	2016
NIFC-CA Live Fire Test (Inc 1)	3	2017	3	2017
NIFC-CA Integration & Test (Inc 2)	2	2018	2	2018

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604366N / <i>Standard Missile Improvements</i>	Project (Number/Name) 3092 / <i>Standard Missile 6 Program</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
NIFC-CA Increment 2 Live Firing Testing (WSMR)	3	2018	3	2018
Integrated Fire Control Increment 2	4	2018	4	2020
Low-Rate Initial Production IV Deliveries	1	2015	2	2015
Full Rate Production (FRP) 1 Deliveries	3	2015	2	2016
Full Rate Production (FRP) 2 Deliveries	3	2016	2	2017
Full Rate Production (FRP) 3 Deliveries	3	2017	2	2018
Full Rate Production (FRP) 4 Deliveries	3	2018	2	2019
Full Rate Production (FRP) 5 Deliveries	3	2019	2	2020
Full Rate Production (FRP) 6 Deliveries	3	2020	2	2021
Full Rate Production (FRP) 3 Award	2	2015	2	2015
Full Rate Production (FRP) 4 Award	2	2016	2	2016
Full Rate Production (FRP) 5 Award	2	2017	2	2017
Full Rate Production (FRP) 6 Award	2	2018	2	2018
Full Rate Production (FRP) 7 Award	2	2019	2	2019
Full Rate Production (FRP) 8 Award	2	2020	2	2020
Full Rate Production (FRP) 9 Award	2	2021	2	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604373N / <i>Airborne Mine Countermeasures (AMCM)</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	673.709	37.830	9.647	45.622	-	45.622	45.944	59.132	66.491	66.384	Continuing	Continuing
0529: <i>ABN Mine Hunt System</i>	311.416	14.931	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	326.347
2047: <i>ALMDS</i>	189.867	7.915	3.484	18.570	-	18.570	17.325	21.882	21.957	21.601	Continuing	Continuing
2473: <i>Airborne Mine Neutralization System</i>	142.602	7.270	4.521	13.903	-	13.903	15.995	26.865	33.902	33.919	Continuing	Continuing
4026: <i>Strat Into Medal, Tactics & Trng Organic Force</i>	24.885	6.858	1.642	11.786	-	11.786	11.363	9.458	9.682	9.892	Continuing	Continuing
9179: <i>Surf Navy Integ Undersea Tactical Tech</i>	4.939	0.856	0.000	1.363	-	1.363	1.261	0.927	0.950	0.972	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element provides resources to develop advanced mine countermeasures equipment systems 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 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. Capability improvements include 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 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. Other areas of importance include search and rescue; surface fire support; ASW operations; protection/offense against small craft/vehicles; air to air operations; very shallow water MCM; swimmer defense and torpedo defense. Efforts benefit the MCM force by transforming the Navy from the platform-centered legacy set of systems to a capability-centered force that is distributed, networked, and able to provide unique maritime influence and access across the entire maritime domain.

The Airborne Mine Countermeasures (AMCM) programs will provide detection, classification, localization, identification, neutralization, and influence clearance capabilities. The "Next Generation" AMCM systems will provide capabilities to the Littoral Combat Ship (LCS) Mine Countermeasure Mission (MCM) Package. This capability will be of critical importance in littoral zones, confined straits, choke points, and the Amphibious Objective Area (AOA).

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604373N / <i>Airborne Mine Countermeasures (AMCM)</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	38.941	11.647	29.476	-	29.476
Current President's Budget	37.830	9.647	45.622	-	45.622
Total Adjustments	-1.111	-2.000	16.146	-	16.146
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-2.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.110	0.000			
• Program Adjustments	0.000	0.000	18.300	-	18.300
• Rate/Misc Adjustments	-0.001	0.000	-2.154	-	-2.154

Change Summary Explanation

Decrease in Airborne Mine Countermeasures by \$1.2 million as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

Program Adjustments:

FY15 -\$1,111K Total Adjustments: -1,110K in SBIR adjustment, -\$1K in miscellaneous adjustments.

FY16 -\$2,000K Total Adjustments: -\$1,400K AMNS reduction, \$600K ALMDS reduction

FY17 +\$16,146K Total Adjustments: +10,300K ALMDS P3I, and +\$8,000K AMNS Near Surface Neutralization Capability and -\$2,154K miscellaneous adjustments.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)				Project (Number/Name) 0529 / ABN Mine Hunt System			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
0529: ABN Mine Hunt System	311.416	14.931	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	326.347
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

*AN/AQS-20A Program is realigned to 0603502N, Project Unit 0530 beginning in FY17

A. Mission Description and Budget Item Justification

This project contains resources for systems, subsystems, and sensors integrated for use with multiple platforms for mine detection, classification, localization, identification, neutralization, and influence clearance capabilities. Research, development, test, and evaluation efforts are for increasing capability by decreasing time required to conduct Mine Countermeasures (MCM) operations, ensuring low risk to naval and commercial vessels, and removing the man from the minefield. Increased capability includes conducting minefield reconnaissance (mine density and location) at high area search rates, improving detection capability, decreasing sensor false alarm rates, and reducing post-mission analysis for detection, classification, identification, and neutralization.

The AN/AQS-20A is a mine hunting and identification system with acoustic and optic sensors housed in an underwater towed body. The acoustic sensors are designed for the detection, classification and localization of bottom, close-tethered, and volume targets in a single pass. The Electro-Optic Identification Device (EOID) replaces the Volume Search Sonar (VSS) for identification of bottom targets. The system will be deployed from the Littoral Combat Ship (LCS) as part of the MCM Mission Package (MP). The AN/WLD-1(V)2 Remote Minehunting System (RMS) Remote Multi-Mission Vehicle (RMMV) tows the AN/AQS-20A.

The AN/AQS-20A Block 1 is undergoing a Pre-Planned Product Improvement (P3I) program to upgrade the Forward Looking Sonar (FLS) and Side-Looking Sonars (SLS) to improve Probability of Classifying a Mine-like object as a Mine, False Classification, and Depth Localization performance to meet Block 2 performance. The Forward Looking Sonar will be replaced with a new High Frequency Wideband design. The SLS will be replaced with a new Multi-function SLS with Synthetic Aperture Sonar (SAS) capability, as well as, improved signal processing and Signal to Noise Ratio. The Block 1 P3I program began in FY12 and will complete in FY16. Award and management for Block 2 production units began in FY14. Materiel Reliability, obsolescence, and performance Engineering Change Proposal (ECP) efforts continue beyond FY21.

The AN/AQS-24 Mine Hunting and Identification system is comprised of acoustic sensors housed in an underwater towed body. The AN/AQS-24 Volume Search upgrade will be developed, tested, and integrated for use with multiple platforms including the MH-53E Helicopter. This capability is in support of an Urgent Operational Need (UON) and will improve the rapid detection and localization of volume sea mines.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: AN/AQS-20A Product Development:	7.972	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)	Project (Number/Name) 0529 / ABN Mine Hunt System

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p><i>FY 2015 Accomplishments:</i></p> <ul style="list-style-type: none"> - Continued Materiel Reliability Improvement ECPs and incorporate into systems for IOT&E. - Upgraded Block 1 maintenance trainers to Block 2 configuration. - Developed Block 1 P3I Technical Data Package (TDP) - Continued Block 1 P3I find, fix and repair <p><i>FY 2016 Plans:</i></p> <ul style="list-style-type: none"> -Realigned to Program Element 0603502N. <p><i>FY 2017 Base Plans:</i></p> <p>N/A</p> <p><i>FY 2017 OCO Plans:</i></p> <p>N/A</p>					
<p><i>Title:</i> AN/AQS-20A Support:</p> <p align="right"><i>Articles:</i></p> <p><i>Description:</i> RDT&E Articles Quantity</p> <p><i>FY 2015 Accomplishments:</i></p> <ul style="list-style-type: none"> - Provided ongoing technical engineering support to AN/AQS-20A. - Completed updates to Block 2 logistics products based on the results of DT. - Conducted repairs to AN/AQS-20A following TECHEVAL activities. <p><i>FY 2016 Plans:</i></p> <ul style="list-style-type: none"> -Realigned to Program Element 0603502N. <p><i>FY 2017 Base Plans:</i></p> <p>N/A</p> <p><i>FY 2017 OCO Plans:</i></p> <p>N/A</p>	2.100	0.000	0.000	0.000	0.000
	-	-	-	-	-
<p><i>Title:</i> AN/AQS-20A Test and Evaluation</p> <p align="right"><i>Articles:</i></p> <p><i>Description:</i> RDT&E Articles Quantity</p>	3.539	0.000	0.000	0.000	0.000
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)	Project (Number/Name) 0529 / ABN Mine Hunt System

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>FY 2015 Accomplishments: - Participated in RMS (RMMV v6.0 and AN/AQS-20A) Developmental and Integrated Testing. - Supported LCS MCM MP TECHEVAL and IOT&E.</p> <p>FY 2016 Plans: -Realigned to Program Element 0603502N.</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: AN/AQS-20A Management Services</p> <p align="right">Articles:</p> <p>Description: RDT&E Articles Quantity</p> <p>FY 2015 Accomplishments: - Continued to provide planning and management for the AN/AQS-20A program to include the competitive contract. - Updated acquisition documentation such as the Acquisition Strategy and Plan in support of procuring Block 1 P3I kits and follow-on maintenance, and support. - Provided Program Office travel support.</p> <p>FY 2016 Plans: -Realigned to Program Element 0603502N.</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>	1.320	0.000	0.000	0.000	0.000
	-	-	-	-	-
Accomplishments/Planned Programs Subtotals	14.931	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)	Project (Number/Name) 0529 / ABN Mine Hunt System

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017	FY 2017	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Cost To	
			Base	OCO	Total					Complete	Total Cost
• OPN 4248: Aviation Mine Countermeasures	23.152	14.098	29.097	-	29.097	24.491	8.362	5.004	5.104	0.003	521.528
• OPN 1601: LCS MCM Mission Modules	15.270	67.451	57.146	-	57.146	161.605	197.738	103.496	203.284	1,002.735	1,875.439
• RDT&E 0603502N: Surface & Shallow Water MCM	83.793	90.472	165.775	-	165.775	157.821	184.838	212.970	222.095	Continuing	Continuing

Remarks

D. Acquisition Strategy

AN/AQS-20A LRIP procurement continues following Block 2 competitive contract award in FY14. FRPDR will occur in third quarter FY18. Procure P3I kits to upgrade Block 1 units to meet Block 2 capability.

AN/AQS-24C upgrade kits capability will integrate and test the improved volume search sonar.

E. Performance Metrics

AN/AQS-20A - Successfully support LCS MCM MP in FY15.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
1319 / 5				PE 0604373N / Airborne Mine Countermeasures (AMCM)				0529 / ABN Mine Hunt System							
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
AN/AQS-20A Hardware/ Software Development Q-20 on the H-53	SS/CPPIF	Raytheon : Portsmouth, RI	31.120	0.000		0.000		0.000		-		0.000	0.000	31.120	-
AN/AQS-20A Hardware/ Software Development Q-20A on the H-60	C/CPFF	Raytheon : Portsmouth, RI	60.150	0.000		0.000		0.000		-		0.000	0.000	60.150	-
AN/AQS-20A Hardware/ Software Development	WR	NSWC, PC : Panama City FL	14.251	0.000		0.000		0.000		-		0.000	0.000	14.251	-
AN/AQS-20A Hardware/ Software Development	C/FP	Northrop Grumman : Melbourne, FL	4.572	0.000		0.000		0.000		-		0.000	0.000	4.572	-
AN/AQS-20A P3I	C/CPFF	Raytheon : Portsmouth, RI	26.704	5.846	Nov 2014	0.000		0.000		-		0.000	0.000	32.550	-
AN/AQS-20A P3I	C/CPFF	ARL/UT : Austin, TX	10.425	0.450	Dec 2014	0.000		0.000		-		0.000	0.000	10.875	-
AN/AQS-20A P3I	WR	NSWC, PC : Panama City FL	4.817	0.476	Nov 2014	0.000		0.000		-		0.000	0.000	5.293	-
AN/AQS-24 Hardware/ Software Development	C/CPPIF	Northrop Grumman : Annapolis, MD	6.072	0.000		0.000		0.000		-		0.000	0.000	6.072	-
AN/AQS-24 Hardware/ Software Development	C/CPFF	ARL/UT : Austin, TX	4.191	0.000		0.000		0.000		-		0.000	0.000	4.191	-
AN/AQS-24 Hardware/ Software Development	WR	NSWC, PC : Panama City, FL	0.528	0.000		0.000		0.000		-		0.000	0.000	0.528	-
AN/AQS-20A Materiel Reliability ECP Development	C/CPFF	Raytheon : Portsmouth, RI	2.075	1.000	Nov 2014	0.000		0.000		-		0.000	0.000	3.075	-
AN/AQS-20A P3I	WR	Naval Research Lab : Stennis Space Center, MS	0.352	0.200	Nov 2014	0.000		0.000		-		0.000	0.000	0.552	-
Subtotal			165.257	7.972		0.000		0.000		-		0.000	0.000	173.229	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)	Project (Number/Name) 0529 / ABN Mine Hunt System
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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AN/AQS-20A Engineering Services	WR	NSWC, PC : Panama City, FL	33.170	2.100	Nov 2014	0.000		0.000		-		0.000	0.000	35.270	-
AN/AQS-20A Engineering Services	C/CPFF	Raytheon : Portsmouth, RI	3.686	0.000		0.000		0.000		-		0.000	0.000	3.686	-
AN/AQS-20A Engineering Services	Various	Various : Various	54.018	0.000		0.000		0.000		-		0.000	0.000	54.018	-
AN/AQS-20A Engineering Services 2	SS/CPIF	Raytheon : Portsmouth, RI	3.464	0.000		0.000		0.000		-		0.000	0.000	3.464	-
AN/AQS-20A ILS Function	WR	NSWC, PC : Panama City FL	6.846	0.000		0.000		0.000		-		0.000	0.000	6.846	-
AN/AQS-20A ILS Function	SS/CPIF	Raytheon : Portsmouth, RI	1.546	0.000		0.000		0.000		-		0.000	0.000	1.546	-
AN/AQS-20A ILS Function	Various	Various : Various	0.981	0.000		0.000		0.000		-		0.000	0.000	0.981	-
AN/AQS-20A Engineering Services	WR	NSWC/CD : Carderock, MD	0.500	0.000		0.000		0.000		-		0.000	0.000	0.500	-
AN/AQS-24 Engineering Services/ILS Functions	C/CPIF	Northrop Grumman : Annapolis, MD	0.250	0.000		0.000		0.000		-		0.000	0.000	0.250	-
AN/AQS-24 Engineering Services/ILS Functions	C/CPFF	ARL/UT : Austin, TX	0.741	0.000		0.000		0.000		-		0.000	0.000	0.741	-
AN/AQS-24 Engineering Services/ILS Functions	WR	NSWC, PC : Panama City, FL	0.560	0.000		0.000		0.000		-		0.000	0.000	0.560	-
Subtotal			105.762	2.100		0.000		0.000		-		0.000	0.000	107.862	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AN/AQS-20A T&E Functions	WR	COTF : Norfolk, VA	0.200	0.000		0.000		0.000		-		0.000	0.000	0.200	-
AN/AQS-20A T&E Functions	WR	NSWC, PC : Panama City FL	21.221	3.239	Nov 2014	0.000		0.000		-		0.000	0.000	24.460	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)	Project (Number/Name) 0529 / ABN Mine Hunt System
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AN/AQS-20A T&E Functions	C/CPFF	Raytheon : Portsmouth, RI	4.434	0.200	Nov 2014	0.000		0.000		-		0.000	0.000	4.634	-
AN/AQS-20A T&E Functions	Various	Various : Various	1.583	0.000		0.000		0.000		-		0.000	0.000	1.583	-
AN/AQS-24 T&E Functions	WR	NSWC, PC : Panama City, FL	1.700	0.000		0.000		0.000		-		0.000	0.000	1.700	-
AN/AQS-24 T&E Functions	WR	NAVAIR : Pax River, MD	0.290	0.000		0.000		0.000		-		0.000	0.000	0.290	-
AN/AQS-24 T&E Functions	WR	COTF : Norfolk, VA	1.600	0.000		0.000		0.000		-		0.000	0.000	1.600	-
AN/AQS-24 T&E Functions	C/CPIF	Northrop Grumman : Annapolis, MD	1.000	0.000		0.000		0.000		-		0.000	0.000	1.000	-
AN/AQS-24 T&E Functions	C/CPFF	ARL/UT : Austin, TX	0.500	0.000		0.000		0.000		-		0.000	0.000	0.500	-
AN/AQS-20A T&E Functions	C/CPFF	ARL/UT : Austin, TX	0.000	0.100	Dec 2014	0.000		0.000		-		0.000	0.000	0.100	-
Subtotal			32.528	3.539		0.000		0.000		-		0.000	0.000	36.067	-

Remarks
COFT - Naval Command Operational Test and Evaluation Force

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AN/AQS-20A Management Services	TBD	Various : Various	6.980	1.280	Dec 2014	0.000		0.000		-		0.000	0.000	8.260	-
AN/AQS-20A Travel	TBD	Various : Various	0.627	0.040	Jan 2015	0.000		0.000		-		0.000	0.000	0.667	-
AN/AQS-20A Acquisition Workforce Fund	Various	Various : Various	0.012	0.000		0.000		0.000		-		0.000	0.000	0.012	-
AN/AQS-24 Program Management	WR	NSWC, PC : Panama City, FL	0.250	0.000		0.000		0.000		-		0.000	0.000	0.250	-
Need Item Text	C/BA	Not Specified : Not Specified	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)	Project (Number/Name) 0529 / ABN Mine Hunt System
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			7.869	1.320		0.000		0.000		-		0.000	0.000	9.189	-
Project Cost Totals			311.416	14.931		0.000		0.000		-		0.000	0.000	326.347	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)	Project (Number/Name) 0529 / ABN Mine Hunt System
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Proj 0529	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
AN/AQS-20A Development Phase	AN/AQS-20A Block 1 P3I																											
	Block 1 & 2 ECP Development																											
AN/AQS-20A Test & Evaluation Milestones	LCS MCM MP DT Phase IV Period 2		LCS MCM MP TECHEVAL																									
	RMS v6.0 CT/DT/IT																											
AN/AQS-20A Production Milestones	AN/AQS-20A Low Rate Initial Production (LRIP)																											
	Block 2 LRIPs (1 Unit) ▲																											

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)	Project (Number/Name) 0529 / ABN Mine Hunt System
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AN-AQS 24	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	
Contracting Strategy																													
Q-24B ECP Contract			▲ Q-24B Contract Award																										
Q-24C Contract	▲ Q-24C Contract Award									▲ Q-24C Production Award																			
Decision Reviews																													
Decisions		▲ PDR	▲ CDR																										
			▲ TRR																										
Test and Evaluation																													
Testing			— Testing																										
Sytem Deliveries and Installs																													
Engineering Development Model Delivery		— EDM Delivery																											
Production Sytem Production/Deliveries																													
Q-24 B Production	— B Kit Production																												
Q-24 C Production				— B Kit Deliveries									— C Kit Production																
															— C Kit Deliveries														

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)	Project (Number/Name) 0529 / ABN Mine Hunt System

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 0529				
AN/AQS-20A Development Phase: AN/AQS-20A Block 1 P3I	1	2015	4	2015
AN/AQS-20A Development Phase: AN/AQS-20A Materiel Reliability, Obsolesence, and Performance ECP Development (Block 1 & 2)	1	2015	4	2015
AN/AQS-20A Test & Evaluation Milestones: LCS MCM MP Test Events DT Phase IV Period 2	1	2015	2	2015
AN/AQS-20A Test & Evaluation Milestones: LCS MCM MP Test Evetns TECHEVAL	3	2015	3	2015
AN/AQS-20A Test & Evaluation Milestones: RMS version 6.0 Contractor Testing (CT)/ Developmental Test (DT)/Integrated Test (IT)	1	2015	2	2015
AN/AQS-20A Production Milestones: AN/AQS-20A Low Rate Initial Production (LRIP): AN/AQS-20A Block 2 Low Rate Initial Production (LRIP) Option 1 Award (1 Unit)	1	2015	1	2015
AN-AQS 24				
Contracting Strategy: Q-24B ECP Contract: Q-24B Contract Award	3	2015	3	2015
Contracting Strategy: Q-24C Contract: Q-24C Contract Award	1	2015	1	2015
Contracting Strategy: Q-24C Contract: Production Award	2	2017	2	2017
Decision Reviews: Decisions: Preliminary Design Review	2	2015	2	2015
Decision Reviews: Decisions: Critical Design Review	3	2015	3	2015
Decision Reviews: Decisions: Test Readiness Review	3	2015	3	2015
Test and Evaluation: Testing: Testing	3	2015	4	2015
Sytem Deliveries and Installs: Engineering Development Model Delivery: Engineering Development Model Delivery	2	2015	4	2015
Sytem Deliveries and Installs: Q-24 B Production: B Kit Production	1	2015	4	2015
Sytem Deliveries and Installs: Q-24 B Production: B Kit Deliveries & Integration	4	2015	4	2016

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / <i>Airborne Mine Countermeasures (AMCM)</i>	Project (Number/Name) 0529 / <i>ABN Mine Hunt System</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Sytem Deliveries and Installs: Q-24 C Production: C Kit Production	2	2017	2	2018
Sytem Deliveries and Installs: Q-24 C Production: C Kit Deliveries & Integration	2	2018	2	2019

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)	Project (Number/Name) 2047 / ALMDS
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2047: ALMDS	189.867	7.915	3.484	18.570	-	18.570	17.325	21.882	21.957	21.601	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Airborne Laser Mine Detection System (ALMDS), designation AN/AES-1, is a light detection and ranging (LIDAR) Airborne Mine Countermeasures (AMCM) high area coverage system that detects, classifies, and localizes near-surface moored sea mines. The system is deployed from the MH-60S helicopter and will provide Organic Airborne Mine Countermeasures (OAMCM) defense to the battle force. The system represents a capability that does not exist in the current Mine Countermeasures (MCM) inventory.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Hardware and Software technology development and demonstration/Engineering Services:	4.357	1.704	17.297	0.000	17.297
Articles:	-	-	-	-	-
Description: Engineering, oversight, and support of engineering efforts to meet baseline performance and P3I performance.					
FY 2015 Accomplishments: Provided LCS Independence MCM Test support. Continued to provide engineering services, pod repair, and maintenance. Continued P3I development (False Alarm Algorithms, false classification density, dual slope, laser tail, laser pulse width and VSW).					
FY 2016 Plans: Continue to provide engineering services, pod repair, and maintenance.					
FY 2017 Base Plans: Continue to provide engineering services, pod repair, and maintenance. Continue full rate production. Conduct P3I development- develop laser and diverger improvements, produce ECS controller redesign, false alarm mitigation development, rearchitect FPGA and continue the development of incremental software builds. Complete coding and pre-delivery testing of software Build 6010. Conduct Government acceptance testing of Build 6010 to verify successful code port of algorithms from power PC into FPGA's. Develop algorithms, write code and investigate software Build 6020 during FY17. Start the transition of Compact Modular Sensor Suite					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016		
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)	Project (Number/Name) 2047 / ALMDS			
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)					
(CMSS) technologies for ALMDS (specification development and contract materials preparation). Start CMSS requirements analysis, system requirements review, and system functional review.					
FY 2017 OCO Plans: N/A					
Title: Integrated Logistics Support:					
Articles:					
	0.834	0.595	1.031	0.000	1.031
	-	-	-	-	-
FY 2015 Accomplishments: Provided logistics support, depot analysis to LRIP units, LCS MCM MP support and FR PDR preparation.					
FY 2016 Plans: Provide logistics support, depot analysis to LRIP units, IOC for LCS Independence variant, and FR PDR support for LCS MCM Independence variant.					
FY 2017 Base Plans: Provide logistics support, depot analysis to LRIP units, IOC for LCS Independence variant and FR PDR support. Provide logistics support and documentation for CMSS requirements analysis, system requirements review, system functional review, specification development and contract material preparation.					
FY 2017 OCO Plans: N/A					
Title: Testing and Evaluation:					
Articles:					
	1.745	0.602	0.000	0.000	0.000
	-	-	-	-	-
FY 2015 Accomplishments: Completed EQT, OA phase B, DT phase 4 period 2, and support Mine Countermeasures (MCM) Mission Package (MP) IOT&E.					
FY 2016 Plans: ALMDS Test reports and ALMDS upgrade testing. Conduct FOT&E of LCS Mine Countermeasures (MCM) Mission Package (MP) Independence variant.					
FY 2017 Base Plans: N/A					
FY 2017 OCO Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)	Project (Number/Name) 2047 / ALMDS

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
Title: Project Management:	0.979	0.583	0.242	0.000	0.242
Articles:	-	-	-	-	-
Description: Completion of OA					
FY 2015 Accomplishments: Program management, financial management and contractor support.					
FY 2016 Plans: Program management, financial management and contractor support.					
FY 2017 Base Plans: Program management, financial management and contractor support.					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	7.915	3.484	18.570	0.000	18.570

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• OPN 4248: Aviation Mine Countermeasures	23.152	14.098	29.097	-	29.097	24.491	8.362	5.004	5.104	0.003	521.528
• OPN 1601: LCS MCM Mission Modules	15.270	67.451	57.146	-	57.146	161.605	197.738	103.496	203.284	1,002.735	1,875.439

Remarks

D. Acquisition Strategy
The program entered Production and Development Acquisition Phase following MS C in May 2005. August 2007 program authorized to meet full performance in two increments. The first LRIP lot was awarded as a new sole-source contract to the SD&D contractor in FY05. FRP will be based on Increment 1 performance. In FY14 a new competitive FFP production contract was awarded. This is a Fixed-Price Incentive (FPI) contract with cost and schedule incentives.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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E. Performance Metrics

Conducted Operational Assessment (OA) Phase A in FY12. Conducted OA Phase B, Environmental Qualification Test (EQT), and Equipment Qualifications Test in FY14. Completed OA Phase B and DT phase 4 period 2 in FY14/15.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)	Project (Number/Name) 2047 / ALMDS
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Hardware/Software Development	WR	NSWC PC : Panama City FL	2.900	0.302	Nov 2014	0.111	Nov 2015	0.057	Nov 2016	-		0.057	0.000	3.370	-
Hardware/Software Development	C/CPAF	Northrop Grumman : Melbourne, FL	41.023	0.200	Nov 2014	0.000	Nov 2015	2.922	Nov 2016	-		2.922	0.000	44.145	-
Hardware/Software Development	WR	NUWC NPT : VA	1.461	0.453	Nov 2014	0.000	Nov 2015	0.378	Nov 2016	-		0.378	0.000	2.292	-
Hardware/Software Development	WR	NSWC IH : MD	0.785	0.374	Nov 2014	0.000		0.000		-		0.000	0.000	1.159	-
Engineering Services1	WR	NSWC PC : Panama City FL	18.137	1.501	Nov 2014	0.400	Nov 2015	4.706	Nov 2016	-		4.706	Continuing	Continuing	Continuing
Engineering Services2	C/CPAF	Northrop Grumman : Melbourne, FI	25.728	0.161	Nov 2014	0.250	Nov 2015	0.607	Nov 2016	-		0.607	0.000	26.746	-
Engineering Services3	WR	NUWC NPT : VA	20.122	0.661	Nov 2014	0.348	Nov 2015	4.704	Nov 2016	-		4.704	Continuing	Continuing	Continuing
Engineering Services4	MIPR	Various : Various	5.422	0.344	Nov 2014	0.318	Nov 2015	2.324	Nov 2016	-		2.324	Continuing	Continuing	Continuing
Engineering Services5	MIPR	various : Various	2.574	0.361	Nov 2014	0.277	Nov 2015	1.599	Nov 2016	-		1.599	0.000	4.811	-
Subtotal			118.152	4.357		1.704		17.297		-		17.297	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ILS Functions1	WR	NSWC PC : Panama City FL	4.765	0.634	Nov 2014	0.395	Nov 2015	0.346	Nov 2016	-		0.346	Continuing	Continuing	Continuing
ILS Functions2	WR	Northrop Grumman : Melbourne FL	7.886	0.200	Nov 2014	0.200	Nov 2015	0.685	Nov 2016	-		0.685	Continuing	Continuing	Continuing
ILS Functions3	C/CPAF	Various/NRL Stennis : Various	1.062	0.000		0.000		0.000		-		0.000	0.000	1.062	-
ILS Functions4	WR	NSWC PC : Panama City FL	0.300	0.000		0.000		0.000		-		0.000	0.000	0.300	-
Subtotal			14.013	0.834		0.595		1.031		-		1.031	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)	Project (Number/Name) 2047 / ALMDS
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Testing and Evaluation1	C/CPAF	Northrop Grumman : Melbourne FL	17.454	0.150	Nov 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Testing and Evaluation2	WR	NSWC PC : Panama City FL	23.765	1.595	Nov 2014	0.602	Nov 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Testing and Evaluation	C/CPAF	Various : Various	3.084	0.000		0.000		0.000		-		0.000	0.000	3.084	-
Testing and Evaluation	WR	NAWC AD PAX : Panama City FL	2.110	0.000		0.000		0.000		-		0.000	0.000	2.110	-
Subtotal			46.413	1.745		0.602		0.000		-		0.000	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Management Support1	C/CPAF	NGC : Various	2.433	0.100	Nov 2014	0.265	Nov 2015	0.000		-		0.000	0.000	2.798	-
Management Support2	WR	NSWC PC : Panama City FL	5.994	0.879	Nov 2014	0.318	Nov 2015	0.242	Nov 2016	-		0.242	0.000	7.433	-
Management Support3	WR	ARINC : Panama City FL	2.782	0.000		0.000		0.000		-		0.000	0.000	2.782	-
DAWDF	Various	Various : Various	0.080	0.000		0.000		0.000		-		0.000	0.000	0.080	-
Subtotal			11.289	0.979		0.583		0.242		-		0.242	0.000	13.093	-

Project Cost Totals	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
	189.867	7.915	3.484	18.570	-	18.570	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)	Project (Number/Name) 2047 / ALMDS
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ALMDS	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestones																												
Initial Operating Capability																												
System Development																												
Increment I Development	Increment I P3I Upgrade Development																											
Transition of Compact Modular Sensor Suite (CMSS) Technologies	Non-recurring Engineering for ECP's																											
Preliminary Design Review	CMSS Functional Analysis																											
Critical Design Review	CMSS Spec/Materials Development																											
	PDR ▲																											
	CDR ▲																											
	CMSS Design & Reviews																											
	CMSS Fabrication and Component Validation																											
Test & Evaluation Milestones																												
DT Development Testing	MCM DT Ph 4 Pd 2																											
	DT EQT																											
	P3I Flight Test																											
	P3I Flight Test Phase 2																											
	OA Phase B																											
	LCS Independence Class DT																											
	P3I Lab Ground Test																											
	P3I DT/IT (FOT&E)																											
Production Milestones																												
	LRIP #5 ▲																											

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / <i>Airborne Mine Countermeasures (AMCM)</i>	Project (Number/Name) 2047 / <i>ALMDS</i>
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Production Deliveries	LRIP #5	
<i>2017PB - 0604373N - 2047</i>		

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / <i>Airborne Mine Countermeasures (AMCM)</i>	Project (Number/Name) 2047 / <i>ALMDS</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
ALMDS				
Acquisition Milestones: Initial Operating Capability: Initial Operating Capability Independence Class	4	2016	4	2016
Acquisition Milestones: Initial Operating Capability: Initial Operating Capability P3I	4	2021	4	2021
System Development: Increment I Development: Increment I P3I Upgrade Development	1	2015	4	2019
System Development: Increment I Development: Non-recurring Engineering for ECP's	1	2015	4	2018
System Development: Transition of Compact Modular Sensor Suite (CMSS) Technologies: Compact Modular Sensor Suite (CMSS) Functional Analysis	1	2017	1	2018
System Development: Transition of Compact Modular Sensor Suite (CMSS) Technologies: CMSS Spec/Materials Development	3	2017	4	2018
System Development: Preliminary Design Review: Preliminary Design Review	3	2019	3	2019
System Development: Critical Design Review: Critical Design Review	4	2019	4	2019
System Development: Critical Design Review: CMSS Design & Reviews	1	2019	4	2019
System Development: Critical Design Review: CMSS Fabrication and Component Validation	1	2020	1	2021
Test & Evaluation Milestones: DT Development Testing: MCM DT PH 4 Period 2	1	2015	1	2015
Test & Evaluation Milestones: DT Development Testing: DT Environmental Qualification Testing (EQT)	1	2015	1	2015
Test & Evaluation Milestones: DT Development Testing: P3I Flight Test 1	1	2015	1	2015
Test & Evaluation Milestones: DT Development Testing: P3I Flight Test Phase 2	4	2015	4	2015
Test & Evaluation Milestones: DT Development Testing: OA Phase B	1	2015	1	2015
Test & Evaluation Milestones: DT Development Testing: P3I Lab Ground Test	1	2020	1	2020
Test & Evaluation Milestones: DT Development Testing: LCS DT	2	2015	3	2015

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / <i>Airborne Mine Countermeasures (AMCM)</i>	Project (Number/Name) 2047 / <i>ALMDS</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Test & Evaluation Milestones: DT Development Testing: P3I DT/IT (FOT&E)	1	2021	3	2021
Production Milestones: LRIP 5 Units start	1	2015	1	2015
Production Deliveries: LRIP 5 Units Deliveries	1	2017	3	2017

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)				Project (Number/Name) 2473 / Airborne Mine Neutralization System			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2473: Airborne Mine Neutralization System	142.602	7.270	4.521	13.903	-	13.903	15.995	26.865	33.902	33.919	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Airborne Mine Neutralization System (AMNS) is a mine neutralization system, deployed from the MH-60S and MH-53E helicopters using an expendable mine neutralization device.

The AMNS (Archerfish) will be deployed from the MH-60S helicopter with the capability to neutralize bottom and moored mines using an expendable mine neutralization device. These systems will be deployed from the Littoral Combat Ship and will provide organic airborne mine neutralization capability as part of Littoral Combat Ship (LCS) Mine Warfare Mission Module. This capability will be of critical importance in littoral zones, confined straits, choke points and the Amphibious Objective Area (AOA). Improved AMNS (iAMNS/Barracuda) provides an expendable, reacquisition, identification and neutralization capability against bottom, moored and Near Surface sea mines. iAMNS/Barracuda is deployed from both MH-60S multi mission helicopters and Unmanned Surface Vehicles (USV), or any craft of opportunity, using existing common communications, command & control and launching equipment. iAMNS/Barracuda will field a baseline capability derived from the single sortie detect to engage (SS-DTE) future naval capabilities (FNC) effort. iAMNS/Barracuda addresses unmet requirements in near surface neutralization created with the cancellation of the RAMICS program in FY13. With baseline upgrades the system is suitable for mine neutralization in the full water column.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: AMNS: Development/Engineering Support	3.124	3.134	5.488	0.000	5.488
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Provided engineering support, including review for product development and integration. Developed logistics products, including training materials and interactive technical manuals.					
FY 2016 Plans: Provide engineering support, including review for product development and integration. Develop logistics products, including training materials and interactive technical manuals.					
FY 2017 Base Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)	Project (Number/Name) 2473 / Airborne Mine Neutralization System

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Provide engineering support, including review for product development and integration. Develop logistics products, including training materials and interactive technical manuals. Provide engineering support for upgrade development and develop associated logistics products. FY 2017 OCO Plans: N/A					
Title: AMNS: Test and Evaluation Articles:	3.000 -	0.725 -	0.500 -	0.000 -	0.500 -
FY 2015 Accomplishments: Completed OA Phase B. Supported MCM Technical Evaluation of AMNS. FY 2016 Plans: Conduct FOT&E of LCS Mine Countermeasures (MCM) Mission Package (MP). FY 2017 Base Plans: Conduct AMNS P3I/ECP upgrades tests FY 2017 OCO Plans: N/A					
Title: AMNS: Management Services Articles:	1.146 -	0.662 -	0.305 -	0.000 -	0.305 -
FY 2015 Accomplishments: Provided program management support, contract management and travel for AMNS. FY 2016 Plans: Provide program management support, contract management and travel for AMNS. FY 2017 Base Plans: Provide program management support, contract management and travel for AMNS. FY 2017 OCO Plans: N/A					
Title: iAMNS/Barracuda: Product Development Articles:	0.000 -	0.000 -	5.703 -	0.000 -	5.703 -
FY 2015 Accomplishments:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)	Project (Number/Name) 2473 / Airborne Mine Neutralization System

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A FY 2016 Plans: N/A FY 2017 Base Plans: Design and develop improved AMNS (iAMNS) providing identification and neutralization capability against bottom, moored and drifting sea mines. Develop and release RFP, conduct source selection and complete contract award. Develop Milestone B and PDR documentation. FY 2017 OCO Plans: N/A					
Title: iAMNS/Barracuda: Engineering Support Articles:	0.000 -	0.000 -	1.261 -	0.000 -	1.261 -
FY 2015 Accomplishments: N/A FY 2016 Plans: N/A FY 2017 Base Plans: Develop the CONOPS, conduct risk reduction prototyping, tactics analyses, and general systems engineering support. FY 2017 OCO Plans: N/A					
Title: iAMNS/Barracuda: Management Services Articles:	0.000 -	0.000 -	0.646 -	0.000 -	0.646 -
FY 2015 Accomplishments: N/A FY 2016 Plans: N/A FY 2017 Base Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)	Project (Number/Name) 2473 / Airborne Mine Neutralization System

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Provide program management, financial management, and engineering support.					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	7.270	4.521	13.903	0.000	13.903

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPN 4248: Aviation Mine Countermeasures	23.152	14.098	29.097	-	29.097	24.491	8.362	5.004	5.104	0.003	521.528
• WPN 4225: Airborne Mine Neutralization Systems	15.006	7.766	15.753	-	15.753	16.881	17.719	12.223	12.465	0.001	195.550
• OPN 1601: LCS MCM Mission Modules	15.270	67.451	57.146	-	57.146	161.605	197.738	103.496	203.284	1,002.735	1,875.439

Remarks

D. Acquisition Strategy
 AMNS: The Navy has successful completion of Developmental Testing (Inert) on MH-60S, and is conducting Tests on LCS with the MH-60S. The Navy has awarded a sole source contract to BAE for neutralizer procurements (WPN) to accompany the Launch and Handling Systems (LHS).
 iAMNS/Barracuda: Field the baseline system to address near surface portion of water column. Develop block upgrades to follow for deeper parts of the water column and develop software upgrades to baseline system.

E. Performance Metrics
 Successfully completion of Testing and receive IOC.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)	Project (Number/Name) 2473 / Airborne Mine Neutralization System
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Hardware/Software Development	Various	Various : Various	3.359	0.000		0.000		0.000		-		0.000	0.000	3.359	-
Hardware/Software Development	WR	NSWC PC : Panama City, FL	7.106	1.256	Nov 2014	1.266	Nov 2015	2.315	Nov 2016	-		2.315	1.322	13.265	-
Hardware/Software Development	C/CPAF	Raytheon : Portsmouth, RI	24.819	1.868	Nov 2014	1.868	Nov 2015	3.173	Nov 2016	-		3.173	1.587	33.315	-
Hardware/Software Development	SS/CPIF	Lockheed Martin : Syracuse, NY	3.331	0.000		0.000		0.000		-		0.000	0.000	3.331	-
Barracuda Hardware/ Software Development	WR	NSWC PC : Panama City, FL	0.000	0.000		0.000		2.813	Nov 2016	-		2.813	Continuing	Continuing	Continuing
Barracuda Hardware/ Software Development	WR	NSWC PC : Indian Head, MD	0.000	0.000		0.000		1.368	Nov 2016	-		1.368	Continuing	Continuing	Continuing
Barracuda Hardware/ Software Development	C/CPIF	JHU APL : Baltimore, MD	0.000	0.000		0.000		1.522	Nov 2016	-		1.522	Continuing	Continuing	Continuing
(Near Surface) Hardware/ Software Development	WR	NUWC, NPT : Newport, RI	6.691	0.000		0.000		0.000		-		0.000	0.000	6.691	-
(Near Surface) Hardware/ Software Development	C/CPIF	Raytheon : Portsmouth, RI	4.033	0.000		0.000		0.000		-		0.000	0.000	4.033	-
Subtotal			49.339	3.124		3.134		11.191		-		11.191	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Barracuda Engineering Support	WR	NUWC NPT : Newport RI	0.000	0.000		0.000		0.464	Nov 2016	-		0.464	0.000	0.464	-
Barracuda Engineering Services	C/CPIF	JHU APL : Baltimore, MD	0.000	0.000		0.000		0.300	Nov 2016	-		0.300	0.000	0.300	-
Barracuda T&E Support	WR	NUWC NPT : Newport RI	0.000	0.000		0.000		0.200	Nov 2016	-		0.200	0.000	0.200	-
Barracuda T&E Support	WR	NSWC IH : Indian Head, MD	0.000	0.000		0.000		0.297	Nov 2016	-		0.297	0.000	0.297	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)	Project (Number/Name) 2473 / Airborne Mine Neutralization System
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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		0.000		1.261		-		1.261	0.000	1.261	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Development Test & Evaluation	SS/CPFF	Lockheed Martin : Syracuse, NY	1.254	0.000		0.000		0.000		-		0.000	0.000	1.254	-
Operational Test & Evaluation	SS/CPFF	Lockheed Martin : Syracuse, NY	0.767	0.000		0.000		0.000		-		0.000	0.000	0.767	-
Test Assets	C/CPIF	Raytheon : Portsmouth, RI	3.310	0.000		0.000		0.000		-		0.000	0.000	3.310	-
(AMNS) Development Test & Evaluation	WR	NSWC, PC : Panama City, FL	38.166	0.000		0.000		0.125	Nov 2016	-		0.125	0.000	38.291	-
(AMNS) Development Test & Evaluation	C/CPIF	Raytheon : Portsmouth, RI	17.168	0.000		0.000		0.375	Nov 2016	-		0.375	0.000	17.543	-
(AMNS) Operational Test & Evaluation	WR	COTF : Norfolk, VA	16.370	3.000	Nov 2014	0.725	Nov 2015	0.000		-		0.000	0.125	20.220	-
Subtotal			77.035	3.000		0.725		0.500		-		0.500	0.125	81.385	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
(AMNS) Management Support	C/BA	NSWC PC : NSWC PC	0.000	0.363	Nov 2014	0.100	Nov 2015	0.128	Nov 2016	-		0.128	0.053	0.644	-
Barracuda Management Support	WR	NSWC PC : Panama City, FL	0.000	0.000		0.000		0.246	Nov 2016	-		0.246	0.000	0.246	-
Barracuda Program Management	WR	NUWC NPT : Newport RI	0.000	0.000		0.000		0.272	Nov 2016	-		0.272	0.000	0.272	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity 1319 / 5						R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)						Project (Number/Name) 2473 / Airborne Mine Neutralization System			

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Barracuda Engineering Support	C/CPIF	JHU APL : Baltimore, MD	0.000	0.000		0.000		0.128	Nov 2016	-		0.128	0.000	0.128	-
(AMNS) Program Management Support	C/CPFF	Various : Various	6.928	0.300	Nov 2014	0.127	Nov 2015	0.000		-		0.000	0.000	7.355	-
(AMNS) Program Management Support	C/CPIF	Raytheon : Portsmouth, RI	1.996	0.296	Nov 2014	0.262	Nov 2015	0.177	Nov 2016	-		0.177	0.073	2.804	-
(AMNS) Program Management Support	Various	Field Activity : Various	2.033	0.146	Nov 2014	0.173	Nov 2015	0.000		-		0.000	0.000	2.352	-
(AMNS) Travel	Allot	NAVSEA : Washington, DC	0.118	0.041	Nov 2014	0.000		0.000		-		0.000	0.000	0.159	-
DAWDF	Sub Allot	NAVSEA : Washington, DC	5.153	0.000		0.000		0.000		-		0.000	0.000	5.153	-
Subtotal			16.228	1.146		0.662		0.951		-		0.951	0.126	19.113	-
Project Cost Totals			142.602	7.270		4.521		13.903		-		13.903	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)	Project (Number/Name) 2473 / Airborne Mine Neutralization System
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AMNS	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
Acquisition Milestones																																
Initial Operational Capability																																
System Development																																
AMNS System Development	AMNS System Development																															
AMNS P3I Upgrades					AMNS Upgrade Development																											
Test & Evaluation Milestones																																
AMNS Development Testing (MH-60s)	DT/IT	LCS Independence Class DT																														
AMNS Operational Testing (MH-60s)	OA				Alternate Fiber Testing																											
					Dash 4 Configuration Testing																											
Production Milestones																																
LRIP #7 ▲																																
Production Deliveries																																
Deliveries	Deliveries																															

2017PB - 0604373N - 2473

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)	Project (Number/Name) 2473 / Airborne Mine Neutralization System
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iAMNS / Barracuda Neutralization	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
Acquisition Milestones																																
iAMNS / Barracuda Acquisition Documentation									Acquisition Documentation								Milestone B Decision ▲															
													E&MD Contract Award ▲																			
iAMNS / Barracuda Design Reviews																	PDR ▲				CDR ▲											
System Development																																
iAMNS / Barracuda									iAMNS / Barracuda Development																							
Test and Evaluation																																
Development Testing (DT)																									DT Testing							
System Deliveries																																
Engineering Development Model Delivery																									EDM							

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)	Project (Number/Name) 2473 / Airborne Mine Neutralization System

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
AMNS				
Acquisition Milestones: Initial Operational Capability: Initial Operational Capability	2	2016	2	2016
System Development: AMNS System Development: AMNS System Development	1	2015	4	2015
System Development: AMNS P3I Upgrades: AMNS Upgrade Development	1	2016	4	2018
Test & Evaluation Milestones: AMNS Development Testing (MH-60s): DT/IT	1	2015	1	2015
Test & Evaluation Milestones: AMNS Development Testing (MH-60s): LCS Independence Class DT	2	2015	3	2015
Test & Evaluation Milestones: AMNS Operational Testing (MH-60s): Operational Assessment	1	2015	1	2015
Test & Evaluation Milestones: AMNS Operational Testing (MH-60s): Alternate Fiber Testing	1	2017	4	2017
Test & Evaluation Milestones: AMNS Operational Testing (MH-60s): Dash 4 Configuration Testing	1	2017	4	2017
Production Milestones: AMNS LRIP (FY13)	1	2015	1	2015
Production Deliveries: Deliveries	1	2015	3	2016
iAMNS / Barracuda Neutralization				
Acquisition Milestones: iAMNS / Barracuda Acquisition Documentation: Acquisition Documentation	1	2017	1	2018
Acquisition Milestones: iAMNS / Barracuda Acquisition Documentation: Milestone B Decision	3	2018	3	2018
Acquisition Milestones: iAMNS / Barracuda Acquisition Documentation: Near Surface Contract Award	3	2018	3	2018
Acquisition Milestones: iAMNS / Barracuda Design Reviews: Preliminary Design Review	2	2019	2	2019

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / <i>Airborne Mine Countermeasures (AMCM)</i>	Project (Number/Name) 2473 / <i>Airborne Mine Neutralization System</i>

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Acquisition Milestones: iAMNS / Barracuda Design Reviews: Critical Design Review	1	2020	1	2020
System Development: iAMNS / Barracuda: iAMNS Barracuda Development	1	2017	4	2021
Test and Evaluation: Development Testing (DT): Development Testing (DT)	1	2021	4	2021
System Deliveries: Engineering Development Model Delivery: Engineering Development Model Delivery	1	2021	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)				Project (Number/Name) 4026 / Strat Into Medal, Tactics & Trng Organic Force			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
4026: <i>Strat Into Medal, Tactics & Trng Organic Force</i>	24.885	6.858	1.642	11.786	-	11.786	11.363	9.458	9.682	9.892	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The C4I, Tactics, Mission Planning (CTMP), and Post-Mission Analysis (PMA) program began in FY97 as an initiative to provide near-real-time data linking of mine sensor data between the MH-53E aircraft and ship- and/or shore-based command centers. CTMP evolved into both developing MEDAL modules for each "Next Generation" system and developing "Next Generation" Tactics. Additionally, CTMP provides threat data and system requirements and capabilities to the MEDAL software development effort. Finally, CTMP develops Networked Sensor Analysis for Mine Warfare (NSAM) as a MOSA compliant plug-in architecture of common post-mission analysis tools for "Next Generation" systems.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Hardware/Software Development	5.394	0.731	8.942	0.000	8.942
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Continued NSAM Open Architecture development, enhanced design and test					
FY 2016 Plans: Continue NSAM Open Architecture development, enhanced design and test					
FY 2017 Base Plans: CTMP development efforts will ramp up for Final LCS MCM mission package testing and integration to execute fielding to LCS in mid FY18. Complete NSAM increment one software development, begin NSAM increment II software design and development, conduct prototype development, conduct formal independent testing, and start LCS MCM mission package integration testing.					
FY 2017 OCO Plans: N/A					
Title: Engineering Services/ILS:	1.283	0.753	2.300	0.000	2.300
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)	Project (Number/Name) 4026 / Strat Into Medal, Tactics & Trng Organic Force

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Update ALMDS & AMNS TACMEMOs, upgrade tactics for MCM Mission Package and NSAM Engineering Support. FY 2016 Plans: Continue to update ALMDS & AMNS TACMEMOs, upgrade tactics for P31 sensors on AN/AQS-20A and NSAM Engineering Support, draft new effects based risk TACMEMO. FY 2017 Base Plans: Production of training manuals, and technical pubs to be provided to the fleet in support of LCS. FY 2017 OCO Plans: N/A					
Title: Management Support FY 2015 Accomplishments: CTMP Management Support NSAM Management Support FY 2016 Plans: CTMP Management Support NSAM Management Support FY 2017 Base Plans: Provide CTMP and NSAM management support FY 2017 OCO Plans: N/A	0.181	0.158	0.544	0.000	0.544
Articles:	-	-	-	-	-
Accomplishments/Planned Programs Subtotals	6.858	1.642	11.786	0.000	11.786

C. Other Program Funding Summary (\$ in Millions) N/A Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / <i>Airborne Mine Countermeasures (AMCM)</i>	Project (Number/Name) 4026 / <i>Strat Into Medal, Tactics & Trng Organic Force</i>

D. Acquisition Strategy

The Organic Post-Mission Analysis (OPMA) capability for the OAMCM systems was developed by NSWC PCD, Panama City, FL. OMN funding will be used to procure COTS ruggedized portable OPMA computers for LCS MCM Mission Package, ship of opportunity deployments, land basing, and training. NSWC-PCD has awarded contract for this Technical Refresh procurement with option years extending until FY18. NSAM will merge capabilities of OPMA and NAVO's Environmental PMA (EPMA) capabilities into an Open Architecture framework. Increment Build One will utilize government teams NSWC PCD and NRL-SSC to expedite fielding significant contact management improvements, data fusion techniques, and environmental PMA.

The tactics development, tactics training, and tactics algorithms/database efforts are performed by NSWC-PCD. These efforts will provide reach back support as the OAMCM systems begin to be fielded; will develop modifications to environmental databases necessary to support OAMCM mission planning; will update the MIW Tactics Continuum to address OAMCM; and will update the gear and mine database for threats addressed by the OAMCM systems.

E. Performance Metrics

Successfully integrate CTMP into LCS MCM Mission Package.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
1319 / 5				PE 0604373N / Airborne Mine Countermeasures (AMCM)				4026 / Strat Into Medal, Tactics & Trng Organic Force							
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware Software Development	WR	NSWC PCD : Panama City FL	13.832	5.044	Nov 2014	0.558	Nov 2015	4.442	Nov 2016	-		4.442	Continuing	Continuing	Continuing
Hardware/Software Development	WR	NRL-SSC : Bay St. Louis, MS	0.600	0.350	Nov 2014	0.173	Nov 2015	4.500	Nov 2016	-		4.500	Continuing	Continuing	Continuing
Subtotal			14.432	5.394		0.731		8.942		-		8.942	-	-	-
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Services	WR	SSC-PAC : Various	0.040	0.000	Nov 2014	0.000		0.000		-		0.000	0.000	0.040	-
Engineering Services	WR	NSWC PCD : Panama City FL	7.298	0.933	Nov 2014	0.501	Nov 2015	2.300	Nov 2016	-		2.300	Continuing	Continuing	Continuing
Engineering Services	WR	NRL-SSC : Bay St. Louis, MS	0.337	0.125	Nov 2014	0.132	Nov 2015	0.000		-		0.000	Continuing	Continuing	Continuing
ILS	WR	NSWC PC : Panama City FL	1.400	0.225	Nov 2014	0.120	Nov 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			9.075	1.283		0.753		2.300		-		2.300	-	-	-
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Management Support	WR	NSWC PC : Panama City FL	1.365	0.181	Nov 2014	0.158	Nov 2015	0.200	Nov 2016	-		0.200	Continuing	Continuing	Continuing
Acquisition Workforce Fund	Various	Various : Various	0.013	0.000		0.000		0.344	Nov 2016	-		0.344	0.000	0.357	-
Subtotal			1.378	0.181		0.158		0.544		-		0.544	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)	Project (Number/Name) 4026 / Strat Into Medal, Tactics & Trng Organic Force
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Proj 4026	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
Acquisition Milestones																																
System Development																																
MEDAL																																
OPMA	OPMA: Ongoing Development for P3I; Software																															
	OPMA: Tech Refresh																															
	OPMA: IA Recertification																															
NSAM	NSAM: NSAM S/W Development																															
	NSAM: NSAM Pubs																															
Tactics	Develop NTRP 3-15.2.2																															
	TACMEMO ALMDS				TACMEMO AMNS																											
	Reachback OAMCM support																															
	Update NTPP 3-15.22																															
	TACMEMO Efforts based application of Risk (EBAR)																															
Test & Evaluation																																
									NSAM Independent Testing				LCS MP Integration Testing																			
Production Milestones																																
Deliveries																																

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)	Project (Number/Name) 4026 / Strat Into Medal, Tactics & Trng Organic Force

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 4026				
System Development: OPMA: OPMA: Ongoing Development for Sensor P3I; Software	1	2015	4	2017
System Development: OPMA: OPMA: Tech Refresh to address Window XP End of Life	1	2015	2	2016
System Development: OPMA: OPMA: IA Recertification	1	2015	1	2015
System Development: NSAM: NSAM: NSAM S/W Development	1	2015	4	2020
System Development: NSAM: NSAM: NSAM Pubs	1	2015	2	2017
System Development: Tactics: Develop NTRP 3-15.2.2	1	2015	4	2020
System Development: Tactics: TACMEMO ALMDS	1	2015	3	2015
System Development: Tactics: TACMEMO AMNS	3	2016	2	2017
System Development: Tactics: Reachback OAMCM support	1	2015	4	2020
System Development: Tactics: Update NTTP 3-15.22	2	2015	4	2017
System Development: Tactics: TACMEMO Efforts based application of Risk (EBAR)	1	2015	2	2017
Test & Evaluation: Independent Testing of NSAM	1	2017	2	2017
Test & Evaluation: LCS MCM Mission Package Integration Testing	3	2017	2	2018

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)	Project (Number/Name) 9179 / Surf Navy Integ Undersea Tactical Tech
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
9179: Surf Navy Integ Undersea Tactical Tech	4.939	0.856	0.000	1.363	-	1.363	1.261	0.927	0.950	0.972	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Surface Navy Integrated Undersea Tactical Technology (SNIUTT) will be used to develop an AN/SQQ-32, AN/AQS-24 and AN/AQS-20A sensor training modules and future Organic Airborne Mine Countermeasures (OAMCM) Sensor Training Modules.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Title: Hardware and Software Development</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: Updated the AN/AQS-24, AN/AQS-20A sonar training module. Development of a Scenario Generator software system for COBRA for mine field recognition training and ALMDS training modules.</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans: Continue to update the AN/AQS-24, AN/AQS-20A sonar training module. Continue development of a Scenario Generator software system for COBRA for mine field recognition training and ALMDS training modules.</p> <p>FY 2017 OCO Plans: N/A</p>	0.722	0.000	1.363	0.000	1.363
<p>Title: Engineering and ILS Services</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: Provide SNIUTT In-Service Engineering Agent (ISEA) and development support.</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans:</p>	0.134	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / <i>Airborne Mine Countermeasures (AMCM)</i>	Project (Number/Name) 9179 / <i>Surf Navy Integ Undersea Tactical Tech</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.856	0.000	1.363	0.000	1.363

C. Other Program Funding Summary (\$ in Millions)
N/A

Remarks

D. Acquisition Strategy

Surface Navy Integrated Undersea Tactical Training (SNIUTT) has been used to develop AN/SQQ-32, AN/AQS-14, AN/AQS-24 and AN/AQS-20A sensor training modules. Funds will continue to support training for these sonar systems, as well as training for the REMUS sonar systems and other OAMCM systems in the same format as previous training. The SNIUTT sensor training modules will be developed by NSWC PCD, Panama City, FL,. Funds are being provided for development and delivery of refresher scenario based contact recognition training, and the update and modification of contact recognition training (interactive web based training and proficiency focused stand-alone training) in support of the SNIUTT program.

E. Performance Metrics

Successfully integrate SNIUTT into the school house training facility and provide to AMCM detachments for refresher training.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)	Project (Number/Name) 9179 / Surf Navy Integ Undersea Tactical Tech
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Hardware Software Development	WR	NSWC PC : Panama City FI	4.185	0.722	Nov 2014	0.000		1.363	Nov 2016	-		1.363	Continuing	Continuing	Continuing
Subtotal			4.185	0.722		0.000		1.363		-		1.363	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ISEA	WR	NSWC, PC : Panama City FL	0.751	0.134	Nov 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			0.751	0.134		0.000		0.000		-		0.000	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DAWDF	Various	Various : Various	0.003	0.000		0.000		0.000		-		0.000	0.000	0.003	-
Subtotal			0.003	0.000		0.000		0.000		-		0.000	0.000	0.003	-

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	4.939	0.856	0.000	1.363	-	1.363	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / Airborne Mine Countermeasures (AMCM)	Project (Number/Name) 9179 / Surf Navy Integ Undersea Tactical Tech
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SNIUTT	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
System Development																																
SNIUTT																																

2017OSD - 0604373N - 9179

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604373N / <i>Airborne Mine Countermeasures (AMCM)</i>	Project (Number/Name) 9179 / <i>Surf Navy Integ Undersea Tactical Tech</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
SNIUTT				
System Development: SNIUTT: SNIUTT	1	2015	4	2015
System Development: SNIUTT: SNIUTT Continued	1	2017	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy I BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604376M I (U) <i>Marine Air Grnd Task Force(MAGTF)EW for Aviatio</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	23.608	9.219	2.778	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	35.605
3327: <i>MAGTF EW Aviation Development</i>	23.608	4.079	1.107	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	28.794
3371: <i>MAGTF EW Interoperability Development</i>	0.000	5.140	1.671	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	6.811

Note
The ALQ-231(V)1 for Rotary Wing aircraft was re-designated ALQ-231(V)3 by ASN(RD&A).

A. Mission Description and Budget Item Justification

This program element includes development of Electronic Warfare (EW) systems for the United States Marine Corps (USMC) tactical aircraft, USMC helicopters, unmanned air vehicles, data link vulnerability assessments, precision targeting, USN and USMC radio frequency jammers, and development and testing of EW devices on emerging platforms to combat emerging threats and emergency contingencies.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under SYSTEM DEVELOPMENT AND DEMONSTRATION because it includes those projects that have passed Milestone B approval and are conducting engineering and manufacturing development tasks aimed at meeting validated requirement prior to full-rate production decision.

PE 0604376M consolidated to PE 0604270N beginning in FY17.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	7.832	2.778	24.885	-	24.885
Current President's Budget	9.219	2.778	0.000	-	0.000
Total Adjustments	1.387	0.000	-24.885	-	-24.885
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	1.537	0.000			
• SBIR/STTR Transfer	-0.149	0.000			
• Program Adjustments	0.000	0.000	-24.885	-	-24.885
• Rate/Misc Adjustments	-0.001	0.000	0.000	-	0.000

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy Date: February 2016

Appropriation/Budget Activity 1319: Research, Development, Test & Evaluation, Navy I BA 5: System Development & Demonstration (SDD)	R-1 Program Element (Number/Name) PE 0604376M I (U)Marine Air Grnd Task Force(MAGTF)EW for Aviatio
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Change Summary Explanation

Schedule: All RDT&EN events scheduled to occur after 1Q FY 2017 have been removed due to PE realignment.

ALQ-231(V)3 Quick Reaction Assessment moved from FY15 2nd quarter to FY16 2nd quarter due to UH-1Y test aircraft availability.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604376M / (U)Marine Air Grnd Task Force(MAGTF)EW for Aviatio				Project (Number/Name) 3327 / MAGTF EW Aviation Development			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3327: MAGTF EW Aviation Development	23.608	4.079	1.107	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	28.794
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project unit supports the United States Marine Corps development of Marine Air Ground Task Force (MAGTF) Electronic Warfare (EW) and the various elements of its distributed System of Systems (SoS) that support the Commandant of the Marine Corps' Strategy and Vision 2025 and Joint Vision 2025. The SoS will address MAGTF EW sufficiency gaps in the areas of Electronic Attack, EW Support, and Electronic Protection with a multitude of payloads designed for carriage on a variety of organic MAGTF air and ground assets. Payload development plans follow an adaptable, modular and open architecture philosophy to combat the increasing capability gap and enable future growth at a reduced operational and sustainment cost.

The ALQ-231(v)1 pod is the Fixed-Wing variant of the Intrepid Tiger II pod flown on the AV-8B and F/A-18A-D platforms. The ALQ-231(v)2 will be the variant of the Intrepid Tiger II pod flown on unmanned aerial vehicle (UAV) platforms once integration is complete. The ALQ-231(v)3 is the Rotary-Wing variant of the Intrepid Tiger II pod flown on the AH-1 and UH-1 platforms. As of the PresBud15 submission, the ALQ-231(v)1 was the only approved configuration and nomenclature for the Intrepid Tiger II pod. The re-designation of the ALQ-231 variants occurred with the approval of Rapid Deployment Capability authorization for ALQ-231 on Rotary Wing platforms by the Assistant Secretary of the Navy for Research, Development, and Acquisition (ASN(RD&A)) on January 14, 2014.

Prior to FY 2011, Intrepid Tiger II efforts were budgeted under Program Element (PE) 0604270N, Project Unit (PU) 0556.

In FY 2012, Intrepid Tiger II efforts were budgeted under PE 0604376M, PU 3327. In FY 2017, Intrepid Tiger II efforts are budgeted under PE 0604270N, PU 3327.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Intrepid Tiger II (ALQ-231)	4.079	1.107	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					
In FY 2015, the Intrepid Tiger II (ALQ-231) program continued to integrate ALQ-231 Intrepid Tiger II (v)3 on United States Marine Corps rotary wing platforms to include the UH-1 Type/Model/Series and continued efforts to integrate Intrepid Tiger II (ALQ-231) capability on unmanned aerial vehicle (UAV) and tilt-rotor platforms. The program continued to mature hardware technology, update targeting techniques, and correct identified software discrepancies. Efforts to identify Intrepid Tiger II based solution to radar threats also continued. Additionally, the program continued research efforts to develop an enabling capability to facilitate Collaborative EW (CEW) through shared organic, national and spaced Electro Magnetic Spectrum sensing (ES) and coordinated non-					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604376M I (U)Marine Air Grnd Task Force(MAGTF)EW for Aviatio	Project (Number/Name) 3327 I MAGTF EW Aviation Development

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
kinetic fires (EA) in accordance with spectrum operations objectives by linking C2, operators and sensors across a network interface.					
FY 2016 Plans: The Intrepid Tiger II (ALQ-231) program will continue to mature hardware technology, update targeting techniques, and correct identified software discrepancies. Work will continue to identify Intrepid Tiger II based solutions to radar threats in support of the penetrating jammer mission, culminating in the ALQ-231(v)1 BLK X Radar Jammer. Investigate potential for integration of the Intrepid Tiger II capability on tilt-rotor and C-130 platforms. Continue research efforts to develop an enabling capability to facilitate Collaborative EW (CEW) through shared organic, national and spaced ES and coordinated non-kinetic fires (EA) in accordance with spectrum operations objectives by linking C2, operators and sensors across a network interface, and continue to explore uses for Intrepid Tiger II with the Cyber Electronic Warfare Coordination Cell (CEWCC).					
FY 2017 Base Plans: The Intrepid Tiger II (ALQ-231) program has moved to Program Element (PE) 0604270N Project Unit (PU) 3327 in FY 2017.					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	4.079	1.107	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APN/0587: MAGTF EW for Aviation	17.170	7.680	5.676	-	5.676	5.682	11.267	11.360	11.588	135.059	277.109

Remarks

D. Acquisition Strategy

This project unit is part of United States Marine Corps led efforts to ensure Marine Corps requirements are included in the budget process for the Future Year Defense Program and beyond. These efforts include ALQ-231 Intrepid Tiger II(v)1, Intrepid Tiger II(v)2, Intrepid Tiger II(v)3, Collaborative Electronic Warfare (EW)/EW Battle Management, EW Payload, and EW Service Architecture (formerly Collaborative Online Reconnaissance Provider Operationally Responsive Attack Link). These programs are the Marine Corps' initial steps to create systems to distribute EW capability across the battle space.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604376M / (U)Marine Air Grnd Task Force(MAGTF)EW for Aviatio	Project (Number/Name) 3327 / MAGTF EW Aviation Development

E. Performance Metrics

Successful completion of Intrepid Tiger II(v)3 (ALQ-231) Initial Operational Capability (IOC). Commencement of research into Engineering Change Proposals (ECPs) for capability upgrades for Intrepid Tiger II(v)1 and Intrepid Tiger II(v)3 pods.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
1319 / 5				PE 0604376M / (U) Marine Air Grnd Task Force(MAGTF)EW for Aviatio				3327 / MAGTF EW Aviation Development							
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NAWC AD : Patuxent River, MD	0.200	0.000		0.000		0.000		-		0.000	0.000	0.200	-
Systems Engineering	WR	NSWC : Various	0.188	0.000		0.000		0.000		-		0.000	0.000	0.188	-
Systems Engineering	WR	Naval Research Lab : Washington, DC	11.915	0.000		0.000		0.000		-		0.000	0.000	11.915	-
Systems Engineering	WR	NAWC WD : Pt. Mugu, CA	4.593	2.682	Nov 2014	1.107	Nov 2015	0.000		-		0.000	0.000	8.382	-
Subtotal			16.896	2.682		1.107		0.000		-		0.000	0.000	20.685	-
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	Various	Various : Various	3.041	1.011	Jun 2015	0.000		0.000		-		0.000	0.000	4.052	3.456
Eng & Tech Svc (Non-FFRDC)	Various	Various : Various	2.971	0.344	Jan 2015	0.000		0.000		-		0.000	0.000	3.315	4.259
Subtotal			6.012	1.355		0.000		0.000		-		0.000	0.000	7.367	7.715
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Testing	WR	NAWC AD : Patuxent River, MD	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Flight Testing	WR	NAWC WD : China Lake, CA	0.700	0.000		0.000		0.000		-		0.000	0.000	0.700	-
Subtotal			0.700	0.000		0.000		0.000		-		0.000	0.000	0.700	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604376M / (U)Marine Air Grnd Task Force(MAGTF)EW for Aviatio	Project (Number/Name) 3327 / MAGTF EW Aviation Development
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Intrepid Tiger II (ALQ-231)																												
Acquisition Milestones																												
Milestones					ALQ-231(V)3 IOC ▲	ALQ-231(V)1 BLK X CCB ▲																						
Systems Development																												
Hardware Development	ALQ-231(V) HW DEV																											
Software Development																												
Test & Evaluation																												
Technical Evaluation	ALQ-231(V)3 Integrated Testing																											
Operational Evaluation					ALQ-231(V)3 QRA ▼																							
Production Milestones																												
Contract Awards	ALQ-231(V)3 Lot 5 (Qty 5) ●				ALQ-231(V)3 Lot 6 (Qty 3) ●				ALQ-231(V)3 Lot 7 (Qty 5) ●				ALQ-231(V)3 Lot 8 (Qty 5) ●															
Deliveries																												
	ALQ-231(V)1 BLK 1 Lot 4 (Qty 38)				ALQ-231(V)3 Lot 5 (Qty 5)								ALQ-231(V)3 Lot 6 (Qty 3)				ALQ-231(V)3 Lot 7 (Qty 5)				ALQ-231(V)3 Lot 8 (Qty 5)							

2017PB - 0604376M - 3327

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604376M / (U)Marine Air Grnd Task Force(MAGTF)EW for Aviatio	Project (Number/Name) 3327 / MAGTF EW Aviation Development

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Intrepid Tiger II (ALQ-231)				
Acquisition Milestones: Milestones: ALQ-231(V)3 Initial Operational Capability (IOC)	1	2016	1	2016
Acquisition Milestones: Milestones: ALQ-231(V)1 BLK X Configuration Control Board (CCB)	2	2016	2	2016
Systems Development: Hardware Development: ALQ-231(V) Hardware Development	1	2015	4	2016
Test & Evaluation: Technical Evaluation: ALQ-231(V)3 Integrated Testing	1	2015	1	2015
Test & Evaluation: Operational Evaluation: ALQ-231(V)3 Quick Reaction Assessment (QRA)	2	2016	2	2016
Production Milestones: Contract Awards: ALQ-231(V)3 Production Lot 5 (Qty 5)	2	2015	2	2015
Production Milestones: Contract Awards: ALQ-231(V)3 Production Lot 6 (Qty 3)	2	2016	2	2016
Production Milestones: Contract Awards: ALQ-231(V)3 Production Lot 7 (Qty 5)	2	2017	2	2017
Production Milestones: Contract Awards: ALQ-231(V)3 Production Lot 8 (Qty 5)	2	2018	2	2018
Deliveries: ALQ-231(V)1 BLK 1 Lot 4 Deliveries (Qty 38)	1	2015	1	2015
Deliveries: ALQ-231(V)3 Lot 5 Deliveries (Qty 5)	4	2015	3	2016
Deliveries: ALQ-231(V)3 Lot 6 Deliveries (Qty 3)	4	2016	3	2017
Deliveries: ALQ-231(V)3 Lot 7 Deliveries (Qty 5)	4	2017	3	2018
Deliveries: ALQ-231(V)3 Lot 8 Deliveries (Qty 5)	4	2018	3	2019

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604376M / (U)Marine Air Grnd Task Force(MAGTF)EW for Aviatio	Project (Number/Name) 3371 / MAGTF EW Interoperability Development
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3371: MAGTF EW Interoperability Development	0.000	5.140	1.671	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	6.811
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

In FY17 this PU will move into PE 0604270N.

A. Mission Description and Budget Item Justification

This project unit supports the United States Marine Corps Air-Ground interoperability by providing a variety of capabilities through multiple functions of the Software Reprogrammable Payload (SRP) when installed onboard SRP capable aircraft. The spiral development plans allow adaptable, scalable and open architecture philosophy to reduce stove pipe solutions but enable future growth at a reduced operational and sustainment cost.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Software Reprogrammable Payload	5.140	1.671	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Continue with the integration of Spiral 2 SRP on the United States Marine Corps MV-22 Platform.					
FY 2016 Plans: Continue integration of the SRP on the United States Marine Corps MV-22 Platform.					
FY 2017 Base Plans: N/A					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	5.140	1.671	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• 0587: Software Reprogrammable Payload	2.100	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	2.589

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604376M / (U)Marine Air Grnd Task Force(MAGTF)EW for Aviatio	Project (Number/Name) 3371 / MAGTF EW Interoperability Development
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

D. Acquisition Strategy

This project unit is part of United States Marine Corps led efforts to ensure Marine Corps requirements are included in the budget process for the Future Year Defense Program and beyond. This effort is for the Software Reprogrammable Payload. This program is part of the Marine Corps initial steps to create a common interoperable system to distribute multiple data types across the battle space through spiral development.

E. Performance Metrics

Successful completion of the Spiral 2 Development and Demonstration onboard MV-22 Test Platform.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity 1319 / 5				R-1 Program Element (Number/Name) PE 0604376M / (U)Marine Air Grnd Task Force(MAGTF)EW for Aviatio				Project (Number/Name) 3371 / MAGTF EW Interoperability Development							
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NAWCAD : Patuxent River, MD	0.000	1.104	Oct 2014	0.330	Oct 2015	0.000		-		0.000	0.000	1.434	-
Systems Engineering	WR	NRL : Washington, DC	0.000	0.380	Dec 2014	0.130	Nov 2015	0.000		-		0.000	0.000	0.510	-
Systems Engineering	C/CPFF	Assurance Technology Corp : Carlisle, MA	0.000	2.200	Dec 2014	0.185	Jan 2016	0.000		-		0.000	0.000	2.385	2.385
Systems Engineering	C/CPFF	DCS : Alexandria, VA	0.000	0.350	Jun 2015	0.185	Jan 2016	0.000		-		0.000	0.000	0.535	0.535
Subtotal			0.000	4.034		0.830		0.000		-		0.000	0.000	4.864	-
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering and Tech Support	C/FFP	Computer Systems Center : Springfield, VA	0.000	0.510	Jun 2015	0.841	Feb 2016	0.000		-		0.000	0.000	1.351	1.351
Engineering and Tech Support	C/FFP	NSMA : Washington, DC	0.000	0.095	Nov 2014	0.000		0.000		-		0.000	0.000	0.095	0.095
Subtotal			0.000	0.605		0.841		0.000		-		0.000	0.000	1.446	1.446
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation	MIPR	GAPO FT : Ft. Belvoir, VA	0.000	0.450	Nov 2014	0.000		0.000		-		0.000	0.000	0.450	-
Subtotal			0.000	0.450		0.000		0.000		-		0.000	0.000	0.450	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604376M / (U)Marine Air Grnd Task Force(MAGTF)EW for Aviatio	Project (Number/Name) 3371 / MAGTF EW Interoperability Development
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
MAGTF EW Interoperability Development	SPIRAL 2 SYSTEM DEVELOPMENT				SPIRAL 3 SYSTEM DEVELOPMENT																							
Acquisiton Milestones																												
Systems Evaluation					SPIRAL 2 SYSTEM EVALUATION MV-22				SPIRAL 2 FIELD EVALUATION MV-22																			

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604376M / (U)Marine Air Grnd Task Force(MAGTF)EW for Aviatio	Project (Number/Name) 3371 / MAGTF EW Interoperability Development

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
MAGTF EW Interoperability Development				
Acquisiton Milestones: SPIRAL 2 SYSTEM DEVELOPMENT	1	2015	4	2015
Acquisiton Milestones: SPIRAL 3 SYSTEM DEVELOPMENT	4	2016	4	2016
Systems Evaluation: SPIRAL 2 SYSTEM EVALUATION MV-22	1	2016	3	2016
Systems Evaluation: SPIRAL 2 FIELD EVALUATION MV-22	4	2016	4	2016

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>					R-1 Program Element (Number/Name) PE 0604378N / <i>Nav Integrated Fire Control-Counter Air Sys Eng</i>							
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	151.496	14.903	23.695	25.750	-	25.750	27.359	29.092	25.767	25.694	Continuing	Continuing
3159: <i>Naval Integrated Fire Control-Counter Air SE&I</i>	151.496	14.903	23.695	25.750	-	25.750	27.359	29.092	25.767	25.694	Continuing	Continuing

A. Mission Description and Budget Item Justification

3159 Naval Integrated Fire Control - Counter Air (NIFC-CA) Systems Engineering Integration and Test (SEI&T) project is a systems engineering effort to extend the Naval Theater Air and Missile Defense battlespace out to the maximum kinematic range of our weapons. This includes targets beyond the detection range of the shooter, including Engage On Remote (EoR) and Over the Horizon (OTH) targets. The NIFC-CA project exploits capabilities inherent in existing systems, optimizes current and emerging technologies in component system upgrades, integrates them together, and performs kill chain tests, forming an interoperable System of Systems (SoS) to maximize future air defense capabilities. As directed by OPNAV, the project is focused on SEI&T efforts to integrate the From The Sea (FTS) kill chain consisting of the E-2D Advanced Hawkeye, Cooperative Engagement Capability (CEC), AEGIS, and SM-6 missile. This PE will support efforts including system definition and architecture development, performance prediction, performance assessment, system test and risk reduction efforts, system analysis, modeling and simulation, and capability demonstrations for the FTS kill chain. The project also facilitates the development of the concept of operations with the warfighter to maximize effectiveness when deployed with the Fleet.

B. Program Change Summary (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	15.263	23.695	28.436	-	28.436
Current President's Budget	14.903	23.695	25.750	-	25.750
Total Adjustments	-0.360	0.000	-2.686	-	-2.686
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.360	0.000			
• Program Adjustments	0.000	0.000	-1.138	-	-1.138
• Rate/Misc Adjustments	0.000	0.000	-1.548	-	-1.548

Change Summary Explanation

FY15 Decrease in funding due to SBIR/STTR Transfer.

FY17 Decrease in Naval Integrated Fire Control-Counter Air by \$1.138M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604378N / Nav Integrated Fire Control-Counter Air Sys Eng				Project (Number/Name) 3159 / Naval Integrated Fire Control-Counter Air SE&I			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3159: Naval Integrated Fire Control-Counter Air SE&I	151.496	14.903	23.695	25.750	-	25.750	27.359	29.092	25.767	25.694	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

3159 Naval Integrated Fire Control - Counter Air (NIFC-CA) Systems Engineering Integration and Test (SEI&T) project is a systems engineering effort to extend the Naval Theater Air and Missile Defense battlespace out to the maximum kinematic range of our weapons. This includes targets beyond the detection range of the shooter, including Engage On Remote (EoR) and Over the Horizon (OTH) targets. The NIFC-CA project exploits capabilities inherent in existing systems, optimizes current and emerging technologies in component system upgrades, integrates them together, and performs kill chain tests, forming an interoperable System of Systems (SoS) to maximize future air defense capabilities. NIFC-CA consists of three kill chains called From the Air (FTA), From the Sea (FTS), and From the Land (FTL). As directed by OPNAV, the project is focused on SEI&T efforts to integrate the From The Sea (FTS) kill chain consisting of the E-2D Advanced Hawkeye, Cooperative Engagement Capability (CEC), AEGIS, and SM-6 missile. This PE will support efforts including system definition and architecture development, performance prediction, performance assessment, system test and risk reduction efforts, system analysis, modeling and simulation, and capability demonstrations for the FTS kill chain. The project also facilitates the development of the concept of operations with the warfighter to maximize effectiveness when deployed with the Fleet.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Integration and Test (I&T) Integrated Product Team	6.110	9.715	10.528	0.000	10.528
Articles:	-	-	-	-	-
Description: The Integration and Test (I&T) Integrated Product Team (IPT) develops and executes the test plan to assess the FTS operational capability, performs risk reduction testing leveraging various component system tests. Test data will be used over time to verify, validate, and accredit the FTS simulation federation.					
FY 2015 Accomplishments: Executed the test program, supported post mission analysis, and provided input and analysis of tracking exercises (TrackEx) that led to a successful live fire test (LFT) in June at White Sands Missile Range (WSMR) that has further defined the battlespace. Continued Training and deployed the initial NIFC-CA capability on the Theodore Roosevelt Carrier Strike Group (TR-CSG) in March. Conducted Track-Ex in support of AT SEA 3. USS Princeton at-sea mission scheduled for September 2015 was postponed due to mission gear issues. The mission is expected to be rescheduled in FY16					
FY 2016 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604378N / Nav Integrated Fire Control-Counter Air Sys Eng	Project (Number/Name) 3159 / Naval Integrated Fire Control-Counter Air SE&I

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>The I&T IPT will continue to plan and execute test events and conduct follow-on NIFC-CA battlespace assessments for AEGIS Baseline 9 and SM-6 BLK I. Continue planning and conduct associated tracking events, modeling and simulation analysis, including execution of two live fire events in FY16. Continue to support NIFC-CA activities for the White Sands Missile Range (WSMR) Desert Ship Combat System and associated range facilities. Funding provides for the IPT to begin detailed planning for the future testing of NIFC-CA from the Sea capability with upgraded CEC, E2-D, SM-6 BLK IA, and AEGIS Advanced Capability Build (ACB)16. Increase in funding supports the next upgrade to WSMR into a AEGIS ACB-16 configuration supporting the first implementation of the future NIFC-CA design (NIFC-CA 2019 configuration). The NIFC-CA 2019 configuration Live Fire test will provide critical risk reduction data prior to Live Fire Testing At-Sea in the following years. Detailed design work commencing in FY16 will include system engineering and integration aspects of the NIFC-CA 2019 configuration, with follow-on FY17-FY18 development, installation and checkout of the NIFC-CA 2019 configuration in support of Live Fire Testing in FY18.</p> <p>FY 2017 Base Plans: The I&T IPT will continue to plan and execute test events and conduct follow-on NIFC-CA battlespace assessments for AEGIS Baseline 9 and SM-6 BLK I. Continue planning and conduct associated tracking events, modeling and simulation analysis, including execution of a live fire event in 2QTR FY17. Continue to support integration of the NIFC-CA and SM-6 capability into a AEGIS ACB-16 configuration, for land based NIFC-CA testing at White Sands Missile Range (WSMR) Desert Ship Combat System and associated range facilities. FY17 will begin the development, installation and checkout of the NIFC-CA 2019 configuration. This next upgrade to WSMR will be the first implementation of the future NIFC-CA design (NIFC-CA 2019 configuration). The NIFC-CA 2019 configuration Live Fire test will provide critical risk reduction data prior to Live Fire Testing At-Sea in the following years.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Engineering Managment And System Definition</p> <p align="right">Articles:</p> <p>Description: Engineering management and system definition including the development of the Systems Performance Document (SPD), SoS functional allocations, requirements, traceability, SoS trades studies, SoS information exchange requirements, interface specifications, and sensor network capability analysis. Provides for complete FTS kill chain performance analysis and interface verification through development of a federation of simulations provided directly from the FTS Programs of Record. Federated SoS simulations</p>	8.793	13.980	15.222	0.000	15.222
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604378N / Nav Integrated Fire Control-Counter Air Sys Eng	Project (Number/Name) 3159 / Naval Integrated Fire Control-Counter Air SE&I

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>support architecture development, scenario development, predictive analysis for testing, and define capabilities and limitations of FTS kill chain performance analysis and interface verification through development of a federation of simulations provided directly from the FTS Programs of Record. Federated SoS simulations support architecture development, scenario development, predictive analysis for testing, and define capabilities and limitations of FTS kill chain for deployment.</p> <p>FY 2015 Accomplishments: Continued integration of Pillar program models into the NIFC-CA Federation to support pre-mission and post-mission analysis for the planned NIFC-CA test events for upcoming over land and over sea Trackex and live fire event conducted in June. Conducted verification and initial validation efforts. Continued to ensure that Methods of Effectiveness (MOEs) and Methods of Performance (MOPs) were validated in test plans and interfaced with Pillar programs to maintain and update interface and performance specifications. Updated the NIFC-CA architecture. Updated and maintained NIFC-CA Risk Register. Continued employment of fleet training that supported the deployment of the initial NIFC-CA capability on the TR-CSG in March.</p> <p>FY 2016 Plans: Continue the integration of Pillar program models into the NIFC-CA Federation to support pre-mission and post-mission analysis for the two planned NIFC-CA live fire events in 2nd QTR and 4th QTR 2016. Continue to ensure MOEs and MOPs are validated in test plans and in more stressing test scenarios. Increase in funding is required in FY16 to meet design, development, installation, and check out schedule for the NIFC-CA 2019 configuration Live Fire at White Sands Missile Range while concurrently supporting test efforts (2 Firings per year on 9-month intervals) in FY16. This will support the AEGIS ACB-16 configuration and SM-6 BLK IA live fire tests and will demonstrate improved FTS capability.</p> <p>FY 2017 Base Plans: Significant system engineering efforts are required to upgrade WSMR Desert Ship complex to an AEGIS ACB 16 baseline. FY17 begins the design, development, installation, and check out schedule for the NIFC-CA 2019 configuration Live Fire at White Sands Missile Range while concurrently supporting test efforts. This will support the AEGIS ACB-16 configuration and SM-6 BLK IA live fire tests and will demonstrate improved FTS capability. Continue the integration of Pillar program models into the NIFC-CA Federation to support pre-mission and post-mission analysis for the planned NIFC-CA live fire event in 3QTR FY17. Continue to ensure MOEs and MOPs are validated in test plans and in more stressing test scenarios.</p> <p>FY 2017 OCO Plans:</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604378N / Nav Integrated Fire Control-Counter Air Sys Eng	Project (Number/Name) 3159 / Naval Integrated Fire Control-Counter Air SE&I

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
Accomplishments/Planned Programs Subtotals	14.903	23.695	25.750	0.000	25.750

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• 0604366N: <i>Standard Missile SM-6</i>	1.943	2.106	2.215	-	2.215	2.238	0.336	0.319	0.301	Continuing	Continuing

Remarks

D. Acquisition Strategy

Not Applicable

E. Performance Metrics

Test Program and analysis conducted using the NIFC-CA Federation will provide data to verify NIFC-CA performance with respect to NIFC-CA MOEs, MOPs, and requirements being tracked as NIFC-CA related in the Pillar Programs. NIFC-CA Federation, once validated using test event data, will be used to update the expected performance of NIFC-CA, as required, and provide feedback to Pillar programs.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604378N / Nav Integrated Fire Control-Counter Air Sys Eng	Project (Number/Name) 3159 / Naval Integrated Fire Control-Counter Air SE&I
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Systems Engineering	C/CPFF	Various : Various	38.828	2.630	Feb 2015	2.904	Feb 2016	2.998	Dec 2016	-		2.998	0.000	47.360	-
Systems Engineering	C/CPFF	JHU/APL : Laurel, MD	2.165	0.500	Dec 2014	0.515	May 2016	0.525	Dec 2016	-		0.525	0.000	3.705	-
Systems Engineering	C/CPFF	NGIS : Bethpage, NY	7.826	0.185	Oct 2014	0.190	May 2016	0.214	Oct 2016	-		0.214	0.000	8.415	-
Systems Engineering	C/CPFF	LM MS2 : Moorestown, NJ	10.772	5.977	Mar 2015	10.748	Feb 2016	11.829	Dec 2016	-		11.829	0.000	39.326	-
Systems Engineering	C/CPFF	Raytheon Co. : Tucson, AZ	12.633	0.436	Oct 2014	0.523	May 2016	0.545	Oct 2016	-		0.545	0.000	14.137	-
Systems Engineering	WR	COTF : Norfolk, VA	0.785	0.000		0.000		0.000		-		0.000	0.000	0.785	-
Subtotal			73.009	9.728		14.880		16.111		-		16.111	0.000	113.728	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Integration and Test	C/CPAF	Raytheon : Tucson, AZ	7.238	0.064	Nov 2014	0.090	May 2016	0.093	Dec 2016	-		0.093	0.000	7.485	-
Integration and Test	WR	COTF : Norfolk, VA	0.013	0.000		0.000		0.000		-		0.000	0.000	0.013	-
Integration and Test	C/BA	Wallops Island : Wallops Island, VA	0.247	0.000		0.000		0.000		-		0.000	0.000	0.247	-
Integration and Test	WR	NAWC AD : Pax River, MD	0.250	0.000		0.000		0.000		-		0.000	0.000	0.250	-
Integration and Test	C/CPFF	Lockheed Martin - Moorestown, NJ : Moorestown, NJ	15.649	1.440	Mar 2015	2.192	Oct 2015	2.842	Dec 2016	-		2.842	Continuing	Continuing	Continuing
Integration and Test	MIPR	PT MUGU : PT Mugu, CA	5.001	0.598	Dec 2014	0.598	May 2016	0.612	Oct 2016	-		0.612	0.000	6.809	-
Integration and Test	Various	Various : Various	28.272	2.080	Feb 2015	4.873	May 2016	4.984	Feb 2017	-		4.984	Continuing	Continuing	Continuing
Integration and Test	MIPR	Dept of Interior : Boise, ID	1.750	0.190	Jan 2015	0.190	May 2016	0.210	Jan 2017	-		0.210	0.000	2.340	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy

Date: February 2016

Appropriation/Budget Activity
1319 / 5

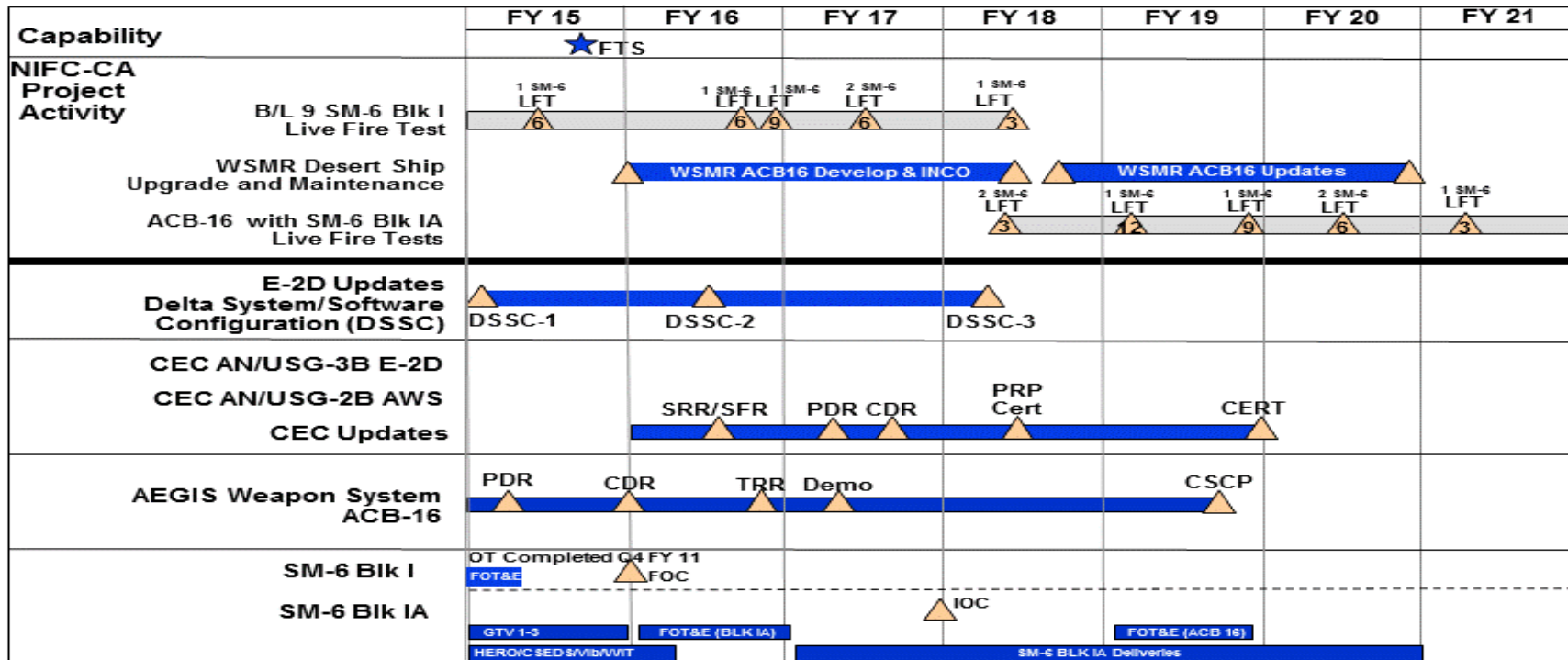
R-1 Program Element (Number/Name)
PE 0604378N / Nav Integrated Fire Control-
Counter Air Sys Eng

Project (Number/Name)
3159 / Naval Integrated Fire Control-
Counter Air SE&I

NIFC-CA FTS Planning Schedule



RELATED PROGRAMS



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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604378N / Nav Integrated Fire Control-Counter Air Sys Eng	Project (Number/Name) 3159 / Naval Integrated Fire Control-Counter Air SE&I

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3159				
FROM THE SEA (FTS) CAPABILITY DEPLOYMENT	2	2015	2	2015
NIFC-CA FIRING EVENT 15-1	3	2015	3	2015
NIFC-CA FIRING EVENT 16-1	3	2016	3	2016
NIFC-CA FIRING EVENT 16-2	4	2016	4	2016
NIFC-CA FIRING EVENT 17-1	3	2017	3	2017
NIFC-CA FIRING EVENT 18-1	2	2018	2	2018
NIFC-CA FIRING EVENT 18-2	2	2018	2	2018
NIFC-CA FIRING EVENT 19-1	1	2019	1	2019
NIFC-CA FIRING EVENT 19-2	4	2019	4	2019
NIFC-CA FIRING EVENT 20-1	3	2020	3	2020
NIFC-CA FIRING EVENT 21-1	2	2021	2	2021
WSMR ACB16 Develop & INCO	1	2016	2	2018
WSMR ACB16 Updates	3	2018	4	2020
E-2D UPDATES DELTA SYSTEM SOFTWARE CONFIGURATION 1	1	2015	1	2015
E-2D UPDATES DELTA SYSTEM SOFTWARE CONFIGURATION 2	3	2016	3	2016
E-2D UPDATES DELTA SYSTEM SOFTWARE CONFIGURATION 3	2	2018	2	2018
CEC UPDATE SRR/SFR	3	2016	3	2016
CEC UPDATE PDR	2	2017	2	2017
CEC UPDATE CDR	3	2017	3	2017
CEC UPDATE PRODUCT RELEASE PANEL (PRP) CERTIFICATION	2	2018	2	2018
CEC UPDATE CERTIFICATION	4	2019	4	2019

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604378N / Nav Integrated Fire Control-Counter Air Sys Eng	Project (Number/Name) 3159 / Naval Integrated Fire Control-Counter Air SE&I
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
AEGIS WEAPON SYSTEM ACB-16 PDR	2	2015	2	2015
AEGIS WEAPON SYSTEM ACB 16 CDR	4	2015	4	2015
AEGIS WEAPON SYSTEM ACB 16 TRR	4	2016	4	2016
AEGIS WEAPON SYSTEM ACB 16 DEMONSTRATION	2	2017	2	2017
AEGIS WEAPON SYSTEM ACB 16 COMBAT SYSTEM CERTIFICATION PANEL (CSCP)	3	2019	3	2019
SM-6 BLK 1 FOC	4	2015	4	2015
SM-6 BLK 1A IOC	4	2017	4	2017

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604404N / (U)Unman Carrier Launch A/B Surv & Strk(UCLASS)Sys
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	260.269	382.542	434.699	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1,077.510
3278: <i>UCLASS Development</i>	260.269	382.542	134.699	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	777.510
9999: <i>Congressional Adds</i>	0.000	0.000	300.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	300.000

Program MDAP/MAIS Code: P462

A. Mission Description and Budget Item Justification

The Unmanned Carrier-Launched Airborne Surveillance and Strike (UCLASS) system will enhance carrier capability and versatility for the Joint Forces Commander through integration of a persistent and mission flexible unmanned aircraft into the Carrier Air Wing. The UCLASS Initial Capabilities Document (ICD) highlights the need for a persistent, survivable carrier-based Intelligence, Surveillance, Reconnaissance, & Targeting (ISR&T) and precision strike asset. The Department continues to assess the UCLASS program and is conducting a Strategic Portfolio Review (SPR) of Department of Defense airborne ISR&T systems and the future composition of the carrier air wing. The current funding profile reflects a rephase to the program while the SPR is conducted. The Joint Requirements Oversight Council (JROC) endorsed the UCLASS ICD in April 2011 and formally approved it on 9 Jun 11 via Joint Requirements Oversight Council Memorandum (JROCM) 087-11. In support of affordability and adaptability directives, JROCMs 086-12 and 196-12 redefined the scope of JROCM 087-11 and affirmed the urgency for a platform that supports missions ranging from permissive counter-terrorism operations, to missions in low-end contested environments, to providing enabling capabilities for high-end denied operations, as well as supporting organic Naval missions. PB-17 reflects a restructure of the UCLASS program and transfers funding associated with PE 0604404N. As a result, remaining funding in PE 0604404N in the FYDP was transferred to PE 0605414N for the creation of the Carrier Based Aerial Refueling System (CBARS) program.

In FY16, the UCLASS program will execute source selection preparation and competitive air vehicle risk reduction activities that will transition to the CBARS program activities.

Due to the timing of H.R. 2029, FY15 does not reflect Title VIII General Provisions which rescinded \$218M.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy I BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604404N I (U) <i>Unman Carrier Launch A/B Surv & Strk(UCLASS)Sys</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	403.008	134.708	326.387	-	326.387
Current President's Budget	382.542	434.699	0.000	-	0.000
Total Adjustments	-20.466	299.991	-326.387	-	-326.387
• Congressional General Reductions	-	-0.009			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	300.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-9.999	0.000			
• SBIR/STTR Transfer	-10.467	0.000			
• Program Adjustments	0.000	0.000	-13.100	-	-13.100
• Rate/Misc Adjustments	0.000	0.000	-313.287	-	-313.287

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 9999: Congressional Adds

Congressional Add: *Competitive Air Vehicle*

Congressional Add: *Government and Industry Source Selection*

Congressional Add Subtotals for Project: 9999

Congressional Add Totals for all Projects

	FY 2015	FY 2016
	0.000	250.000
	0.000	50.000
Congressional Add Subtotals for Project: 9999	0.000	300.000
Congressional Add Totals for all Projects	0.000	300.000

Change Summary Explanation

Schedule and Budget: Due to restructure of the UCLASS program, all planned funding in the FYDP have been moved into (CBARS - PE 0605414N)

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604404N / (U)Unman Carrier Launch A/B Surv & Strk(UCLASS)Sys				Project (Number/Name) 3278 / UCLASS Development			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3278: UCLASS Development	260.269	382.542	134.699	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	777.510
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Unmanned Carrier-Launched Airborne Surveillance and Strike (UCLASS) system will enhance carrier capability and versatility for the Joint Forces Commander through integration of a persistent and mission flexible unmanned aircraft into the Carrier Air Wing. The UCLASS Initial Capabilities Document (ICD) highlights the need for a persistent, survivable carrier-based Intelligence, Surveillance, Reconnaissance, & Targeting (ISR&T) and precision strike asset. The Department assessed the UCLASS program and conducted a Strategic Portfolio Review (SPR) of Department of Defense airborne ISR&T systems and the future composition of the carrier air wing. The current funding profile reflects a rephase to the program. The Joint Requirements Oversight Council (JROC) endorsed the UCLASS ICD in April 2011 and formally approved it on 9 Jun 11 via Joint Requirements Oversight Council Memorandum (JROCM) 087-11. The PB-17 budget reflects the restructure of the UCLASS program and transfers funding associated with PE 0604404N. As a result, remaining funding in PE 0604404N in the FYDP was transferred to PE 0605414N for the creation of the Carrier Based Aerial Refueling System (CBARS) program.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Air Segment Product Development	248.445	14.191	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: Air Segment Product Development efforts include, but are not limited to, design, development, integration, fabrication, test and training to deliver a carrier-suitable, semi-autonomous, unmanned vehicle capable of sustained Intelligence, Surveillance, Reconnaissance, & Targeting (ISR&T) operations and strike capability. A prime contractor, selected following a limited source competition, will deliver the Air Segment products.					
FY 2015 Accomplishments: Continued Air Segment design and integration activities. Continued Preliminary Design Review contracts. Supported Department of Defense (DoD)-led Strategic Portfolio Review (SPR) of DoD airborne ISR&T systems.					
FY 2016 Plans: Continue Preliminary Design Review contracts. Prepare draft Request for Proposal (RFP) for the Air Segment contract. Continue Air Segment system integration and interface activities.					
FY 2017 Base Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604404N / (U)Unman Carrier Launch A/B Surv & Strk(UCLASS)Sys	Project (Number/Name) 3278 / UCLASS Development

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
FY 2017 OCO Plans: N/A					
Title: Carrier (CVN) Segment Product Development	33.425	34.831	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: CVN Segment Product Development is a Government-led effort which includes, but is not limited to, upgrades to existing CVN infrastructure to support UCLASS capabilities.					
FY 2015 Accomplishments: Continued engineering efforts in support of implementing Ship Change Documents (SCDs) and Engineering Change Proposals (ECPs) to modify CVNs for UCLASS hardware and software. Continued CVN ship integration activities and development of Concept of Operations in accordance with NAVSEA, SPAWAR, PEO(CARRIERS), Commander Naval Air Forces (CNAF), and Office of the Chief of Naval Operations (OPNAV) processes. Began development of UCLASS modifications to existing Program of Record (PoR) shipboard systems needed to support the Unmanned Carrier-Launched Airborne Surveillance and Strike (UCLASS) capability to include required hardware for shipboard test and integration activities. Continued development of Navy Modernization Processes (NMP) supporting shipboard Configuration Management and Logistics.					
FY 2016 Plans: Continue ship installation activities and upgrades to existing Carrier (CVN) infrastructure, especially critical CVN suitable technologies and mission essential equipment. Continue engineering efforts in support of implementing SCDs and ECPs to modify CVNs for UCLASS hardware and software. Continue CVN ship integration activities and development of Concept of Operations in accordance with Naval Sea Systems Command, Space and Naval Warfare Systems Command, Program Executive Office, Aircraft Carriers, Commander Naval Air Forces, and Office of the Chief of Naval Operations processes. Continue development of UCLASS modifications to existing PoR shipboard systems needed to support the UCLASS capability to include required hardware for shipboard test and integration activities. Continue development of NMP supporting shipboard Configuration Management and Logistics.					
FY 2017 Base Plans: N/A					
FY 2017 OCO Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604404N / (U)Unman Carrier Launch A/B Surv & Strk(UCLASS)Sys	Project (Number/Name) 3278 / UCLASS Development

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
<p>Title: Lead Systems Integration (LSI) Product Development</p> <p align="right">Articles:</p> <p>Description: The LSI task is a Government-led effort including, but not limited to, advanced development, architecture development, interface definition, integration, system level test and evaluation, science and technology investments, roadmap refinement, and coordination of all UCLASS capabilities across system segments and stakeholders.</p> <p>FY 2015 Accomplishments: Continued UCLASS efforts to implement an open system architecture across all UCLASS segments. Continued design and integration activities. Continued Air Segment, CS&C Segment, and Carrier Segment interface activities. Continued development of enterprise UCLASS Concepts of Employment (CONEMPS). Continued stand up of system integration laboratories and test facilities in support of government-led program activities, including implementation of open system architectures.</p> <p>FY 2016 Plans: Continue Unmanned Carrier-Launched Airborne Surveillance and Strike (UCLASS) efforts to implement an open system architecture across all UCLASS segments. Continue enterprise design and integration activities. Continue Air Segment, Control System & Connectivity Segment, and Carrier Segment interface activities. Continue development of enterprise UCLASS CONEMPS. Continue stand up of system integration laboratories and test facilities in support of government-led program activities, including implementation of open system architectures.</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>	21.767	25.228	0.000	0.000	0.000
	-	-	-	-	-
<p>Title: Support</p> <p align="right">Articles:</p> <p>Description: Efforts include studies, analyses and training development support.</p> <p>FY 2015 Accomplishments:</p>	1.475	2.524	0.000	0.000	0.000
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604404N / (U)Unman Carrier Launch A/B Surv & Strk(UCLASS)Sys	Project (Number/Name) 3278 / UCLASS Development

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Initiated logistics supportability studies and analyses, modeling and simulation, and development of manpower and training assessments.</p> <p>FY 2016 Plans: Continue logistics supportability studies and analyses, modeling and simulation, support of Manned Flight Simulation efforts, development of training tools for the Fleet, and development of manpower and training assessments.</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Test and Evaluation</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: Continued test plans for surrogates, oversaw development and implementation of test facility, range and lab test requirements. Supported engineering events and program management activities. Supported developmental test for Control System & Connectivity (CS&C) and Carrier (CVN) Segments.</p> <p>FY 2016 Plans: Continue test plans for surrogates. Oversee development and implementation of test facility, range and lab test requirements. Support engineering events and program management activities. Support developmental test for CS&C and CVN segments.</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>	3.239	4.988	0.000	0.000	0.000
	-	-	-	-	-
<p>Title: Management</p> <p align="right">Articles:</p> <p>Description: Efforts include program, engineering, test, and logistics management.</p> <p>FY 2015 Accomplishments:</p>	6.649	6.544	0.000	0.000	0.000
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604404N / (U)Unman Carrier Launch A/B Surv & Strk(UCLASS)Sys	Project (Number/Name) 3278 / UCLASS Development

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Continued oversight, coordination, and management of UCLASS acquisition, system interface and integration activities. Provided oversight of UCLASS contract activities. Continued logistics management tasks. Continued to maintain security and program office environments. FY 2016 Plans: Continue oversight, coordination, and management of UCLASS acquisition, system interface and integration activities. Provide oversight of UCLASS contract activities, including source selection for the Air System contract. Continue logistics management tasks. Continue to maintain security and program office environments. FY 2017 Base Plans: N/A FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	382.542	134.699	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

The Government is the Lead Systems Integration (LSI) across all Unmanned Carrier-Launched Airborne Surveillance and Strike (UCLASS) segments, including Air Segment, Control System & Connectivity (CS&C) Segment, and Carrier (CVN) Segment and external enterprise stakeholders. The UCLASS Program will leverage existing Navy information dissemination and Department infrastructures, as the government-led system of systems integration is accomplished across all segments and external enterprise stakeholders. The Government will manage the system level architecture and interfaces, and foster efficient data exchanges and integration. Specifically, the CS&C and CVN segments will be organically managed by the Government LSI and will modify existing systems via the affected system's Engineering Change Proposal and configuration management processes. These integration tasks include successful demonstration of integration with the CVN landing system, integration of control system, and integration with the Tasking, Collecting, Processing, Exploitation, Dissemination interfaces to include successful transmission of mission system data. The Government will develop and award contracts as required to support program activities, including a contract for the Air System. The Government's acquisition strategy was approved on 7 Jun 13. Acquisition and contracting strategies comply with current statutes, regulations, and instructions.

E. Performance Metrics

Meet Navy operational requirements as defined in requirements documents.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604404N / (U)Unman Carrier Launch A/B Surv & Strk(UCLASS)Sys	Project (Number/Name) 3278 / UCLASS Development
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Air Segment (Primary Hardware Development)	SS/FFP	Boeing : St. Louis, MO	15.000	4.086	Nov 2014	0.000		0.000		-		0.000	0.000	19.086	19.086
Air Segment (Primary Hardware Development)	SS/FFP	General Atomics : Poway, CA	15.000	4.939	Nov 2014	0.000		0.000		-		0.000	0.000	19.939	19.939
Air Segment (Primary Hardware Development)	SS/FFP	Lockheed Martin : Palmdale, CA	15.000	1.579	Nov 2014	0.000		0.000		-		0.000	0.000	16.579	16.579
Air Segment (Primary Hardware Development)	SS/FFP	Northrop Grumman : El Segundo, CA	15.000	4.107	Nov 2014	0.000		0.000		-		0.000	0.000	19.107	19.107
Air Segment (Primary Hardware Development)	C/CPIF	TBD : TBD	0.000	228.000	Sep 2016	0.000		0.000		-		0.000	0.000	228.000	228.000
Air Segment - Systems Engineering	WR	NAWCAD : Patuxent River, MD	24.261	4.693	Dec 2014	13.165	Dec 2015	0.000		-		0.000	0.000	42.119	-
Air Segment - Systems Engineering	Various	Various : Various	1.166	1.041	Dec 2014	1.026	Dec 2015	0.000		-		0.000	0.000	3.233	-
CS&C Segment	WR	NAWCAD : Patuxent River, MD	25.227	17.417	Dec 2014	17.176	Dec 2015	0.000		-		0.000	0.000	59.820	-
CS&C Segment	Various	Various : Various	11.686	8.472	Dec 2014	6.875	Dec 2015	0.000		-		0.000	0.000	27.033	-
CS&C Segment	Various	NSMA : Arlington, VA	6.546	4.688	Dec 2014	2.993	Dec 2015	0.000		-		0.000	0.000	14.227	-
CS&C Segment	WR	NAWCWD : China Lake, CA	10.526	2.457	Dec 2014	0.000		0.000		-		0.000	0.000	12.983	-
CS&C Segment	WR	NAWCWD : Point Mugu, CA	8.961	6.046	Dec 2014	0.219	Dec 2015	0.000		-		0.000	0.000	15.226	-
CS&C Segment	WR	SPAWAR : San Diego, CA	12.042	9.075	Dec 2014	7.466	Dec 2015	0.000		-		0.000	0.000	28.583	-
CS&C Segment	C/CPFF	Raytheon : El Segundo, CA	10.496	11.327	May 2015	0.000		0.000		-		0.000	0.000	21.823	21.823
CS&C Segment (Comms, Network, Intel)	Various	Various : Various	0.000	4.601	Dec 2014	6.874	Dec 2015	0.000		-		0.000	0.000	11.475	-
CS&C Segment (CPS/ CDS)	Various	Various : Various	0.000	3.459	Feb 2016	4.790	Jun 2016	0.000		-		0.000	0.000	8.249	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604404N / (U)Unman Carrier Launch A/B Surv & Strk(UCLASS)Sys	Project (Number/Name) 3278 / UCLASS Development
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Carrier Segment (Ship Integration)	Various	Various : Various	3.699	8.508	Dec 2014	5.767	Dec 2015	0.000		-		0.000	0.000	17.974	-
Carrier Segment (Ship Integration)	WR	NAWCAD : Patuxent River, MD	15.171	23.199	Dec 2014	26.794	Dec 2015	0.000		-		0.000	0.000	65.164	-
Carrier Segment (Ship Integration)	WR	NAWCAD : Lakehurst, NJ	0.000	0.750	Dec 2014	1.200	Dec 2015	0.000		-		0.000	0.000	1.950	-
Carrier Segment	WR	SPAWAR : San Diego, CA	0.000	0.968	Dec 2014	1.070	Dec 2015	0.000		-		0.000	0.000	2.038	-
LSI-Advanced Development (Primary Hardware Development)	Various	Various : Various	9.843	3.221	Dec 2014	0.805	Dec 2015	0.000		-		0.000	0.000	13.869	-
LSI- Advanced Development (Primary Hardware Development)	WR	NAWCAD : Patuxent River, MD	4.681	1.827	Dec 2014	2.448	Dec 2015	0.000		-		0.000	0.000	8.956	-
LSI-Advanced Development (Primary Hardware Development)	WR	NAWCWD : China Lake, CA	5.249	2.879	Dec 2014	2.352	Dec 2015	0.000		-		0.000	0.000	10.480	-
LSI - Systems Engineering	Various	Various : Various	4.846	2.202	Dec 2014	2.706	Dec 2015	0.000		-		0.000	0.000	9.754	-
LSI - Systems Engineering	WR	NAWCAD : Patuxent River, MD	4.828	11.638	Dec 2014	16.917	Dec 2015	0.000		-		0.000	0.000	33.383	-
Prior year Prod Dev costs no longer funded in the FYDP	Various	Various : Various	17.424	0.000		0.000		0.000		-		0.000	0.000	17.424	-
Subtotal			236.652	371.179		120.643		0.000		-		0.000	0.000	728.474	-

Remarks
 Due to the timing of H.R. 2029, FY15 does not reflect Title VIII General Provisions which rescinded \$218M.

Control System and Connectivity (CS&C) Segment
 Navy Systems Management Activity (NSMA)
 Common Display System (CDS)
 Advanced Development (AD)
 Common Processing System (CPS)
 Lead Systems Integration (LSI)

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604404N / (U)Unman Carrier Launch A/B Surv & Strk(UCLASS)Sys	Project (Number/Name) 3278 / UCLASS Development
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Note: UCLASS PE 0604404N ends in FY16

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Manpower Studies & Analyses	Various	Various : Various	0.000	0.067	Jan 2015	0.105	Jan 2016	0.000		-		0.000	0.000	0.172	-
Training Development	Various	Various : Various	0.000	1.408	Dec 2014	2.419	Dec 2015	0.000		-		0.000	0.000	3.827	-
Subtotal			0.000	1.475		2.524		0.000		-		0.000	0.000	3.999	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test and Evaluation	WR	NAWCAD : Patuxent River, MD	4.482	3.217	Dec 2014	4.927	Dec 2015	0.000		-		0.000	0.000	12.626	-
Test and Evaluation	Various	Various : Various	0.000	0.022	Jan 2015	0.061	Jan 2016	0.000		-		0.000	0.000	0.083	-
Subtotal			4.482	3.239		4.988		0.000		-		0.000	0.000	12.709	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Management	Various	Various : Various	2.608	2.851	Dec 2014	2.960	Dec 2015	0.000		-		0.000	0.000	8.419	-
Management	WR	NAWCAD : Patuxent River, MD	16.380	3.729	Dec 2014	3.487	Dec 2015	0.000		-		0.000	0.000	23.596	-
Management (Travel)	Various	NAVAIR : Patuxent River, MD	0.147	0.069	Oct 2014	0.097	Oct 2015	0.000		-		0.000	0.000	0.313	-
Subtotal			19.135	6.649		6.544		0.000		-		0.000	0.000	32.328	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy								Date: February 2016			
Appropriation/Budget Activity 1319 / 5				R-1 Program Element (Number/Name) PE 0604404N / (U)Unman Carrier Launch A/B Surv & Strk(UCLASS)Sys				Project (Number/Name) 3278 / UCLASS Development			
	Prior Years	FY 2015		FY 2016		FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	260.269	382.542		134.699		0.000	-	0.000	0.000	777.510	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604404N / (U)Unman Carrier Launch A/B Surv & Strk(UCLASS)Sys	Project (Number/Name) 3278 / UCLASS Development
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Unmanned Carrier-Launched Airborne Surveillance and Strike (UCLASS) System	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021																																																																																																							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q																																																																																																				
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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604404N / (U)Unman Carrier Launch A/B Surv & Strk(UCLASS)Sys	Project (Number/Name) 3278 / UCLASS Development

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Unmanned Carrier-Launched Airborne Surveillance and Strike (UCLASS) System				
Systems Development: UCLASS System Design & Integration: UCLASS Architecture Development and Integration	1	2015	4	2016
Systems Development: Air Segment: Boeing	1	2015	1	2016
Systems Development: Air Segment: General Atomics	1	2015	1	2016
Systems Development: Air Segment: Lockheed Martin	1	2015	1	2016
Systems Development: Air Segment: Northrop Grumman	1	2015	1	2016
Systems Development: Carrier Vessel Nuclear (CVN) Control Station (CS)/Integration/Clean-up CS	1	2015	4	2016
Systems Development: Deployable CS/Integration/Clean-up CS	3	2015	4	2016
Systems Development: Fixed CS/Integration/Clean-up CS	3	2016	4	2016
Systems Development: Software (SW) Development/SW Testing/Technology Refresh/SW Integration	2	2015	4	2016
Systems Development: CVN Segment: Ship Change Document (SCD) Development/Installation Plan/Verification	1	2015	4	2016
Systems Development: CVN Segment: CVN Program of Record (PoR) Engineering Change Proposals (ECP)	1	2015	4	2015
Systems Development: Installations: Ship Installation	3	2015	4	2016
Systems Development: Installations: Hull, Mechanical & Electrical (HME) Install CVN 1	3	2015	3	2015

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604404N / (U)Unman Carrier Launch A/B Surv & Strk(UCLASS)Sys	Project (Number/Name) 9999 / Congressional Adds
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
9999: <i>Congressional Adds</i>	0.000	0.000	300.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	300.000
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Funding provided in support of competitive air vehicle risk reduction activities to include government and industry source selection preparation.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016
Congressional Add: Competitive Air Vehicle	0.000	250.000
FY 2015 Accomplishments: N/A		
FY 2016 Plans: Effort includes Competitive air vehicle risk reduction activities.		
Congressional Add: Government and Industry Source Selection	0.000	50.000
FY 2015 Accomplishments: N/A		
FY 2016 Plans: Effort includes government and industry source selection preparation.		
Congressional Adds Subtotals	0.000	300.000

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Funding provided in support of competitive air vehicle risk reduction activities to include government and industry source selection preparation.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604404N / (U)Unman Carrier Launch A/B Surv & Strk(UCLASS)Sys	Project (Number/Name) 9999 / Congressional Adds
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Air Segment (Primary Hardware Development)	TBD	Boeing : St. Louis, MO	0.000	0.000		62.500	Jun 2016	0.000		-		0.000	0.000	62.500	62.500
Air Segment (Primary Hardware Development)	TBD	General Atomics : Poway, CA	0.000	0.000		62.500	Jun 2016	0.000		-		0.000	0.000	62.500	62.500
Air Segment (Primary Hardware Development)	TBD	Lockheed Martin : Palmdale, CA	0.000	0.000		62.500	Jun 2016	0.000		-		0.000	0.000	62.500	62.500
Air Segment (Primary Hardware Development)	TBD	Northrop Grumman : El Segundo, CA	0.000	0.000		62.500	Jun 2016	0.000		-		0.000	0.000	62.500	62.500
Air Segment (Primary Hardware Development)	TBD	TBD : TBD	0.000	0.000		20.000	Mar 2016	0.000		-		0.000	0.000	20.000	-
Air Segment (Primary Hardware Development)	TBD	NAWCAD : Patuxent River, MD	0.000	0.000		30.000	Mar 2016	0.000		-		0.000	0.000	30.000	-
Subtotal			0.000	0.000		300.000		0.000		-		0.000	0.000	300.000	-

Remarks
 Program increase-competitive air vehicle risk reduction activities
 Program increase-government and industry source selection preparation

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000	300.000	0.000	-	0.000	0.000	300.000	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604404N / (U)Unman Carrier Launch A/B Surv & Strk(UCLASS)Sys	Project (Number/Name) 9999 / Congressional Adds
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Unmanned Carrier-Launched Airborne Surveillance and Strike (UCLASS) System	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
System Development																												
Air Segment																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604404N / (U)Unman Carrier Launch A/B Surv & Strk(UCLASS)Sys	Project (Number/Name) 9999 / Congressional Adds

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Unmanned Carrier-Launched Airborne Surveillance and Strike (UCLASS) System				
System Development: Air Segment: Boeing	3	2016	4	2017
System Development: Air Segment: General Atomics	3	2016	4	2017
System Development: Air Segment: Lockheed Martin	3	2016	4	2017
System Development: Air Segment: Northrop Grumman	3	2016	4	2017

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>					R-1 Program Element (Number/Name) PE 0604501N / <i>Advanced Above Water Sensors</i>							
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	231.069	19.320	43.914	85.868	-	85.868	88.249	42.760	15.424	15.713	Continuing	Continuing
3188: <i>Dual-Band Radar</i>	82.281	8.597	6.385	4.808	-	4.808	5.133	0.000	0.000	0.000	0.000	107.204
3232: <i>Multi-Mission Signal Processor</i>	135.376	9.372	13.432	2.279	-	2.279	2.424	2.503	2.567	2.856	Continuing	Continuing
3236: <i>Advanced Radar Technology</i>	0.000	0.589	23.301	68.037	-	68.037	68.411	27.601	0.000	0.000	0.000	187.939
3301: <i>Improved Capabilities SPY-1 Radar</i>	13.412	0.762	0.796	10.744	-	10.744	12.281	12.656	12.857	12.857	Continuing	Continuing

A. Mission Description and Budget Item Justification

Dual Band Radar (DBR) Upgrades: Funding is for Dual Band Radar (DBR) System upgrades to implement cost savings initiatives for Volume Search Radar (VSR) modifications, supportability analysis and associated logistics product updates; future upgrades/technology insertion efforts for Multi-Function Radar (MFR)/VSR as a part of the DBR suite on CVN 78 Class ships and the MFR on DDG 1000 Class ships. Funding is also required to resolve the hardware and software issues discovered during the various test events to include: DTB2-411, Self Defense Test Ship (SDTS) testing, Land Based Testing and pertinent At-Sea test events. The upgrades will include all aspects of the radar system/subsystems, including hardware and software. Specific subsystem areas include the Array, Transmit/Receive (T/R) module, Receiver/Exciter, Signal Data Processor, Radome, and power/cooling systems. Upgrades and technology insertions are required to maintain the level of force protection needed for ship defense against all threats envisioned in the littoral environment. The supportability analysis and logistic products associated with these upgrades will also be developed and updated. DBR Battle Force Tactical Trainer (BFTT)/Cooperative Engagement Capability (CEC)/Surface Electronic Warfare Improvement Program (SEWIP) Interface: FY15 requirement supports the design and development of the software interface between DBR and AN/USQ-46 BFTT, CEC and SEWIP to enhance CVN 78 combat readiness. DBR CVN 78 Testing and Certification: FY15-FY18 requirement supports DBR At-Sea Test and Evaluation (T&E), Environmental Testing and DBR Systems Certification for CVN 78.

Multi-Mission Signal Processor (MMSP): The development of Multi-Mission Signal Processor (MMSP) provides Anti-Air Warfare (AAW)/Ballistic Missile Defense (BMD) Multi-mission capability for DDG 51 class ships as part of Aegis Modernization Program. This capability is utilized for DDG 113 and follow new construction and Aegis Ashore. Modifies SPY-1D Transmitters to enable dual beam for reduced frame times and better reaction time, and provides stability for all D (V) waveforms and avoid operational degradation. The SPY-1 radar system detects, tracks and supports engagements of a broader range of threats. MMSP improves performance in littoral, ducted clutter environments, and in electronic attack (EA), and chaff environments and provides greater commonality in computer programs and equipment. This effort also provides for the development of a Solid State Switch Assembly (SSSA) through an ONR/MANTECH project, MMSP Commercial Off-The-Shelf (COTS) refresh, radar capability upgrades, reliability improvements, and ship-based Non-Cooperative Target Recognition (NCTR). Initiate transition of Advanced Calibration Experiment (ACE) into Baseline (BL) 7.2 to continue MMSP development. FY17-FY21 funding realigned from Project 3232 to Project 3301 for Improved Capabilities SPY-1 Radar to support radar development. This line continues MMSP development and includes the commencement of technology refresh to support Aegis Modernization due to Diminishing Manufacturing Sources and Material Shortages (DMSMS) and obsolescence issues. This effort includes re-hosting the MMSP software and firmware on

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604501N / <i>Advanced Above Water Sensors</i>	
<p>a new computer platform. Engineering efforts will be required to assess alternate technologies and determine optimal MMSP architectural solutions, which will include system security requirements.</p> <p>Advanced Radar Technology (ART): The EASR and EXI Engineering and Manufacturing Development (E&MD) contracts are to be awarded in FY16. This requires a significant increase in funding between FY16 and FY17. Funds the development and integration of existing and new radar technologies into the Navy's sensors to enhance performance and/or ensure sensor operations and sustainment throughout the lifecycle of the sensor and platforms on which installed.</p> <p>Enterprise Air Surveillance Radar (EASR): EASR will modify an existing radar technology to meet the air surveillance requirements for multiple ship classes. EASR will be one sensor in a suite that is designed to meet the performance needs for ship self-defense, situational awareness and air traffic control. EASR will replace the the Volume Search Radar (VSR) in the CVN 78 Class Dual Band Radar system and the AN/SPS-48/49 radar systems in numerous ship classes. The AN/SPS-48 Radars are long-range, three-dimensional (3-D) radars used to search, detect and provide space-stabilized, three-coordinate (range, bearing, height) data for air intercept control and designation to a weapon system. The AN/SPS-49A(V)1 radar system is a long range, two dimensional (2-D), L-Band air surveillance radar installed on USN major combatants. The AN/SPY-4 Volume Search Radar (VSR) is an S-Band active phased array radar deployed on CVN 78 providing volume surveillance and air traffic control. EASR funding will develop a modern 3-D air search radar that addresses the latest requirements for Aviation and Amphibious Warfare Ships and closely conforms to existing combat system interfaces, as well as aligns with existing shipboard space, weight, and power limits. The architecture and acquisition strategy for EASR is intended to drive a lower recurring cost by utilizing the same core technology for both fixed-face and rotating array variants. EASR will provide for engineering of component and system level technology improvements for equipment used by in service air search radars.</p> <p>Enterprise X-Band Illuminator (EXI): EXI funding will develop an X-band illuminator compatible with the EASR radar and Combat System suite. Funding will also integrate a missile illuminator for future CVN applications as well as other ship classes.</p> <p>Improved Capabilities for SPY-1 Radar: These Reliability, Maintainability, and Availability (RM&A) improvements and solid state technology inserters are intended to reduce cascading failures, mitigate obsolescence issues, and improve reliability in support of Anti-Air Warfare (AAW) and Ballistic Missile Defense (BMD) missions while still providing AN/SPY-1 Radar Total Ownership Cost Reductions. Improvements will yield reductions in annual fleet maintenance costs and is a top fleet requirement as part of the AEGIS Wholeness initiative.</p> <p>FY17-FY21 funding has been realigned from Project 3232 Multi-Mission Signal Processor to Project 3301. Efforts include development of Transmitter Noise Cancellation (TNC), Sidelobe Blanking (SLB), Ship-Based Non-Cooperative Target Recognition (SBNCTR), Electronic Attack (EA) and Rapid Radar Capability Program (R2CIP). Initiate transition of Advanced Calibration Experiment (ACE) into Baseline 9.</p> <p>Advanced Radar Innovation Fund/Advanced Radar Research: Funds the development and integration of existing and new technologies into the Navy's sensors to enhance performance and ensure sensor operations and sustainment throughout the lifecycle of the sensor and platforms on which installed.</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604501N / <i>Advanced Above Water Sensors</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	19.809	43.914	92.562	-	92.562
Current President's Budget	19.320	43.914	85.868	-	85.868
Total Adjustments	-0.489	0.000	-6.694	-	-6.694
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.489	0.000			
• Program Adjustments	0.000	0.000	-4.088	-	-4.088
• Rate/Misc Adjustments	0.000	0.000	-2.606	-	-2.606

Change Summary Explanation

FY15: Decrease due to SBIR/STTR reduction.

FY16: FY15 to FY16 increase is due to the development of the Enterprise Air Surveillance Radar (EASR).

FY17: Decrease in Advanced Above Water Sensors by \$3.688M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

FY17 funding request was reduced by \$.400 million to account for the availability of prior year execution balances.

The EASR and EXI Engineering and Manufacturing Development (E&MD) contracts are to be awarded in FY16. This requires a significant increase in funding between FY16 and FY17.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604501N / <i>Advanced Above Water Sensors</i>	Project (Number/Name) 3188 / <i>Dual-Band Radar</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3188: <i>Dual-Band Radar</i>	82.281	8.597	6.385	4.808	-	4.808	5.133	0.000	0.000	0.000	0.000	107.204
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Dual-Band Radar (DBR) Upgrades: Funding is for Dual Band Radar (DBR) System upgrades to implement cost savings initiatives for Volume Search Radar (VSR) modifications, supportability analysis and associated logistics product updates; future upgrades/technology insertion efforts for Multi-Function Radar (MFR)/VSR as a part of the DBR suite on CVN 78 Class ships and the MFR on DDG 1000 Class ships. Funding is also required to resolve the hardware and software issues discovered during the various test events to include: DTB2-411, SDTS testing, Land Based Testing and pertinent At-Sea test events. The upgrades will include all aspects of the radar system/subsystems, including hardware and software. Specific subsystem areas include the Array, Transmit/Receive (T/R) module, Receiver/Exciter, Signal Data Processor, Radome, and power/cooling systems. Upgrades and technology insertions are required to maintain the level of force protection needed for ship defense against all threats envisioned in the littoral environment. The supportability analysis and logistic products associated with these upgrades will also be developed and updated.

DBR Battle Force Tactical Trainer (BFTT)/Cooperative Engagement Capability (CEC)/Surface Electronic Warfare Improvement Program (SEWIP) Interface: FY15 requirement supports the design and development of the software interface between DBR and AN/USQ-46 BFTT, CEC and SEWIP to enhance CVN 78 combat readiness.

DBR CVN 78 Testing and Certification: FY15-FY18 requirement supports DBR At-Sea Test and Evaluation (T&E), Environmental Testing and DBR Systems Certification for CVN 78.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: RADAR UPGRADES TECHNOLOGY INSERTION	4.840	5.635	3.702	0.000	3.702
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					
- Continued Technology Insertion for the MFR/VSR/DBR hardware and software and development/updates to associated logistics products.					
- Completed software development of the DBR/BFTT and DBR/CEC interfaces.					
- Completed software development to implement live over simulation training capability in support of BFTT integration.					
- Completed integration of the DBR/BFTT, DBR/SEWIP and DBR/CEC interfaces.					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016		
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604501N / <i>Advanced Above Water Sensors</i>	Project (Number/Name) 3188 / <i>Dual-Band Radar</i>			
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)					
<ul style="list-style-type: none"> - Continued to provide technical support for DBR element certification in support of overall combat system certification. - Continued validation testing and integration of the DBR/BFTT, DBR/CEC and DBR/SEWIP software interfaces.. - Continued planning for DBR Environmental Testing. - Continued DBR Shipboard Testing. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Continue Technology Insertion for the MFR/VSR/DBR hardware and software and development/updates to associated logistics products. - Continue to provide technical support for DBR element certification in support of overall combat system certification. - Complete validation testing and integration of the DBR/BFTT and DBR/CEC software interface. - Continue validation testing and integration of DBR/SEWIP software interfaces. - Continue planning for DBR Environmental Testing. - Continue DBR Shipboard Testing. <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> - Continue Technology Insertion for the MFR/VSR/DBR hardware and software and development/updates to associated logistics products. - Continue to provide technical support for DBR element certification in support of overall combat system certification. - Complete validation testing and integration of DBR/SEWIP software interfaces. - Continue planning for DBR Environmental Testing. - Complete DBR Shipboard Testing. <p>FY 2017 OCO Plans: N/A</p>					
Title: RADAR UPGRADES GOVERNMENT ENGINEERING SERVICES					
Articles:					
	2.513	0.502	0.916	0.000	0.916
	-	-	-	-	-
FY 2015 Accomplishments:					
<ul style="list-style-type: none"> - Continued to provide Government Engineering Services support for radar upgrades and technology insertion of the MFR/VSR/DBR radars. Continued to perform oversight and assessment of efforts associated with this phase of the program. -Continued DBR EMI testing efforts. 					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604501N / <i>Advanced Above Water Sensors</i>	Project (Number/Name) 3188 / <i>Dual-Band Radar</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<ul style="list-style-type: none"> - Continued Government Engineering Services support of DBR/BFTT, DBR/CEC and DBR/SEWIP software interface development integration. - Continued to provide Government Engineering Services required for DBR element certification to support overall combat system certification. - Continued validation testing and integration of the DBR/BFTT, DBR/CEC and DBR/SEWIP software interfaces. - Continued planning for DBR Environmental Testing. - Continued DBR Shipboard Testing. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Continue to provide Government Engineering Services support for radar upgrades and technology insertion of the MFR/ VSR/DBR radars. Continue to perform oversight and assessment of efforts associated with this phase of the program. - Complete Government Engineering Services support of DBR/BFTT and DBR/CEC software interface development integration. - Continue Government Engineering Services support of DBR/SEWIP software interface development integration. - Continue to provide Government Engineering Services required to complete DBR element certification to support overall combat system certification. - Complete Government Engineering Services to support validation testing and integration of the DBR/BFTT and DBR/CEC software interface. - Continue to provide Government Engineering Services to support validation testing and integration of the DBR/SEWIP software interfaces. - Complete EMI Analysis Testing (Co-site & Off-ship). - Continue planning for DBR Environmental Testing. - Continue DBR Shipboard Testing. <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> - Continue to provide Government Engineering Services support for radar upgrades and technology insertion of the MFR/ VSR/DBR radars. Continue to perform oversight and assessment of efforts associated with this phase of the program. - Continue to provide Government Engineering Services required to complete DBR element certification to support overall combat system certification. - Complete Government Engineering Services to support validation testing and integration of the DBR/SEWIP software interface. 					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604501N / <i>Advanced Above Water Sensors</i>	Project (Number/Name) 3188 / <i>Dual-Band Radar</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<ul style="list-style-type: none"> - Continue planning for DBR Environmental Testing. - Complete DBR Shipboard Testing. <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: RADAR UPGRADES PROGRAM MANAGEMENT</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Continued to provide Program Management and logistics support for radar upgrades and technology insertion for the MFR/VSR/DBR radars. - Completed Program Management support of DBR/BFTT, DBR/CEC and DBR/SEWIP software interface development. - Continued to provide Program Management for validation testing and integration of the DBR/BFTT, DBR/CEC and DBR/SEWIP software interfaces. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Continue to provide Program Management and logistics support for radar upgrades and technology insertion for the MFR/ VSR/DBR radars. - Complete Program Management for validation testing and integration of the DBR/BFTT and DBR/CEC software interfaces. - Continue to provide Program Management for validation testing and integration of the DBR/SEWIP software interfaces. <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> - Continue to provide Program Management and logistics support for radar upgrades and technology insertion for the MFR/ VSR/DBR radars. - Complete Program Management for validation testing and integration of the DBR/SEWIP software interface. <p>FY 2017 OCO Plans: N/A</p>	1.244	0.248	0.190	0.000	0.190
	-	-	-	-	-
Accomplishments/Planned Programs Subtotals	8.597	6.385	4.808	0.000	4.808

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604501N / <i>Advanced Above Water Sensors</i>	Project (Number/Name) 3188 / <i>Dual-Band Radar</i>

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017	FY 2017	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Cost To	
			Base	OCO	Total					Complete	Total Cost
• OPN/2980: <i>BLI 2980/OPN Items Less Than \$5M</i>	3.087	8.922	17.634	-	17.634	16.405	16.266	16.459	16.778	Continuing	Continuing
• OMN/0702228N: <i>0702228N/1C2C/O&M,N</i>	3.089	2.709	2.397	-	2.397	2.624	2.685	2.737	2.792	Continuing	Continuing

Remarks

D. Acquisition Strategy

Radar Upgrades and logistic products will be developed to address lessons learned and technology refresh for DBR systems on multiple ship classes.

E. Performance Metrics

- Complete upgrade studies and analyses each fiscal year to determine efficiencies for Hardware (H/W) and Software (S/W) upgrades and to determine appropriate logistics product updates
- Complete co-site and off-ship EMI analysis testing
- Complete VSR Radome development and determine opportunities to improve configuration and performance
- Complete upgrade technology insertion
- Complete development of logistics products
- Implement supportability analysis to improve supportability and reduce overall lifecycle cost
- Complete DBR At-Sea Test and Evaluation (T&E)
- Complete planning for DBR Environmental Testing
- Complete DBR/CEC interface development
- Complete DBR Systems Certification
- Complete Common Array Power System (CAPS) redesign
- Complete DBR/SEWIP interface development
- Complete DBR/BFTT interface development
- Complete DBR Shipboard Testing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604501N / <i>Advanced Above Water Sensors</i>	Project (Number/Name) 3188 / <i>Dual-Band Radar</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Government Engineering Support	WR	Other Government Activities : Various	1.143	0.000		0.000		0.000		-		0.000	0.000	1.143	-
Government Engineering Support	WR	NSWC/Dahlgren : Dahlgren, VA	13.648	1.225	Nov 2014	0.000		0.579	Dec 2016	-		0.579	0.000	15.452	-
Government Engineering Support	WR	NSWC/PHD : Port Hueneme, CA	6.320	0.153	Feb 2015	0.000		0.076	Dec 2016	-		0.076	0.000	6.549	-
Government Engineering Support	WR	NSWC/Crane : Crane, IN	5.047	0.234	Feb 2015	0.000		0.105	Dec 2016	-		0.105	0.000	5.386	-
Government Engineering Support	WR	NRL : Washington, DC	3.725	0.000		0.000		0.000		-		0.000	0.000	3.725	-
Government Engineering Support	SS/CPFF	JHU/APL : Columbia, MD	1.159	0.246	Feb 2015	0.172	Mar 2016	0.093	Dec 2016	-		0.093	0.000	1.670	-
Government Engineering Support	MIPR	NSMA : Arlington, VA	0.903	0.000		0.000		0.000		-		0.000	0.000	0.903	-
Government Engineering Support	SS/CPFF	GTRI : Atlanta, GA	1.080	0.078	Feb 2015	0.051	Feb 2016	0.040	Dec 2016	-		0.040	0.000	1.249	-
Government Engineering Support	WR	NSWC/Carderock : Philadelphia, PA	0.143	0.059	Dec 2014	0.000		0.023	Dec 2016	-		0.023	0.000	0.225	-
Government Engineering Support	WR	NSWC/Dam Neck : Dam Neck, VA	0.808	0.466	Feb 2015	0.000		0.000		-		0.000	0.000	1.274	-
Government Engineering Support	SS/CPFF	AEGIS Tech Rep : Moorestown, NJ	0.014	0.000		0.000		0.000		-		0.000	0.000	0.014	-
Government Engineering Support	WR	TASC : Andover, MA	0.048	0.000		0.000		0.000		-		0.000	0.000	0.048	-
Government Engineering Support	WR	NSWC/Corona : Corona, CA	0.446	0.052	Nov 2014	0.279	Feb 2016	0.000		-		0.000	0.000	0.777	-
Government Engineering Support	WR	NAWC/PT MUGU : PT MUGU, CA	0.586	0.000		0.000		0.000		-		0.000	0.000	0.586	-
Systems Engineering	SS/CPFF	Raytheon : Raytheon, Sudbury, MA	40.270	4.840	Nov 2014	5.635	Dec 2015	3.702	Dec 2016	-		3.702	0.000	54.447	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604501N / <i>Advanced Above Water Sensors</i>	Project (Number/Name) 3188 / <i>Dual-Band Radar</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Systems Engineering	SS/CPAF	Raytheon IDS : San Diego, CA	1.500	0.000		0.000		0.000		-		0.000	0.000	1.500	-
Systems Engineering	SS/CPFF	General Dynamics AIS : Fairfax, VA	1.000	0.000		0.000		0.000		-		0.000	0.000	1.000	-
Systems Engineering	SS/CPFF	PMS 320 Syntek : Arlington, VA	0.400	0.000		0.000		0.000		-		0.000	0.000	0.400	-
Subtotal			78.240	7.353		6.137		4.618		-		4.618	0.000	96.348	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support	C/CPIF	SPA (SEAPORT) : Washington, DC	3.815	0.904	Feb 2015	0.000		0.000		-		0.000	0.000	4.719	-
DAWDF	Allot	N/A : N/A	0.027	0.000		0.000		0.000		-		0.000	0.000	0.027	-
Travel	Allot	PEOISW2 : Washington, DC	0.133	0.017	Jan 2015	0.030	Dec 2015	0.008	Dec 2016	-		0.008	0.000	0.188	-
Program Management Support	C/CPIF	ALION : Washington, DC	0.026	0.000		0.000		0.000		-		0.000	0.000	0.026	-
Program Management Support	C/CPFF	CACI : Washington, DC	0.040	0.276	Apr 2015	0.000		0.000		-		0.000	0.000	0.316	-
Program Management Support	C/CPIF	TMB : Washington, DC	0.000	0.047	Apr 2015	0.000		0.000		-		0.000	0.000	0.047	-
Program Management Support	C/CPIF	TBD : TBD	0.000	0.000		0.000		0.182	Dec 2016	-		0.182	0.000	0.182	-
Program Management Support	SS/CPIF	SPA : Washington, DC	0.000	0.000		0.218	Jan 2016	0.000		-		0.000	0.000	0.218	-
Subtotal			4.041	1.244		0.248		0.190		-		0.190	0.000	5.723	-

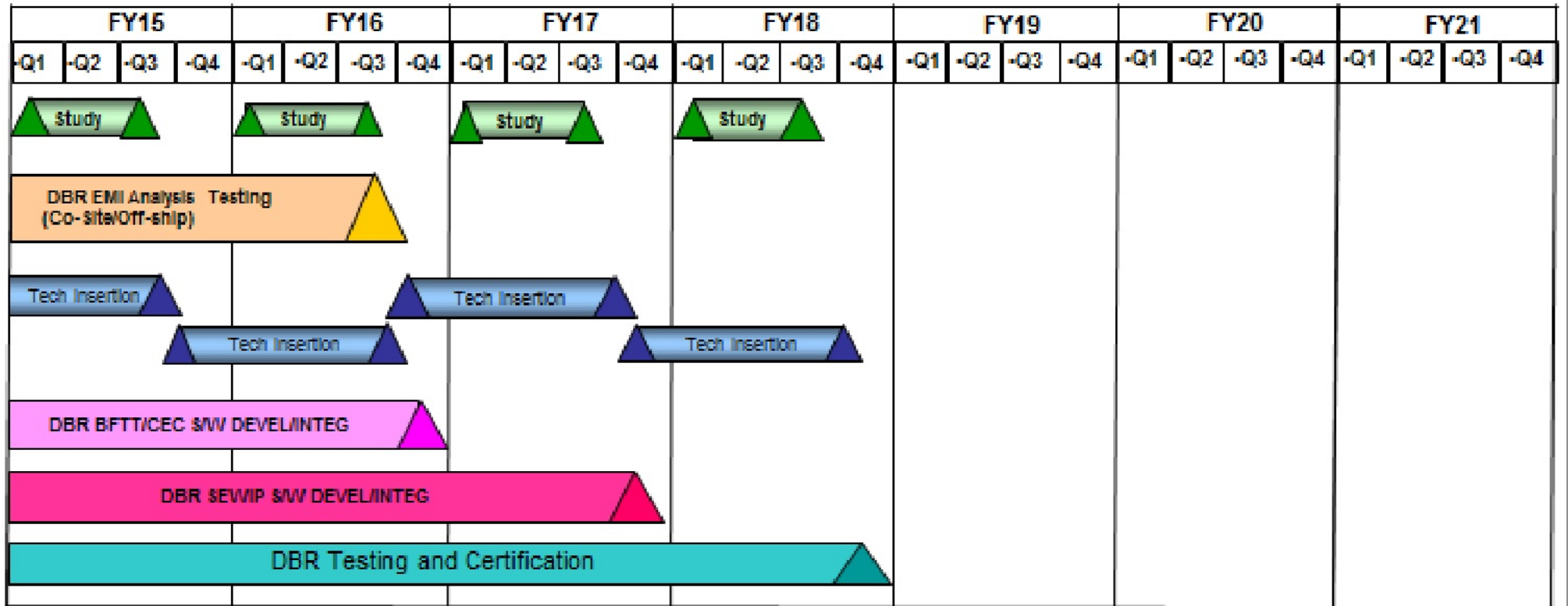
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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy								Date: February 2016					
Appropriation/Budget Activity 1319 / 5				R-1 Program Element (Number/Name) PE 0604501N / <i>Advanced Above Water Sensors</i>				Project (Number/Name) 3188 / <i>Dual-Band Radar</i>					
	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	82.281	8.597		6.385		4.808		-		4.808	0.000	102.071	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604501N / <i>Advanced Above Water Sensors</i>	Project (Number/Name) 3188 / <i>Dual-Band Radar</i>



Note: Supportability Analysis is conducted in conjunction with the Study.
 DBR At-Sea T&E, Planning for Environmental Testing and DBR System Certification are included in the DBR Testing and Certification support

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604501N / <i>Advanced Above Water Sensors</i>	Project (Number/Name) 3188 / <i>Dual-Band Radar</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Proj 3188</i>				
DBR System Upgrade Studies and Analysis	1	2015	3	2018
DBR EMI Analysis Testing (Co-Site & Off-ship)	1	2015	3	2016
DBR System Upgrade Technology Insertion	1	2015	4	2018
DBR BFTT/CEC Software Development/Integration	1	2015	4	2016
DBR SEWIP Software Development/Integration	1	2015	4	2017
DBR Testing and Certification	1	2015	4	2018

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604501N / <i>Advanced Above Water Sensors</i>				Project (Number/Name) 3232 / <i>Multi-Mission Signal Processor</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3232: <i>Multi-Mission Signal Processor</i>	135.376	9.372	13.432	2.279	-	2.279	2.424	2.503	2.567	2.856	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Multi-Mission Signal Processor (MMSP): The development of Multi-Mission Signal Processor (MMSP) provides simultaneous Anti-Air Warfare (AAW)/Ballistic Missile Defense (BMD) Multi-mission capability for DDG 51 class ships as part of Aegis Modernization Program. This capability is utilized for DDG 113 and follow new construction and Aegis Ashore. Modifies SPY-1D Transmitters to enable dual beam for reduced frame times and better reaction time, and provides stability for all D (V) waveforms and avoid operational degradation. The SPY-1 radar system detects, tracks and supports engagements of a broader range of threats. MMSP improves performance in littoral, ducted clutter environments, and in electronic attack (EA), and chaff environments and provides greater commonality in computer programs and equipment. This effort also provides for the development of a Solid State Switch Assembly (SSSA) through an ONR/MANTECH project, MMSP Commercial Off-The-Shelf (COTS) refresh, radar capability upgrades, reliability improvements, and Ship-Based Non-Cooperative Target Recognition (SBNCTR). Initiate transition of Advanced Calibration Experiment (ACE) into Baseline (BL) 7.2 to continue MMSP development.

FY17-FY21 funding is realigned from Project 3232 to Project 3301 Improved Capabilities SPY-1 Radar to support radar development. This line continues MMSP development and includes the commencement of technology refresh to support Aegis Modernization due to Diminishing Manufacturing Sources and Material Shortages (DMSMS) and obsolescence issues. This effort includes re-hosting the MMSP software and firmware on a new computer platform. Engineering efforts will be required to assess alternate technologies and determine optimal MMSP architectural solutions, which will include system security requirements.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: SYSTEMS ENGINEERING	9.372	13.432	2.279	0.000	2.279
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					
- Continued to support MMSP/ACB12 Radar Integration at-sea validation testing and computer program corrections.					
- Continued design and development of MANTECH SSSA, supported qualification testing and initiated transition to production.					
- Continued COTS Refresh and radar improvements.					
- Continued DDG BL 9 Radar Capabilities Upgrades, SBNCTR, and BL 9 Radar Synchronization.					
- Commenced ACB16 Radar upgrades for MMSP.					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604501N / <i>Advanced Above Water Sensors</i>	Project (Number/Name) 3232 / <i>Multi-Mission Signal Processor</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>- Continued to maintain alignment with the BMD Program and the associated Ballistic Missile Defense Signal Processor (BSP) adjunct to incorporate BMD capability within MMSP during AEGIS Modernization.</p> <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Continue to support MMSP/ACB12 Radar Integration at-sea validation testing and computer program corrections. - Support Final Certification of MMSP on Destroyers. - Complete ACE integration into BL 7.2. - Continue COTS Refresh and Radar Capability improvements. - Continue DDG BL 9 Radar Capabilities Upgrades, SBNCTR, and BL 9 Radar Synchronization. - Continue ACB16 Radar upgrades for MMSP. - Continue to maintain alignment with the Ballistic Missile Defense Program and the associated Ballistic Missile Defense Signal Processor (BSP) adjunct to incorporate BMD capability within MMSP during AEGIS Modernization. - Support Production Readiness Review (PRR) of Solid State Switch Assembly (SSSA) and complete transition to production. <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> - Initiate technology refresh to support AEGIS Modernization due to DMSMS and obsolescence issues. Engineering efforts will be required to assess alternate technologies and determine optimal MMSP architectural solutions, which will include System Security requirements. - Initiate analysis of alternatives and requirements definition for re-hosting MMSP software and firmware onto a new computer platform. - Continue to maintain alignment with the Ballistic Missile Defense Program and the associated Ballistic Missile Defense Signal Processor (BSP) adjunct to incorporate BMD capability within MMSP during AEGIS Modernization. - Continue to support ACB12 and ACB16 radar improvements. <p>FY 2017 OCO Plans: N/A</p>					
Accomplishments/Planned Programs Subtotals	9.372	13.432	2.279	0.000	2.279

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604501N / <i>Advanced Above Water Sensors</i>	Project (Number/Name) 3232 / <i>Multi-Mission Signal Processor</i>

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017	FY 2017	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Cost To	
			Base	OCO	Total					Complete	Total Cost
• SCN/2122: <i>BLI 2122/SCN DDG 51</i>	2,924.381	4,207.664	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• OPN/0900: <i>BLI 0900/OPN DDG Modernization</i>	324.219	421.195	367.766	-	367.766	636.893	585.026	585.003	658.303	Continuing	Continuing

Remarks

D. Acquisition Strategy

Multi-Mission Signal Processor (MMSP) provides simultaneous AAW/BMD Multi-mission capability for AEGIS Modernization Program and leverages BMD 4.0.1 and SPY-1D(V) designs. This MMSP development efforts support integration of BMD 5.0 signal processing, and will lead to the OPN/SCN procurement for shore sites and shipsets. This effort also provides for the development of a Solid State Switch Assembly (SSSA) through an ONR/MANTECH project, and will lead to OPN/SCN procurement for shore sites and shipsets. COTS refresh, radar capability upgrades, reliability improvements, and ship-based Non-Cooperative Target Recognition will be incorporated into Baseline 9 and follow.

E. Performance Metrics

- Complete DDG SPY-1D(V) Engineering Exercise (EE) #2
- Complete DDG Qualification Testing
- Complete DDG ACB12 Multi-Mission Exercise
- Complete DDG Delivery
- Complete DDG Aegis Light Off (ALO)
- Complete DDG Combat System Ship Qualification Trials (CSSQT)
- Complete MMSP on DDG on Final Certification
- Complete DDG Commercial Off The Shelf (COTS) Refresh - Engineering Change Proposal (ECP) for MMSP on Destroyers
- Complete Solid State Switch Assembly (SSSA) contract award
- Complete SSSA Critical Design Review (CDR)
- Complete Ship-Based Non-Cooperative Target Recognition (SBNCTR) Engineering Exercise (EE)
- Complete ACB16 Preliminary Design Review (PDR)
- Complete ACB16 CDR
- Complete ACB16 Test Readiness Review (TRR)
- Complete ACB16 Demo
- Complete ACB16 AEGIS Light Off (ALO)
- Complete ACB16 Final Certification
- Complete ACB16 COTS Refresh
- Complete SSSA qualification testing

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604501N / <i>Advanced Above Water Sensors</i>	Project (Number/Name) 3232 / <i>Multi-Mission Signal Processor</i>
<ul style="list-style-type: none">- Complete SSSA Production Readiness Review (PRR)- Complete SSSA transition to production- Complete SBNCTR integration review- Complete ACE BL 7.2 Demo- Complete ACE BL 7.2 Certification- Complete MMSP Technology Refresh Requirements and Material Solution Analysis- Complete MMSP Technology Refresh Technology Development- Complete MMSP Technology Refresh Integration and Test		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604501N / <i>Advanced Above Water Sensors</i>	Project (Number/Name) 3232 / <i>Multi-Mission Signal Processor</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SYSTEM ENGINEERING	SS/CPFF	Lockheed Martin : Moorestown, NJ	106.256	4.301	Feb 2015	5.737	Mar 2016	1.436	Dec 2016	-		1.436	Continuing	Continuing	Continuing
SYSTEM ENGINEERING	C/CPFF	AEGIS Techrep : Moorestown, NJ	4.033	0.516	Feb 2015	0.855	Feb 2016	0.120	Dec 2016	-		0.120	Continuing	Continuing	Continuing
SYSTEM ENGINEERING	SS/FP	APL/JHU : Laurel, MD	3.531	0.425	Feb 2015	0.840	Feb 2016	0.086	Feb 2017	-		0.086	Continuing	Continuing	Continuing
SYSTEM ENGINEERING	WR	CSCS : Dahlgren, VA	1.254	0.141	Apr 2015	0.285	Jan 2016	0.000		-		0.000	0.000	1.680	-
SYSTEM ENGINEERING	WR	NRL : Washington, DC	2.458	0.200	Feb 2015	0.382	Jan 2016	0.086	Dec 2016	-		0.086	Continuing	Continuing	Continuing
SYSTEM ENGINEERING	MIPR	MIT/LL : Lexington, MA	0.650	0.453	Feb 2015	0.350	Feb 2016	0.000		-		0.000	0.000	1.453	-
SYSTEM ENGINEERING	WR	NSWC/DD : Dahlgren, VA	4.390	1.822	Feb 2015	2.782	Jan 2016	0.321	Nov 2016	-		0.321	Continuing	Continuing	Continuing
SYSTEM ENGINEERING	WR	SCSC : Wallops Island, VA	0.000	0.019	May 2015	0.000		0.000		-		0.000	0.000	0.019	-
SYSTEM ENGINEERING	WR	NSWC/CR : Crane, IN	3.030	0.213	Oct 2014	0.784	Nov 2015	0.075	Nov 2016	-		0.075	Continuing	Continuing	Continuing
SYSTEM ENGINEERING	WR	NSWC/PHD : Port Hueneme, CA	3.463	0.259	Feb 2015	0.000		0.070	Dec 2016	-		0.070	Continuing	Continuing	Continuing
SYSTEM ENGINEERING	WR	Office of Naval Research : Arlington, VA	4.550	0.329	Apr 2015	0.900	Feb 2016	0.000		-		0.000	0.000	5.779	-
Subtotal			133.615	8.678		12.915		2.194		-		2.194	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Travel	Allot	PEOISW2 : Washington, DC	0.178	0.030	Jan 2015	0.020	Jan 2016	0.010	Jan 2017	-		0.010	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604501N / <i>Advanced Above Water Sensors</i>	Project (Number/Name) 3232 / <i>Multi-Mission Signal Processor</i>
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Support Management Services	C/CPIF	TBD : TBD	0.000	0.000		0.000		0.075	Jan 2017	-		0.075	Continuing	Continuing	Continuing
Support Management Services	SS/CPIF	SPA : Washington, DC	0.000	0.000		0.413	Jan 2016	0.000		-		0.000	0.000	0.413	-
Support Management Services	C/CPIF	SPA (SEAPORT) : Washington, DC	1.583	0.664	Feb 2015	0.000		0.000		-		0.000	0.000	2.247	-
Support Management Services	C/CPFF	CACI : Washington, DC	0.000	0.000		0.084	Jan 2016	0.000		-		0.000	0.000	0.084	-
Subtotal			1.761	0.694		0.517		0.085		-		0.085	-	-	-

Remarks
FY16 funding redistributed to support SPY-1 slide rule enhancement speed to fleet (increased NSWC/DD, APL, AEGIS Techrep) and SSSA testing efforts (increased NSWC/CR and ONR).

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	135.376	9.372	13.432	2.279	-	2.279	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604501N / <i>Advanced Above Water Sensors</i>	Project (Number/Name) 3232 / <i>Multi-Mission Signal Processor</i>
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Fiscal Year	2015				2016				2017				2018				2019				2020				2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MMSP on Destroyers						Final Cert △									End COTS Refresh (ECPs) △													
Solid State Switch Assembly (MANTECH)						PRR △																						
ACB 16 Radar Requirements and Analysis	PDR ▲					CDR △		TRR △	Demo △				DDG 119 ALO △		Final Cert △		COTS Refresh △											
Ship-Based Non-Cooperative Target Recognition (SBNCTR), Phase 1						IPR#1 ▲	IPR#2 △	Integration Rvw △																				
ACE Integration (Baseline 7.2)						BL 7.2 Demo ▲	BL 7.2 Cert Test △	BL 7.2 Cert △																				
MMSP Technology Refresh									MMSP technology refresh to support AEGIS Modernization																			
									△	Requirements and Material Solutions Analysis				△	Technology Development				△	Integration & Test				△				

MMSP on Destroyers and Solid State Switch Assembly are continued development from prior years.
 ACB 16 COTS Refresh continues beyond the FYDP.
 MMSP Technonology Refresh continues beyond the FYDP.

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604501N / <i>Advanced Above Water Sensors</i>	Project (Number/Name) 3232 / <i>Multi-Mission Signal Processor</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3232				
DDG Commercial Off The Shelf (COTS) Refresh - Engineering Change Proposals (ECP)	1	2015	3	2018
ACB16 Preliminary Design Review (PDR)	1	2015	1	2015
SBNCTR IPR #1	1	2016	1	2016
ACE BL 7.2 Demo	1	2016	1	2016
DDG Final Certification	2	2016	2	2016
ACB16 CDR	2	2016	2	2016
SSSA Production Readiness Review (PRR)	2	2016	2	2016
SBNCTR IPR #2	2	2016	2	2016
ACE BL 7.2 Cert Test	2	2016	2	2016
ACB16 TRR	4	2016	4	2016
SBNCTR Integration Review	4	2016	4	2016
ACE BL 7.2 Cert	4	2016	4	2016
MMSP Tehcnology Refresh Requirements and Material Solutions Analysis	1	2017	1	2019
ACB16 Demo	2	2017	2	2017
DDG 119 ALO	2	2018	2	2018
ACB16 Final Certification	3	2018	3	2018
ACB16 COTS Refresh	3	2018	4	2021
MMSP Technology Refresh Technology Development	1	2019	4	2020
MMSP Technology Refresh Integration & Test	1	2021	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604501N / <i>Advanced Above Water Sensors</i>				Project (Number/Name) 3236 / <i>Advanced Radar Technology</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3236: <i>Advanced Radar Technology</i>	0.000	0.589	23.301	68.037	-	68.037	68.411	27.601	0.000	0.000	0.000	187.939
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Advanced Radar Technology (ART): The EASR and EXI Engineering and Manufacturing Development (E&MD) contracts are to be awarded in FY16. This requires a significant increase in funding between FY16 and FY17. Funds the development and integration of existing and new radar technologies into the Navy's sensors to enhance performance and/or ensure sensor operations and sustainment throughout the lifecycle of the sensor and platforms on which installed.

Enterprise Air Surveillance Radar (EASR): EASR will modify an existing radar technology to meet the air surveillance requirements for multiple ship classes. EASR will be one sensor in a suite that is designed to meet the performance needs for ship self-defense, situational awareness and air traffic control. EASR will replace the the Volume Search Radar (VSR) in the CVN 78 Class Dual Band Radar system and the AN/SPS-48/49 radar systems in numerous ship classes. The AN/SPS-48 Radars are long-range, three-dimensional (3-D) radars used to search, detect and provide space-stabilized, three-coordinate (range, bearing, height) data for air intercept control and designation to a weapon system. The AN/SPS-49A(V)1 radar system is a long range, two dimensional (2-D), L-Band air surveillance radar installed on USN major combatants. The AN/SPY-4 Volume Search Radar (VSR) is an S-Band active phased array radar deployed on CVN 78 providing volume surveillance and air traffic control. EASR funding will develop a modern 3-D air search radar that addresses the latest requirements for Aviation and Amphibious Warfare Ships and closely conforms to existing combat system interfaces, as well as aligns with existing shipboard space, weight, and power limits. The architecture and acquisition strategy for EASR is intended to drive a lower recurring cost by utilizing the same core technology for both fixed-face and rotating array variants. EASR will provide for engineering of component and system level technology improvements for equipment used by in service air search radars.

Enterprise X-Band Illuminator (EXI): EXI funding will develop an X-band illuminator compatible with the EASR radar and Combat System suite. Funding will also integrate a missile illuminator for future CVN applications as well as other ship classes.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: SYSTEMS ENGINEERING - SPEED TO FLEET (S2F)	0.589	0.600	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					
- Commenced development, integration, and testing of an advanced signal processing capability for X-Band radars (S2F).					
- Completed hardware and software (HW/SW) testing					
- Commenced S2F At Sea testing					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604501N / <i>Advanced Above Water Sensors</i>	Project (Number/Name) 3236 / <i>Advanced Radar Technology</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>- Commenced S2F land based testing</p> <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Complete development, integration, and testing of an advanced signal processing capability for X-Band radars (S2F). - Complete S2F land based testing - Complete At Sea testing - Complete transition of an advanced signal processing capability for X-Band radars (Speed To Fleet). <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> - N/A <p>FY 2017 OCO Plans:</p> <ul style="list-style-type: none"> N/A 					
<p>Title: SYSTEMS ENGINEERING - EASR</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - N/A <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Conduct EASR Technical Interchange Meetings (TIMs) - Commence support to EASR Integrated Product Teams (IPTs) and Working Groups (WGs) to facilitate successful integration of the radar with the ship and combat system <p>FY 2017 Base Plans:</p> <p>The EASR and EXI Engineering and Manufacturing Development (E&MD) contracts are to be awarded in FY16. This requires a significant increase in funding between FY16 and FY17.</p> <ul style="list-style-type: none"> - Perform EASR Preliminary Design - Conduct EASR Preliminary Design Review (PDR) - Conduct EASR TIMs - Initiate EASR test planning in support of test site requirements - Continue supporting EASR IPTs and WGs to facilitate successful integration of the radar with the ship and combat system <p>FY 2017 OCO Plans:</p>	0.000	6.189	55.623	0.000	55.623
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604501N / <i>Advanced Above Water Sensors</i>	Project (Number/Name) 3236 / <i>Advanced Radar Technology</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
Title: GOVERNMENT ENGINEERING SERVICES- EASR Articles: FY 2015 Accomplishments: - N/A FY 2016 Plans: - Support EASR Source Selection - Provide support to EASR IPTs and WGs - Analyze and assess EASR E&MD contract deliverables - Support regular EASR Program Management Reviews - Support EASR cost, schedule, and performance management, contract administration, contract oversight, risk identification and risk mitigation - Provide support to EASR TIMs' FY 2017 Base Plans: - Support EASR PDR - Continue to provide support to EASR IPTs and WGs - Continue to analyze and assess EASR E&MD contract deliverables - Continue to support regular EASR Program Management Reviews - Continue to support EASR cost, schedule, and performance management, contract administration, contract oversight, risk identification and risk mitigation - Continue to provide support to EASR TIMs FY 2017 OCO Plans: N/A	0.000	8.319	4.325	0.000	4.325
	-	-	-	-	-
Title: SYSTEMS ENGINEERING - X BAND ILLUMINATOR (EXI) Articles: FY 2015 Accomplishments: - N/A FY 2016 Plans: - Commence EXI Preliminary Design	0.000	4.000	5.000	0.000	5.000
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604501N / <i>Advanced Above Water Sensors</i>	Project (Number/Name) 3236 / <i>Advanced Radar Technology</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<ul style="list-style-type: none"> - Commence support to EXI IPTs and WGs to facilitate successful integration with the ship and combat system - Conduct EXI TIMs <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> - Continue EXI Preliminary Design - Continue support to EXI IPTs and WGs to facilitate successful integration with the ship and combat system - Conduct EXI TIMs - Initiate EXI test planning in support of test site requirements <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: GOVERNMENT ENGINEERING SERVICES - X BAND ILLUMINATOR</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: - N/A</p> <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Provide support to EXI IPTs and WGs - Analyze and assess EXI contract deliverables - Support regular EXI Program Management Reviews - Support EXI cost, schedule, and performance management, contract administration, contract oversight, risk identification and risk mitigation - Provide support to EXI TIMs <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> - Support EXI PDR - Continue to provide support to EXI IPTs and WGs - Continue to analyze and assess EXI contract deliverables - Continue to support regular EXI Program Management Reviews - Continue to support EXI cost, schedule, and performance management, contract administration, contract oversight, risk identification and risk mitigation - Continue to provide support to EXI TIMs <p>FY 2017 OCO Plans:</p>	0.000 -	2.600 -	2.000 -	0.000 -	2.000 -

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604501N / <i>Advanced Above Water Sensors</i>	Project (Number/Name) 3236 / <i>Advanced Radar Technology</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
Title: PROGRAM MANGEMENT SUPPORT - EASR/EXI	0.000	1.593	1.089	0.000	1.089
Articles:	-	-	-	-	-
FY 2015 Accomplishments: - N/A					
FY 2016 Plans: - Perform EASR Source Selection - Award EASR E&MD Contract - Provide support to EASR/EXI IPTs and WGs - Analyze and assess EASR/EXI contract deliverables - Conduct regular EASR/EXI Program Management Reviews - Execute EASR/EXI cost, schedule, and performance management, contract administration, contract oversight, risk identification and risk mitigation - Provide support to EASR/EXI TIMs					
FY 2017 Base Plans: - Continue to provide support to EASR/EXI IPTs and WGs - Continue to analyze and assess EASR/EXI contract deliverables - Continue to conduct regular EASR/EXI Program Management Reviews - Continue to execute EASR/EXI cost, schedule, and performance management, contract administration, contract oversight, risk identification and risk mitigation - Continue to provide support to EASR/EXI TIMs					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.589	23.301	68.037	0.000	68.037

C. Other Program Funding Summary (\$ in Millions)										
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete Total Cost</u>
• OPN/2026: 0204228N <i>Radar Support</i>	26.735	19.841	0.000	-	0.000	0.000	0.000	0.000	0.000	92.586

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604501N / <i>Advanced Above Water Sensors</i>	Project (Number/Name) 3236 / <i>Advanced Radar Technology</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• O&MN: <i>0702228N Radar Support</i>	2.897	2.324	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	7.729

Remarks

D. Acquisition Strategy

Advanced Radar Technology (ART): ART efforts will develop and test an advanced signal processing capability for X-Band radars (Speed-to-Fleet).
 EASR: The EASR Acquisition is a planned competitive procurement based on a radar specification that incorporates the latest requirements for aviation and amphibious warfare ships, closely conforms to existing combat system interfaces, and includes physical Space Weight and Power (SWAP) Not-to-Exceed (NTE) interface requirements from:
 - CVN 79+, LHA(R), and LX(R) for Forward-Fit
 - CVN, LHA, LPD for back-fit.
 EXI: The EXI Acquisition is a planned procurement based on an illuminator specification that incorporates the latest requirements for aviation and amphibious warfare ships, closely conforms to existing combat system interfaces, and includes physical SWAP NTE interface requirements applicable to CVN 79+, LHA(R), and LX(R).

E. Performance Metrics

- Speed-to-Fleet (S2F) Electronic Protection (EP) new firmware/software changes testing
- S2F EP Land Based Testing
- S2F EP At-Sea Testing
- S2F Approval for Transition
- EASR - Engineering and Manufacturing Development (E&MD) Contract RFP
- EXI - E&MD Contract RFP
- EASR - E&MD Contract Award
- EXI - E&MD Contract Award
- EASR - E&MD System PDR
- EXI - E&MD System PDR
- EASR - E&MD System CDR
- EXI - E&MD System CDR
- EASR Engineering Development Model delivered to Land Based Test Site
- EXI - Engineering Development Model delivered to Land Based Test Site
- EASR and EXI - E&MD EASR Land Based System Integration Testing
- EASR and EXI Production Authorization
- EASR and EXI Production

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604501N / <i>Advanced Above Water Sensors</i>	Project (Number/Name) 3236 / <i>Advanced Radar Technology</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Systems Engineering - S2F	C/CPFF	Northrop Grumman - ES : Baltimore, MD	0.000	0.308	Jul 2015	0.300	Mar 2016	0.000		-		0.000	0.000	0.608	-
Systems Engineering - EASR	C/FPIF	EASR E&MD Contractor - TBD : TBD	0.000	0.000		6.189	Jul 2016	55.623	Jan 2017	-		55.623	0.000	61.812	-
Systems Engineering - EXI	TBD	EXI E&MD Contractor - TBD : TBD	0.000	0.000		4.000	Jul 2016	5.000	Jan 2017	-		5.000	0.000	9.000	-
Subtotal			0.000	0.308		10.489		60.623		-		60.623	0.000	71.420	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Government Engineering - EASR	WR	NSWC/DD : Dahlgren, VA	0.000	0.000		4.236	Jan 2016	1.565	Nov 2016	-		1.565	0.000	5.801	-
Government Engineering - EASR	WR	NSWC/CR : Crane, IN	0.000	0.000		0.869	Jan 2016	0.775	Nov 2016	-		0.775	0.000	1.644	-
Government Engineering - EASR	WR	NSWC/PHD(VAB) : Virginia Beach, VA	0.000	0.000		0.596	Jan 2016	0.275	Nov 2016	-		0.275	0.000	0.871	-
Government Engineering - EASR	WR	NSWC/CD(PHI) : Philadelphia, PA	0.000	0.000		0.197	Jan 2016	0.100	Nov 2016	-		0.100	0.000	0.297	-
Government Engineering - EASR	WR	NRL : Washington, DC	0.000	0.000		0.325	Jan 2016	0.250	Nov 2016	-		0.250	0.000	0.575	-
Government Engineering - EASR	SS/CPFF	JHU/APL : Baltimore, MD	0.000	0.000		0.696	Feb 2016	0.360	Nov 2016	-		0.360	0.000	1.056	-
Government Engineering - EASR	MIPR	ONR : Arlington, VA	0.000	0.000		1.400	Feb 2016	1.000	Nov 2016	-		1.000	0.000	2.400	-
Government Engineering - EXI	WR	NSWC/DD : Dahlgren, VA	0.000	0.000		1.050	Jan 2016	0.840	Nov 2016	-		0.840	0.000	1.890	-
Government Engineering - EXI	WR	NSWC/CR : Crane, IN	0.000	0.000		1.050	Jan 2016	0.840	Nov 2016	-		0.840	0.000	1.890	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
1319 / 5				PE 0604501N / Advanced Above Water Sensors				3236 / Advanced Radar Technology							
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering - EXI	WR	NSWC/PHD(VAB) : Virginia Beach, VA	0.000	0.000		0.500	Jan 2016	0.320	Nov 2016	-		0.320	0.000	0.820	-
Subtotal			0.000	0.000		10.919		6.325		-		6.325	0.000	17.244	-
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering - S2F	WR	NRL : Washington, DC	0.000	0.281	Jan 2015	0.300	Jan 2016	0.000		-		0.000	0.000	0.581	-
Subtotal			0.000	0.281		0.300		0.000		-		0.000	0.000	0.581	-
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Support Management Services	C/CPIF	TBD : TBD	0.000	0.000		0.000		0.569	Nov 2016	-		0.569	0.000	0.569	-
Travel	Allot	TRAVEL : Washington, DC	0.000	0.000		0.050	Jan 2016	0.020	Nov 2016	-		0.020	0.000	0.070	-
Support Management Services	C/CPIF	CACI : Washington, DC	0.000	0.000		0.349	Feb 2016	0.250	Nov 2016	-		0.250	0.000	0.599	-
Support Management Services	SS/CPIF	SPA : Washington, DC	0.000	0.000		0.974	Feb 2016	0.000		-		0.000	0.000	0.974	-
Support Management Services	C/CPIF	TMB : Washington, DC	0.000	0.000		0.220	Feb 2016	0.250	Nov 2016	-		0.250	0.000	0.470	-
Subtotal			0.000	0.000		1.593		1.089		-		1.089	0.000	2.682	-
Project Cost Totals			0.000	0.589		23.301		68.037		-		68.037	0.000	91.927	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy							Date: February 2016			
Appropriation/Budget Activity 1319 / 5			R-1 Program Element (Number/Name) PE 0604501N / <i>Advanced Above Water Sensors</i>			Project (Number/Name) 3236 / <i>Advanced Radar Technology</i>				
	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy

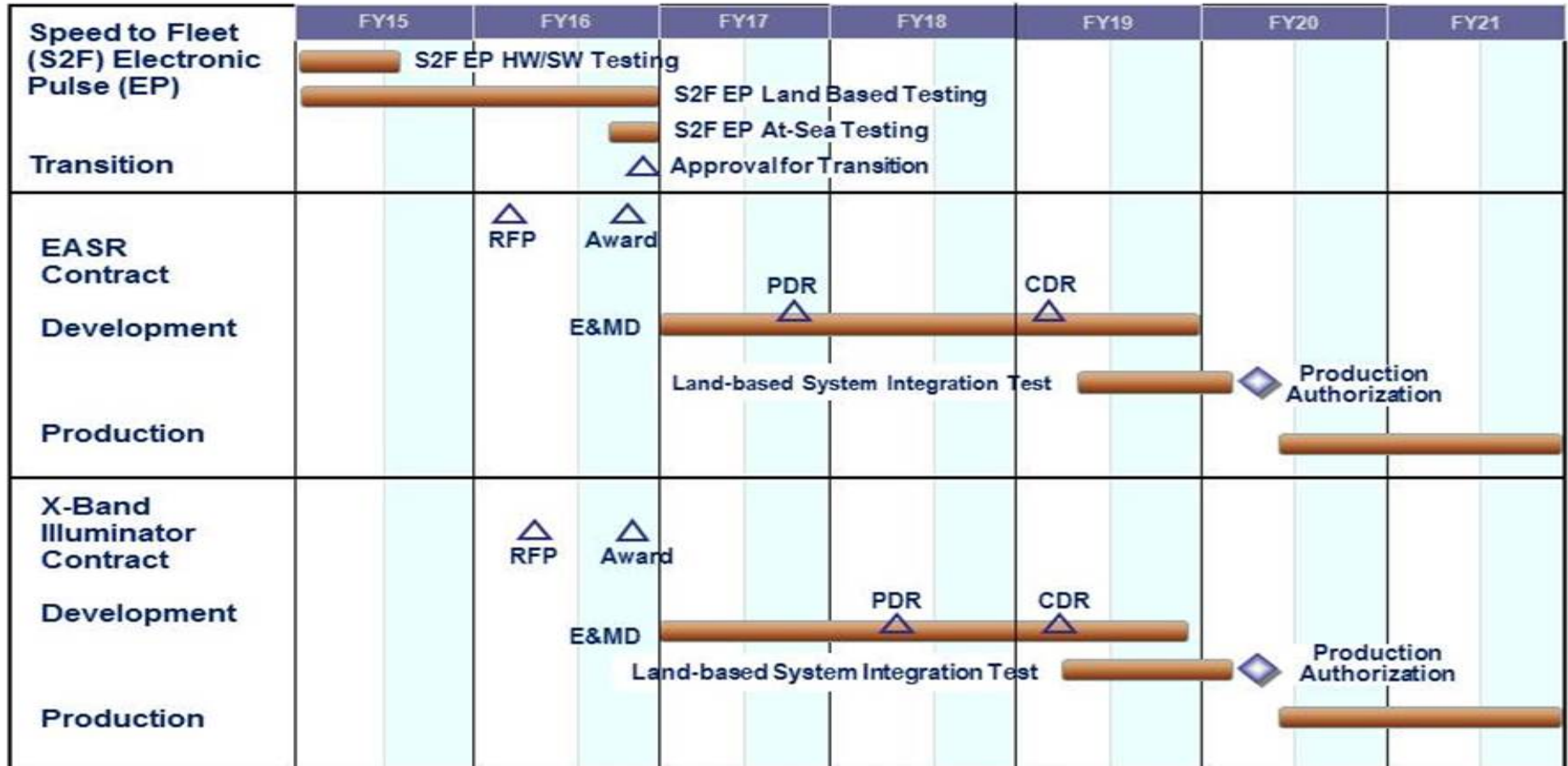
Date: February 2016

Appropriation/Budget Activity
1319 / 5

R-1 Program Element (Number/Name)
PE 0604501N / Advanced Above Water
Sensors

Project (Number/Name)
3236 / Advanced Radar Technology

Notional Schedule Aligned with CVN ACAT Program (DON17)



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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604501N / <i>Advanced Above Water Sensors</i>	Project (Number/Name) 3236 / <i>Advanced Radar Technology</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3236				
Speed-to-Fleet (S2F) Electronic Pulse (EP) new firmware/software changes testing	1	2015	3	2015
S2F EP Land Based Testing	1	2015	4	2016
S2F EP At-Sea Testing	3	2016	4	2016
S2F Approval for Transition	4	2016	4	2016
EASR - Engineering and Manufacturing Development (E&MD) Contract RFP	1	2016	1	2016
EASR - Engineering and Manufacturing Development (E&MD) Contract Award	4	2016	4	2016
EXI - Engineering and Manufacturing Development (E&MD) Contract RFP	2	2016	2	2016
EXI - Engineering and Manufacturing Development (E&MD) Contract Award	4	2016	4	2016
EASR & EXI E&MD	1	2017	4	2019
EASR - E&MD System PDR	4	2017	4	2017
EXI - E&MD System PDR	2	2018	2	2018
EASR - E&MD System CDR	1	2019	1	2019
EXI - E&MD System CDR	1	2019	1	2019
EASR and EXI - E&MD EASR Land Based System Integration Testing	2	2019	1	2020
EASR and EXI Authorization	2	2020	2	2020
EASR and EXI Production	2	2020	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604501N / <i>Advanced Above Water Sensors</i>				Project (Number/Name) 3301 / <i>Improved Capabilities SPY-1 Radar</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3301: <i>Improved Capabilities SPY-1 Radar</i>	13.412	0.762	0.796	10.744	-	10.744	12.281	12.656	12.857	12.857	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Improved Capabilities for SPY-1 Radar: These Reliability, Maintainability, and Availability (RM&A) improvements and solid state technology inserters are intended to reduce cascading failures, mitigate obsolescence issues, and improve reliability in support of Anti-Air Warfare (AAW) and Ballistic Missile Defense (BMD) missions while still providing AN/SPY-1 Radar Total Ownership Cost Reductions. Improvements will yield reductions in annual fleet maintenance costs and is a top fleet requirement as part of the AEGIS Wholeness initiative.

FY17-FY21 funding has been realigned from Project 3232 Multi-Mission Signal Processor to Project 3301. Efforts include development of Transmitter Noise Cancellation (TNC), Sidelobe Blanking (SLB), Ship-Based Non-Cooperative Target Recognition (SBNCTR), Electronic Attack (EA) and Rapid Radar Capability Program (R2CIP). Initiate transition of Advanced Calibration Experiment (ACE) into Baseline 9.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Improved Capabilities SPY-1 Radar	0.762	0.796	10.744	0.000	10.744
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					
- Initiated technology development of 40W/400W Gallium Nitride (GaN) based solid state amplifier					
- Continued development of additional cost reduction initiatives					
- Continued Microwave Tube (MWT) improvement design/development					
FY 2016 Plans:					
- Complete MWT improvement design/development					
- Continue technology development for GaN Based 40W/400W Solid State Amplifier					
- Initiate technology development for 10KW GaN Based Amplifier for Pre-Drivers					
- Continue development of additional cost reduction initiatives					
FY 2017 Base Plans:					
- Continue Technology Development for GaN Based 40W/400W Solid State Amplifier					
- Continue Technology Development for 10KW GaN Based Amplifier for Pre-Drivers					
- Continue development of additional cost reduction initiatives					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604501N / <i>Advanced Above Water Sensors</i>	Project (Number/Name) 3301 / <i>Improved Capabilities SPY-1 Radar</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<ul style="list-style-type: none"> - Initiate Transmitter Noise Cancellation (TNC) requirements analysis and conduct SDR - Initiate concept development for Electronic Attack Improvements - Initiate requirements development and design reviews Ship-Based Non-Cooperative Target Recognition (SBNCTR) - Continue Radar Integrated Product Team (IPT) support for all baselines - Initiate adaptation of Baseline 7.2 Advanced Calibration Experiment (ACE) for Baseline 9 <p>FY 2017 OCO Plans: N/A</p>					
Accomplishments/Planned Programs Subtotals	0.762	0.796	10.744	0.000	10.744

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPN/2980: <i>Items Less Than \$5M</i>	14.527	17.509	19.010	-	19.010	36.648	26.377	26.278	29.647	Continuing	Continuing
• O&MN/0702228N: <i>O&M,N</i>	4.222	3.726	4.040	-	4.040	4.205	4.294	4.373	4.460	Continuing	Continuing
<i>AEGIS Wholeness SPY</i>											
<i>Transmitter Reliability</i>											

Remarks

D. Acquisition Strategy

Improved Capabilities SPY-1 Reliability, Maintainability, and Availability (RM&A) will design and develop an Ordnance Alterations (ORDALT) Package for fixes and modifications to known transmitter, microwave tube (MWT), and logistic shortcomings (also includes the MK-99 CWI MWT). Investment in development of SPY-1 RM&A improvements to address failure mechanisms and improve reliability is planned to continue beyond the FYDP. Radar capability upgrades will be incorporated into Baselines 7 and 9.

E. Performance Metrics

- Complete 10KW Traveling Wave Tube/Continuous Wave Illumination Microwave Tube (TWT/CWI MWT) Improvement Design/Development/Monitoring
- Complete A/B EI Switch Improvement Design/Development
- Complete Sidewall Capacitor Monitoring Circuit
- Complete 10KW Monitoring Circuit development
- Complete Crossed Field Amplifier/Switch Tube (CFA/SWT) MWT Improvement Design Development
- Complete MWT Improvement Design/Development

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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<ul style="list-style-type: none"> - Complete Water Cooled Vane (WCV) to Double Duty (DD) engineering development - Complete Simplified Driver (SDR) reliability design improvements - Complete Gallium Nitride (GaN) based 40W/400W solid state amplifier development - Complete 10KW GaN based amplifier for Pre-Drivers development - Complete Switch Tube Drawer (STD) Reliability Project - Complete GaN based Driver/Pre-Driver studies/investigations - Complete Advanced Calibration Experiment (ACE) Baseline (BL) 9 Demo - Complete Transmitter Noise Cancellation (TNC) SDR - Complete Electronic Attack (EA) Studies and Rapid Radar Capability Program (R2CIP) concept development - Complete ACE BL 9 certification - Complete TNC Preliminary Design Review (PDR) - Complete EA studies and R2CIP requirement analysis and spec updates - Complete SBNCTR integration and test - Complete TNC Critical Design Review (CDR) - Complete Sidelobe Blanking (SLB) requirement analysis - Complete SBNCTR EA - Complete SLB PDR - Complete EA and R2CIP Technology Development - Complete TNC integration and test - Complete SLB CDR 		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604501N / <i>Advanced Above Water Sensors</i>	Project (Number/Name) 3301 / <i>Improved Capabilities SPY-1 Radar</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SYSTEM ENGINEERING	MIPR	Office of Naval Research : Arlington, VA	1.000	0.000		0.000		0.000		-		0.000	0.000	1.000	-
SYSTEM ENGINEERING	C/CPFF	Raytheon : Sudbury, MA	1.941	0.000		0.000		0.000		-		0.000	0.000	1.941	-
SYSTEM ENGINEERING	WR	NSWC/Crane, IN : Crane, IN	10.471	0.762	Oct 2014	0.796	Jan 2016	0.789	Dec 2016	-		0.789	Continuing	Continuing	Continuing
SYSTEM ENGINEERING	SS/CPFF	Lockheed Martin : Moorestown, NJ	0.000	0.000		0.000		6.035	Dec 2016	-		6.035	Continuing	Continuing	Continuing
SYSTEM ENGINEERING	SS/CPFF	AEGIS Techrep : Moorestown, NJ	0.000	0.000		0.000		0.451	Dec 2016	-		0.451	Continuing	Continuing	Continuing
SYSTEM ENGINEERING	SS/FP	APL/JHU : Laurel, MD	0.000	0.000		0.000		0.384	Feb 2017	-		0.384	Continuing	Continuing	Continuing
SYSTEM ENGINEERING	WR	CSCS : Dahlgren, VA	0.000	0.000		0.000		0.222	Dec 2016	-		0.222	Continuing	Continuing	Continuing
SYSTEM ENGINEERING	WR	NRL : Washington, DC	0.000	0.000		0.000		0.440	Dec 2016	-		0.440	Continuing	Continuing	Continuing
SYSTEM ENGINEERING	MIPR	MIT/LL : Lexington, MA	0.000	0.000		0.000		0.405	Mar 2017	-		0.405	Continuing	Continuing	Continuing
SYSTEM ENGINEERING	WR	NSWC DD : Dahlgren, VA	0.000	0.000		0.000		1.303	Nov 2016	-		1.303	Continuing	Continuing	Continuing
SYSTEM ENGINEERING	WR	NSWC/PHD : Port Hueneme, CA	0.000	0.000		0.000		0.206	Dec 2016	-		0.206	Continuing	Continuing	Continuing
Subtotal			13.412	0.762		0.796		10.235		-		10.235	-	-	-

Remarks
FY17-FY21 funding realigned from Project 3232 to 3301.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy											Date: February 2016				
Appropriation/Budget Activity 1319 / 5						R-1 Program Element (Number/Name) PE 0604501N / <i>Advanced Above Water Sensors</i>					Project (Number/Name) 3301 / <i>Improved Capabilities SPY-1 Radar</i>				

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Travel	Allot	PEOISW2 : Washington, DC	0.000	0.000		0.000		0.020	Feb 2017	-		0.020	Continuing	Continuing	Continuing
Support Management Services	C/CPIF	TBD : TBD	0.000	0.000		0.000		0.405	Jan 2017	-		0.405	Continuing	Continuing	Continuing
Support Management Services	C/CPIF	CACI : Washington, DC	0.000	0.000		0.000		0.084	Jan 2017	-		0.084	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		0.509		-		0.509	-	-	-
Project Cost Totals			13.412	0.762		0.796		10.744		-		10.744	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604501N / <i>Advanced Above Water Sensors</i>	Project (Number/Name) 3301 / <i>Improved Capabilities SPY-1 Radar</i>
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Fiscal Year	2015				2016				2017				2018				2019				2020				2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Advanced Calibration Experiment (ACE) Baseline 9									BL 9 Rqt Def △				BL 9 Demo BL 9 Cert Testing △ △				BL 9 Cert △											
Ship-Based Non-Cooperative Target Recognition (SBNCTR), Phase 2									Rqt Def IPR#1 △ △				IPR#2 IPR#3 △ △				Integration & Test △				Phase 2 Engineering Assessment △							
Transmitter Noise Cancellation (TNC)									Rqt Analysis SDR △ △				PDR △				CDR △				Qual Testing △				Integration & Test △			
Sidelobe Blanking (SLB)																	Rqt Analysis △				PDR △				CDR △			
EA Improvements and R2CIP									Concept Development △				Rqt Analysis & Spec Updates △				Technology Development △											
Solid State Insertion					△				Solid State Technology Insertion Analyses △				△				GaN Based Driver/Pre-Driver Technology Development △				△							
	40W/400W GaN Based Development				SS Amplifier Technology Development				10kW GaN Amp Technology Development △				△															
SDR Reliability Improvements					△																							
MWT Improvement Design/Development					△																							

SDR Reliability Improvements and MWT Improvement Design/Development are continued development from prior years.
TNC, SLB, EA Improvements and R2CIP, and Solid State Insertion continue beyond the FYDP.

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604501N / <i>Advanced Above Water Sensors</i>	Project (Number/Name) 3301 / <i>Improved Capabilities SPY-1 Radar</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3301				
MWT Improvement Design/Development	1	2015	2	2016
Simplified Driver (SDR) Reliability Improvements	1	2015	1	2016
40W/400W GaN Based Solid State Amplifier Technology Development	1	2015	1	2017
Solid State Technology Insertion Analyses	1	2016	4	2021
EA Improvements and R2CIP Concept Development	1	2017	4	2017
Ship-Based Non-Cooperative Target Recognition (SBNCTR) Rqt Definition	2	2017	2	2017
Transmitter Noise Cancelation (TNC) Rqt Analysis	2	2017	2	2017
Advanced Calibration Experiment (ACE) Baseline 9 Requirement Definition	3	2017	3	2017
SBNCTR IPR #1	4	2017	4	2017
TNC SDR	4	2017	4	2017
EA Improvements and R2CIP Rqt Analysis & Spec Updates	1	2018	4	2018
TNC PDR	2	2018	2	2018
ACE Baseline 9 Demo	2	2018	2	2018
SBNCTR IPR #2	2	2018	2	2018
SBNCTR IPR #3	3	2018	3	2018
ACE Baseline 9 Cert Testing	4	2018	4	2018
GaN based Driver/Pre-Driver Technology Development	4	2018	4	2021
SLB Requirements Analysis	1	2019	4	2020
EA Improvements and R2CIP Technology Development	1	2019	4	2021
ACE Baseline 9 Cert	3	2019	3	2019
TNC CDR	3	2019	3	2019

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604501N / <i>Advanced Above Water Sensors</i>	Project (Number/Name) 3301 / <i>Improved Capabilities SPY-1 Radar</i>

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
SBNCTR Integration & Test	4	2019	4	2019
SBNCTR Engineering Assessment	3	2020	3	2020
TNC Qual Testing	3	2020	3	2020
SLB PDR	4	2020	4	2020
TNC Integration & Test	2	2021	2	2021
SLB CDR	2	2021	2	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604503N / <i>SSN-688 & Trident Modernization</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	1,324.793	70.053	109.893	117.476	-	117.476	123.012	106.901	95.950	97.906	Continuing	Continuing
0219: <i>Sub Sonar Improvement (ENG)</i>	854.026	40.731	68.891	67.179	-	67.179	87.382	72.201	61.305	62.559	Continuing	Continuing
0742: <i>Sub Integrated Ant System</i>	269.732	12.610	25.445	27.080	-	27.080	15.638	14.737	13.943	14.199	Continuing	Continuing
0775: <i>Submarine Supt Equip Prog</i>	1.179	8.064	6.204	13.215	-	13.215	9.077	9.268	9.950	10.171	Continuing	Continuing
1411: <i>Sub Tact Comm System</i>	199.856	8.648	9.353	10.002	-	10.002	10.915	10.695	10.752	10.977	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Submarine Support Equipment Program develops and improves submarine Electronic Warfare Support (EWS) technology, components, equipment, and systems that will increase submarine operational effectiveness, safety of ship, and survivability in an increasingly dense and sophisticated electromagnetic environment caused by the proliferation of complex radar, communications, and navigation equipment of potential adversaries. Enhancements are necessary for submarine EWS to be operationally effective in the following mission areas: Joint Littoral Warfare, Joint Surveillance, Space and Electronic Warfare and Intelligence Collection, Maritime protection, and Joint Strike.

The Submarine Sonar Improvement Program delivers block updates to Sonar Systems and improved Sensors installed on SSN 688, 688I, SSN 21, VIRGINIA, SSBN, and SSGN Class Submarines to maintain clear acoustical, tactical and operational superiority over submarine and surface combatants in all scenarios through detection, classification, localization, and contact following. Current developments are focused on supporting Littoral Warfare, Regional Sea Denial, Battle Group Support, Diesel Submarine Detection, Surveillance, and Peacetime Engagement.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604503N / <i>SSN-688 & Trident Modernization</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	71.551	109.908	97.958	-	97.958
Current President's Budget	70.053	109.893	117.476	-	117.476
Total Adjustments	-1.498	-0.015	19.518	-	19.518
• Congressional General Reductions	-	-0.015			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.056	0.000			
• SBIR/STTR Transfer	-1.442	0.000			
• Program Adjustments	0.000	0.000	20.809	-	20.809
• Rate/Misc Adjustments	0.000	0.000	-1.291	-	-1.291

Change Summary Explanation

Decrease in SSN-688 & Trident Modernization RDTEN by \$3.322M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

The FY 2017 funding request was reduced by \$0.532 million to account for the availability of prior years execution balance.

Increased funding in FY 2017 support procurement of a Submarine Launched Decoy Buoy, AN/BLQ-10 EW Next Generation Architecture (NGA) development, development of improved SSBN communications equipment, and procurement of SSBN ship safety sonar.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization				Project (Number/Name) 0219 / Sub Sonar Improvement (ENG)			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
0219: <i>Sub Sonar Improvement (ENG)</i>	854.026	40.731	68.891	67.179	-	67.179	87.382	72.201	61.305	62.559	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This program delivers block updates to Sonar Systems installed on SSN 688, 688I, SSN 21, VIRGINIA, SSBN, and SSGN Class Submarines to maintain clear acoustical, tactical and operational superiority over submarines and surface combatants in all scenarios through detection, classification, localization, and contact following.

Acoustics Rapid COTS Insertion (A-RCI) was a multi-phased evolutionary development geared toward addressing acoustic superiority issues through the rapid introduction of interim development products applicable to all classes of submarines. A-RCI Phase I and II introduced Towed Array processing improvements, Phase III introduced Spherical

Array processing improvements, and Phase IV provided High Frequency (HF) Array processing improvements for SSN 688I, SSGN, VIRGINIA, and SSN 21 Class Submarines. As part of CNO N972's plan to maintain acoustic superiority for in-service submarines, a joint cooperative effort with PEO IWS-5 was established to deliver annual Advanced Processing

Builds (APBs) to prevent obsolescence and deliver ongoing capability improvements. The capabilities in the APBs will be integrated as part of A-RCI certified system. The development of the Large Vertical Array (LVA) will improve detection and enhanced tactical situational awareness capability for tracking targets of interest, and supports acoustic superiority objectives for the Virginia and OHIO class submarines.

Sensor efforts provide increased operational capabilities for littoral operations, situational awareness, and reliability improvements.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: APB Productionization	11.737	12.000	11.904	0.000	11.904
Articles:	-	-	-	-	-
Description: APB productionization provides for the transition of APB capability improvements to the Fleet for the integration, testing and formal certification.					
FY 2015 Accomplishments: Continued Advanced Processing Build (APB) Sea Testing, Integration, and Certification. This effort is primarily the transition of APB software from development to A-RCI for integration, testing, and formal certification.					
FY 2016 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization	Project (Number/Name) 0219 / Sub Sonar Improvement (ENG)

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Continue Advanced Processing Build (APB) Sea Testing, Integration, and Certification. This effort is primarily the transition of APB software from development to A-RCI for integration, testing, and formal certification.</p> <p>FY 2017 Base Plans: Continue Advanced Processing Build (APB) Sea Testing, Integration, and Certification. This effort is primarily the transition of APB software from development to A-RCI for integration, testing, and formal certification.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Integration and Testing</p> <p align="right">Articles:</p> <p>Description: Integration and Testing provides support to integrated and test APB's into all submarine classes with numerous sensor systems.</p> <p>FY 2015 Accomplishments: Supported Advanced Processing Builds installed on SSN 688I, SSN 688, SSN 21, SSGN 726, SSBN, and VA Class Submarines. FY15 funding level incorporates a \$14.3M higher Departmental priority cut, cancelling the TI12/APB13 software upgrade, breaking the TI/APB model which provides for a newer TI hardware baseline to receive two versions of software baselines. By cancelling TI12/APB 13 , eight SSN 688/688I, two SEAWOLF and three VIRGINIA Class submarines will not receive the latest software improvements as part of the APB 13 baseline.</p> <p>FY 2016 Plans: Support Advanced Processing Builds installed on SSN 688I, SSN 688, SSN 21, SSGN 726, SSBN, and VA Class Submarines. FY15 funding level incorporates a \$14.3M higher Departmental priority cut, cancelling the TI12/APB13 software upgrade, breaking the TI/APB model which provides for a newer TI hardware baseline to receive two versions of software baselines. By cancelling TI12/APB 13 , eight SSN 688/688I, two SEAWOLF and three VIRGINIA Class submarines will not receive the latest software improvements as part of the APB 13 baseline. FY16 funding restores the funding to near (but below) FY14 level to enable planned upgrades to be incorporated into the TI14 baseline.</p> <p>FY 2017 Base Plans:</p>	25.144	35.410	33.972	0.000	33.972
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016			
Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)				
1319 / 5	PE 0604503N / SSN-688 & Trident Modernization	0219 / Sub Sonar Improvement (ENG)				
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)						
		FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Support Advanced Processing Builds installed on SSN 688I, SSN 688, SSN 21, SSGN 726, SSBN, and VA Class Submarines. FY17 funding provides integration and testing support to T116 and prior TI baselines.						
FY 2017 OCO Plans: N/A						
Title: SSBN Combat System Modernization		3.850	4.827	2.050	0.000	2.050
	Articles:	-	-	-	-	-
FY 2015 Accomplishments: This effort incorporated SSBN combat systems into the APB/TI model.						
FY 2016 Plans: This effort continues to incorporate SSBN combat systems into the APB/TI model.						
FY 2017 Base Plans: This effort continues to incorporate SSBN combat systems into the APB/TI model.						
FY 2017 OCO Plans: N/A						
Title: Large Vertical Array (LVA)		0.000	0.000	13.265	0.000	13.265
	Articles:	-	-	-	-	-
Description: Provides funding for the development of Large Vertical Array capability in the areas of detection and tracking for Virginia Class and Ohio Class Submarines.						
FY 2015 Accomplishments: N/A						
FY 2016 Plans: N/A						
FY 2017 Base Plans: This effort incorporates the Large Vertical Array (LVA) capability into the APB/TI model.						
FY 2017 OCO Plans: N/A						
Title: TB-29X Development		0.000	13.200	2.475	0.000	2.475

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization	Project (Number/Name) 0219 / Sub Sonar Improvement (ENG)

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p align="right">Articles:</p> <p>Description: Provides funding for the development of TB-29A equivalent Thin Line Array with long range detection and tracking with improved reliability, using improved telemetry.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: Provides funding for the development of TB-29A equivalent Thin Line Array with long range detection and tracking with improved reliability, using improved telemetry. This effort incorporates TB-29X system development. Funding will provide for the procurement of a first article TB-29X array, testing and inspections in accordance with the Performance Specification. Testing will include environmental testing, acoustic calibration testing, self-noise tow testing and SONAR/TB-29X interface testing required to ensure the array meets all performance specifications.</p> <p>FY 2017 Base Plans: Completion of TB-29X system development. Funding will provide for first article TB-29X array testing and inspections in accordance with the Performance Specification. Testing will include environmental testing, acoustic calibration testing, self-noise tow testing and SONAR/TB-29X interface testing required to ensure the array meets all performance specifications.</p> <p>FY 2017 OCO Plans: N/A</p>	-	-	-	-	-
<p>Title: SSN Combat Systems ISO Acoustic Superiority</p> <p align="right">Articles:</p> <p>Description: Maintain Acoustic Superiority for In-service Submarines to deliver biannual Advance Processing Builds (APBs) to prevent obsolescence and deliver emerging capability improvements for current and future threats.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans:</p>	0.000 -	3.454 -	3.513 -	0.000 -	3.513 -

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization	Project (Number/Name) 0219 / Sub Sonar Improvement (ENG)

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
This effort delivers emerging capability improvements for current and future threats by supporting development, integration, and testing of emerging capability improvements in passive long range detection/wide area search for current and future threats in support of CNO ltr Ser N00/S0100 dtd 7 Jan 13, Subj: SSN/SSBN Acoustic Superiority Campaign Plan.					
<i>FY 2017 Base Plans:</i> This effort delivers emerging capability improvements for current and future threats by supporting development, integration, and testing of emerging capability improvements in passive long range detection/wide area search for current and future threats in support of CNO ltr Ser N00/S0100 dtd 7 Jan 13, Subj: SSN/SSBN Acoustic Superiority Campaign Plan.					
<i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	40.731	68.891	67.179	0.000	67.179

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• OPN/BLI 2147: SSN Acoustics	160.932	232.835	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• OPN/BLI 2150: SSN Acoustics	0.000	0.000	248.765	-	248.765	292.675	331.440	446.113	514.179	Continuing	Continuing

Remarks

D. Acquisition Strategy

Acoustic Systems:

A-RCI utilizes an open architecture and Commercial Off-the-Shelf products in support of new and upgraded sonar systems. A follow-on development and production sole source cost plus incentive fee contract was awarded to General Dynamics, Advanced Information Systems in April 2015 and a sole source contract was awarded to Lockheed Martin Maritime Systems & Sensors in February 2015. Program Reviews with the Milestone Decision Authority are conducted granting approval for the production options.

E. Performance Metrics

The A-RCI program will modernize approximately 8-12 SSNs per year through executing bi-annual software Advanced Processor Builds (APBs) and bi-annual Technical Insertions (TIs). Beginning with FY17 installations, the A-RCI program will modernize approximately 2-3 SSBNs per year through bi-annual APB/TI.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization	Project (Number/Name) 0219 / Sub Sonar Improvement (ENG)
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	SS/CPIF	LMC : Manassas, VA	319.645	11.000	Feb 2015	18.743	Dec 2015	15.202	Dec 2016	-		15.202	Continuing	Continuing	Continuing
Ancillary Hardware Development	SS/CPFF	ARL University of Texas : Austin, TX	30.895	2.913	Mar 2015	3.595	Mar 2016	3.232	Mar 2017	-		3.232	Continuing	Continuing	Continuing
Systems Engineering	SS/CPFF	Johns Hopkins APL : Baltimore, MD	33.105	2.835	Jan 2015	3.585	Dec 2015	3.251	Dec 2016	-		3.251	Continuing	Continuing	Continuing
Systems Engineering	C/CPFF	LMC : VA - Keyport	30.256	2.877	Jan 2015	3.127	Jan 2016	3.439	Jan 2017	-		3.439	Continuing	Continuing	Continuing
Primary Hardware Development	C/CPIF	Progeny Systems : Manassas, VA	51.771	5.268	Jan 2015	6.965	Jan 2016	6.635	Jan 2017	-		6.635	Continuing	Continuing	Continuing
Systems Engineering	WR	NUWC : Newport, RI	161.154	5.331	Jan 2015	5.951	Dec 2015	6.115	Dec 2016	-		6.115	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC : Carderock, MD	23.245	2.393	Jan 2015	2.674	Dec 2015	2.910	Dec 2016	-		2.910	Continuing	Continuing	Continuing
TB-29X Development	C/CPIF	TBD : TBD	0.000	0.000		13.200	Mar 2016	2.475	Mar 2017	-		2.475	Continuing	Continuing	Continuing
LVA Development	C/CPIF	TBD : TBD	0.000	0.000		0.000		13.265	Nov 2016	-		13.265	0.000	13.265	-
Subtotal			650.071	32.617		57.840		56.524		-		56.524	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Software Development	C/CPIF	General Dynamics, AIS : Fairfax, VA	151.507	2.869	Apr 2015	5.569	Dec 2015	5.344	Dec 2016	-		5.344	Continuing	Continuing	Continuing
Primary Software Development	C/CPFF	Sedna Digital, : Manassas, VA	28.648	3.810	Jan 2015	4.141	Dec 2015	4.041	Dec 2016	-		4.041	Continuing	Continuing	Continuing
Subtotal			180.155	6.679		9.710		9.385		-		9.385	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
1319 / 5				PE 0604503N / SSN-688 & Trident Modernization				0219 / Sub Sonar Improvement (ENG)								
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Operational Test and Evaluation	WR	OPTEVFOR : Norfolk, VA	9.185	0.571	Dec 2014	0.525	Dec 2015	0.500	Dec 2016	-		0.500	Continuing	Continuing	Continuing	
Subtotal			9.185	0.571		0.525		0.500		-		0.500	-	-	-	
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Management Support Services	C/FFP	Alion, BAH, AECOM : Washington, DC	12.477	0.762	Jan 2015	0.716	Dec 2015	0.673	Dec 2016	-		0.673	Continuing	Continuing	Continuing	
Travel	WR	NAVSEA : Washington, DC	2.138	0.102	Dec 2014	0.100	Dec 2015	0.097	Dec 2016	-		0.097	Continuing	Continuing	Continuing	
Subtotal			14.615	0.864		0.816		0.770		-		0.770	-	-	-	
Project Cost Totals			854.026	40.731		68.891		67.179		-		67.179	-	-	-	
Remarks																

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization	Project (Number/Name) 0219 / Sub Sonar Improvement (ENG)
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ARCI Planning Schedule	FY15				FY16				FY17				FY18				FY19				FY20				FY21						
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4			
KEY EVENTS			▲				△				△				△				△				△				△				
MDA REVIEWS			▲				△				△				△				△				△				△				
Annual Program Reviews																															
CONTRACT AWARDS			▲				▲																								
A-RCI TI 16 Development and Production (CPIF)			▲																												
MPP TI 16 Development and Production (CPIF)			▲																												
A-RCI TI 18/20 Development and Production (CPIF)								△																							
A-RCI TI 22/24 Development and Production (CPIF)																								△							
CAC TI 18/20 Development and Production (CPIF)								△																							
CAC TI 22/24 Development and Production (CPIF)																								△							
LWWAA TI 18/20 Development and Services (CPIF)								△																							
LWWAA TI 22/24 Development and Services (CPIF)																								△							
LWLCCA TI 18/20 Development and Services (CPIF)								△																							
LWLCCA TI 22/24 Development and Services (CPIF)																								△							
OMS TI 18/20 Development and Production (CPIF)								△																							
OMS TI 22/24 Development and Production (CPIF)																								△							
PROCUREMENTS			▲				△				△				△				△				△				△				
DT/OT/FOT&E			▲				△				△				△				△				△				△				
APBs			▲				△				△				△				△				△				△				
TECH INSERTIONS			▲				△				△				△				△				△				△				
INSTALLATION PERIODS			▲				△				△				△				△				△				△				
688i Ph III/IV Upgrade and 688 Ph III																															
														SSGN Combat Systems																	
SEAWOLF Ph IV																															
VIRGINIA Ph IV																															
														SSBN Combat Systems																	

- ▲ Completed Milestone
- △ Upcoming Milestone
- ▲ Time Now

SSN Installation Period
SSGN/SSBN Installation Period

- MPP: Multi-Purpose Processor
- LWLCCA: Light Weight Low Cost Conformal Array
- APB: Advanced Processing Builds
- A-RCI: Acoustic – Rapid Commercial Off the Shelf (COTS) Insertion
- CAC: Common Acoustic Cabinet
- OMS: Ownship Monitoring System
- LWWAA: Light Weight Wide Aperture Array - Wide Aperture Array

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization	Project (Number/Name) 0219 / Sub Sonar Improvement (ENG)
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Towed Systems Planning Schedule	FY15				FY16				FY17				FY18				FY19				FY20				FY21			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
KEY EVENTS	Annual Program Reviews																											
CONTRACT AWARDS																												
TB-29X Towed Array Development and Production (CPIF)																												
Production Option 1																												
Production Option 2																												
Production Option 3																												
Production Option 4																												
TB-34X Towed Array Production (CPIF)																												
Production Option 1																												
Production Option 2																												
Production Option 3																												
Production Option 4																												
FIRST ARTICLE MATERIAL, FABRICATION AND ASSEMBLY, AND TESTING FOR CONTRACT																												
TB-29X Towed Array Development and Production (CPIF)																												
TB-34X Towed Array Production (CPIF)																												
	FY15				FY16				FY17				FY18				FY19				FY20				FY21			

- Completed Milestone
- Upcoming Milestone
- Production Option
- Time Now

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization	Project (Number/Name) 0219 / Sub Sonar Improvement (ENG)

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 0219				
ACOUSTICS	1	2015	4	2021
---Acquisition Milestones	3	2015	3	2021
---Annual Program Review	1	2015	4	2021
---Contract Awards - Acoustics	2	2015	4	2020
---Procurements	2	2015	2	2021
---DT/OT/FOT&E Tests	3	2016	2	2021
---APB Deliveries	1	2015	3	2020
---Tech Insertions	1	2015	1	2021
---Installation Periods	1	2015	4	2021
TOWED SYSTEMS DEVELOPMENT	2	2016	2	2021
---Contract Awards - Towed Systems	2	2016	1	2021
---Production Options	2	2016	2	2021
---First Article Procurement & Assembly	2	2016	4	2016

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization				Project (Number/Name) 0742 / Sub Integrated Ant System			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
0742: <i>Sub Integrated Ant System</i>	269.732	12.610	25.445	27.080	-	27.080	15.638	14.737	13.943	14.199	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Submarine Integrated Antenna System project (0742) provides for the development and testing of submarine antennas designed to meet emerging submarine requirements of: (a) Increased frequency coverage and data rate capabilities of submarine antennas and their interface to the External Communications System, (b) Increased submarine antenna performance and data rate while the submarine is operating at speed and depth, (c) Antenna compatibility with new waveforms and transceiver equipment, (d) Increased stealth capability of existing and future antennas and (e) Improved antenna design to reduce Total Ownership Cost. This project funds research and development for submarine antennas including (1) Pre-Planned Product Improvement (P3I) efforts to existing antennas including Outboard Electronics (OE)-538/BRC Multi-Function Antenna, (2) OE-562 Submarine, High Data Rate (SubHDR) system development of components for reliability improvements, (3) Development of new systems including Advanced High Data Rate (AdvHDR) Low Probability of Intercept/Low Probability of Detection (LPI/LPD), (4) Continue support of Submarine Communications Buoy (SCB) Project Arrangement with United Kingdom (UK), (5) Antenna Improvements, previously funded under Transition Engineering (XENG), Reliability, Maintainability and Availability (RMA) development for legacy antennas, (6) Optical Communications Project Arrangement with United Kingdom and (7) Towed Buoy Antenna (AN/BRR- 6/6B) system development of three reliability improvements; (i) improving the buoy shape, (ii) engineering a combined Radio Frequency (RF) and Depth Can [continue in FY17]; and (iii) internal buoy Inertial Measurement Unit (IMU) planned to commence in FY 17. The efforts listed above will provide Ship Submersible Nuclear (SSN), Ship Submersible Ballistic Nuclear (SSBN) and Ship Submersible Guided Missile Nuclear (SSGN) platforms with improved communications capabilities to support future Joint, Allied, and Naval operations.

JUSTIFICATION FOR BUDGET ACTIVITY:

This project is funded under ENGINEERING AND MANUFACTURING DEVELOPMENT because it encompasses engineering and manufacturing development of new end-items prior to production approval decision.

Notes/Comments:

FY17 XENG: Development of future undersea communication capabilities in support of the 4th Generation Undersea Communication Architecture. High Altitude Electromagnetic Pulse (HEMP) testing.

FY17 OE-538: Complete Developmental Test (DT)/Operational Test (OT) in support of Full Rate Production (FRP). Complete applicable Integrated Logistics Support (ILS) documentation to support FRP decision. Complete development/update of required FRP acquisition documents. HEMP testing.

FY17 SubHDR: Continue development of Reliability, Maintainability and Availability (RMA), components identified by research and analysis to maintain Ao throughout the life of the system.

FY17 AdvHDR: Continue Optical Communications Project Arrangement with United Kingdom.

FY17 Towed Buoy Antenna (AN/BRR-6/6B): Component development, system integration, and testing for reliability improvements.

FY17 Antenna Improvements: RMA development for legacy antennas (previously funded under Transition Engineering).

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization	Project (Number/Name) 0742 / Sub Integrated Ant System

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Antenna Transition Engineering	3.522	4.209	3.743	0.000	3.743
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					
<ul style="list-style-type: none"> - Continued to provide emerging requirements and Satellite Communications (SATCOM) database/link analysis for other development programs in support of current & future undersea communication architectures. - Continued Pre-Planned Product Improvement (P3I) investigation and development efforts towards legacy antenna systems. - Continued concept engineering, new technology evaluations, and assessments in support of current and future undersea antenna applications, to include Hull, Mechanical and Electrical (HM&E) interfaces. - Continued to investigate multiple usage antennas, including antennas that can be used for communications and other functions. - Continued development of undersea communication future capabilities in support of the 4th Generation Undersea Communication Architecture. 					
FY 2016 Plans:					
<ul style="list-style-type: none"> - Continue to provide emerging requirements and SATCOM database/link analysis for other development programs in support of current & future undersea communication architectures. - Continue P3I investigation and development efforts towards legacy antenna systems. - Continue concept engineering, new technology evaluations, and assessments in support of current and future undersea antenna applications, to include HM&E interfaces. - Continue to investigate multiple usage antennas, including antennas that can be used for communications and other functions. - Continue development of future undersea communication capabilities in support of the 4th Generation Undersea Communication Architecture. - Commence High Altitude Electromagnetic Pulse (HEMP) testing. 					
FY 2017 Base Plans:					
<ul style="list-style-type: none"> - Complete HEMP testing. - Continue to provide emerging requirements and SATCOM database/link analysis for other development programs in support of current & future undersea communication architectures. - Continue P3I investigation and development efforts towards legacy antenna. - Continue concept engineering, new technology evaluations, and assessments in support of current and future undersea antenna applications, to include HM&E interfaces. 					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016		
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization	Project (Number/Name) 0742 / Sub Integrated Ant System			
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)					
<ul style="list-style-type: none"> - Continue to investigate multiple usage antennas, including antennas that can be used for communications and other functions. - Continue development of future undersea communication capabilities in support of the 4th Generation Undersea Communication Architecture. <p>FY 2017 OCO Plans: N/A</p>					
Title: Outboard Electronics (OE)-538					
Articles:					
	4.037	3.079	0.666	0.000	0.666
	-	-	-	-	-
<p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Completed Increment 2 system design, manufacture and testing of Engineering Development Model (EDM). - Completed applicable Integrated Logistics Support (ILS) documentation to support Low-Rate Initial Production (LRIP) decision. - Completed development/update of required Milestone C acquisition documents. MS-C achieved 3Q FY15 - Completed Developmental Test (DT) in support of LRIP. - Continued oversight for the development/integration of Global Positioning System (GPS) Anti-Jam (AJ) into OE-538 Increment 2. - Commenced preparation for DT/Operational Test (OT) in support of Full Rate Production (FRP). - Commenced and completed OE-538A Underwater Explosion (UNDEX) test. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Continue preparation for DT/OT in support of Full Rate Production (FRP). - Continue oversight for the development/integration of GPS AJ into OE-538 Increment 2. - Commence development/update of required FRP acquisition and ILS documents. - Commence and complete High Altitude Electromagnetic Pulse (HEMP) testing. - Commence and complete OE-538A First Article Test. <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> - Complete DT/OT in support of FRP. - Complete FRP decision review and achieve Initial Operational Capability (IOC). - Complete development/update of required FRP acquisition documents. - Continue oversight for the development/integration of GPS AJ into OE-538 Increment 2. <p>FY 2017 OCO Plans:</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization	Project (Number/Name) 0742 / Sub Integrated Ant System

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
Title: Submarine High Data Rate (SubHDR) Pre-Planned Product Improvement (P3I) <p align="right">Articles:</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Continued Underwater Explosion (UNDEX) development and testing. - Continued development of Reliability Maintainability, and Availability (RMA) components identified by research and analysis to maintain Operational Availability (Ao) throughout the life of the system. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Complete UNDEX development and testing, and receive delivery of two functioning UNDEX prototype kits. - Continue development of RMA components identified by research and analysis to maintain Ao throughout the life of the system. - Commence development of the Mast Motion Sensor (MMS) and Multivolt Power Supply (MVPS). - Commence and complete High Altitude Electromagnetic Pulse (HEMP) testing. - Commence development of the Traveling Wave Tube, Q Band Upconverter, High Volt Power Supply, and inverter. <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> - Continue development of RMA components identified by research and analysis to maintain Ao throughout the life of the system. - Continue development of the MMS and MVPS. - Continue development of the Traveling Wave Tube, Q Band Upconverter, High Volt Power Supply, and inverter. <p>FY 2017 OCO Plans: N/A</p>	2.734	10.487	9.922	0.000	9.922
	-	-	-	-	-
Title: Advanced High Data Rate (AdvHDR) <p align="right">Articles:</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - N/A <p>FY 2016 Plans:</p>	0.000	3.524	3.534	0.000	3.534
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization	Project (Number/Name) 0742 / Sub Integrated Ant System

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<ul style="list-style-type: none"> - Commence Low Probability of Intercept/Low Probability of Detection (LPI/LPD) Analysis of Alternatives (AoA) development. - Commence Optical Communications Project Arrangement with United Kingdom. <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> - Complete LPI/LPD AoA Development. - Continue Optical Communications Project Arrangement with United Kingdom. <p>FY 2017 OCO Plans:</p> <p>N/A</p>					
<p>Title: Submarine Communications Buoy (SCB)</p> <p align="right">Articles:</p> <p>Description: A project arrangement between the United States and the United Kingdom.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Completed support for SCB Project Arrangement with United Kingdom. - Completed component design specification development of candidate SCB components. - Completed development of demonstration plan for SCB components. - Completed performance evaluation of the candidate SCB components. - Commenced Final Report. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Complete Final Report. <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> - N/A <p>FY 2017 OCO Plans:</p> <p>N/A</p>	1.756	0.240	0.000	0.000	0.000
	-	-	-	-	-
<p>Title: Towed Buoy Antenna (AN/BRR-6/6B)</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Completed component development, system integration, testing, design specification/modification for reliability improvements of tow cable strength/throughput and servo valve isolation. 	0.561	3.906	6.624	0.000	6.624
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016		
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization	Project (Number/Name) 0742 / Sub Integrated Ant System			
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)					
<ul style="list-style-type: none"> - Continued limited support for BRR-6 Program providing program, contract, logistics, and system engineering management. - Continued limited component development, system integration, testing, design specification/modification for reliability improvements of antenna/amplifier. - Commenced failure analysis report on tow cables for reliability improvements. - Commenced and completed key item failure analysis report for reliability improvements. 					
FY 2016 Plans:					
<ul style="list-style-type: none"> - Continue failure analysis on tow cables for reliability improvements. - Continue support for Towed Buoy Antenna (BRR-6) Program providing program, contract, logistics, and system engineering management. - Continue component development, system integration, testing, design specification/modification for reliability improvements of antenna/amplifier. - Commence component development, system integration, testing, design specification/modification for reliability improvements of buoy shape improvements and combine Radio Frequency (RF) and Depth Cans efforts. 					
FY 2017 Base Plans:					
<ul style="list-style-type: none"> - Continue failure analysis on tow cables for reliability improvements. - Complete component development, system integration, testing, design specification/modification for reliability improvements of antenna/amplifier. - Continue support for BRR-6 Program providing program, contract, logistics and system engineering management. - Continue component development, system integration, testing, design specification/modification for reliability improvements of buoy shape improvements and combine Radio Frequency (RF) and Depth Cans efforts. - Commence component development, system integration, testing, design specification/modification for reliability improvements of Inertial Measurement Unit (IMU) integration. 					
FY 2017 OCO Plans:					
N/A					
Title: Antenna Improvements					
Articles:					
	0.000	0.000	2.591	0.000	2.591
	-	-	-	-	-
FY 2015 Accomplishments:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization	Project (Number/Name) 0742 / Sub Integrated Ant System

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
FY 2016 Plans: N/A					
FY 2017 Base Plans: - Continue Pre-Planned Product Improvement (P3I) investigation and Reliability, Maintainability and Availability (RMA) development efforts previously funded under Transition Engineering for Ohio Class Ballistic Missile (SSBN) BRA-24 legacy antenna.					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	12.610	25.445	27.080	0.000	27.080

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• 313000: <i>Submarine Communications</i>	64.954	60.945	64.529	-	64.529	64.483	64.233	67.794	69.177	Continuing	Continuing

Remarks

D. Acquisition Strategy

Program Milestones (MS):
Outboard Electronics (OE)-538: 3rd Quarter (QTR) FY15 Milestone C (MS C); 3rd QTR FY17 Full Rate Production (FRP) Decision Review.

Test and Evaluation (T&E) Milestones:
OE-538: 1st QTR FY17 Developmental Test (DT) for FRP; 2nd QTR FY17 Operational Test (OT) for FRP.

E. Performance Metrics

FY17 OE-538: Complete DT and OT
FY17 SubHDR: Solid State X-Band Amplifier Prototype (Part of the Reliability, Maintainability and Availability (RMA) development).
FY17 AdvHDR: Low Probability of Intercept/Low Probability of Detection (LPI/LPD) Analysis of Alternatives (AoA).
FY17 BRR-6: Development of reliability improvements for antenna/amplifier.
FY17 Antenna Improvements: BRA-24 material solution investigation report.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / <i>SSN-688 & Trident Modernization</i>	Project (Number/Name) 0742 / <i>Sub Integrated Ant System</i>
FY17 XENG: High Altitude Electromagnetic Pulse (HEMP) test report.		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
1319 / 5				PE 0604503N / SSN-688 & Trident Modernization				0742 / Sub Integrated Ant System							
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems/Hardware Dev (Submarine Communications Buoy - SCB)	WR	NSWC : Philadelphia	5.795	1.549	Nov 2014	0.150	Nov 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Hardware Dev (Outboard Electronics (OE)-538)	C/CPAF	Lockeed Martin Sippican/Granite State MFG : MA and NH	20.272	0.293	Mar 2015	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering (OE-538)	WR	NUWC : Newport, RI	8.159	1.365	Nov 2014	0.609	Nov 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering (SubHDR)	WR	NUWC : Newport, RI	16.561	1.859	Nov 2014	0.481	Nov 2015	0.481	Nov 2016	-		0.481	Continuing	Continuing	Continuing
Systems Engineering (Advanced High Data Rate - AdvHDR)	WR	SSC Pacific : San Diego, CA	8.062	0.000		0.000		0.000		-		0.000	0.000	8.062	8.062
Systems Engineering (Antenna Trans Eng)	WR	NUWC : Newport, RI	36.222	1.621	Nov 2014	1.670	Nov 2015	0.890	Nov 2016	-		0.890	Continuing	Continuing	Continuing
Systems Engineering (SCB)	C/CPFF	FSI : San Diego, CA	1.009	0.207	Nov 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
UNDEX Kit Development (SubHDR)	C/CPFF	Raytheon : Marlboro, MA	5.475	0.257	Feb 2015	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Research and Analysis Reliability Dev (SubHDR)	WR	NUWC : Newport, RI	4.927	0.114	Nov 2014	1.300	Nov 2015	1.300	Nov 2016	-		1.300	Continuing	Continuing	Continuing
Systems Engineering (AdvHDR)	WR	NUWC : Newport, RI	4.346	0.000		3.146	Nov 2015	3.144	Nov 2016	-		3.144	Continuing	Continuing	Continuing
Systems Engineering (BRR-6)	C/CPFF	FSI : San Diego, CA	0.172	0.100	Nov 2014	0.175	Nov 2015	0.350	Nov 2016	-		0.350	Continuing	Continuing	Continuing
Systems Engineering/ Hardware Dev (BRR-6)	WR	NUWC : Newport, RI	1.417	0.093	Nov 2014	0.850	Nov 2015	1.086	Nov 2016	-		1.086	Continuing	Continuing	Continuing
Hardware Dev (OE-538)	WR	NUWC : Newport, RI	2.098	0.683	Nov 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering/ Hardware Dev (BRR-6)	WR	NSWC : Philadelphia, PA	1.522	0.368	Nov 2014	2.656	Nov 2015	4.893	Nov 2016	-		4.893	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization	Project (Number/Name) 0742 / Sub Integrated Ant System
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Future Capabilities (Trans Eng)	WR	SSC Pacific : San Diego, CA	1.715	0.845	Nov 2014	1.383	Nov 2015	1.574	Nov 2016	-		1.574	Continuing	Continuing	Continuing
Systems Engineering (OE-538)	C/CPFF	FSI : San Diego, CA	1.403	0.410	Nov 2014	0.361	Nov 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Research and Analysis Reliability Dev (SubHDR)	C/CPIF	TBD : TBD	0.000	0.000		6.938	Feb 2016	6.531	Feb 2017	-		6.531	Continuing	Continuing	Continuing
Software Dev (OE-538)	WR	NUWC : Newport, RI	0.226	0.252	Nov 2014	0.096	Nov 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering (Antenna Trans Eng)	WR	MITRE : McLean, VA	0.398	0.400	Dec 2014	0.500	Dec 2015	0.545	Nov 2016	-		0.545	Continuing	Continuing	Continuing
Systems Engineering (Antenna Trans Eng)	WR	NPS : Monterey, CA	0.120	0.106	Apr 2015	0.060	Apr 2016	0.100	Feb 2017	-		0.100	Continuing	Continuing	Continuing
Systems Engineering (OE-538)	WR	NSWC : Philadelphia, PA	0.000	0.000		0.059	Nov 2015	0.042	Nov 2016	-		0.042	Continuing	Continuing	Continuing
Systems Engineering/ Hardware Dev (Antenna Improvements)	WR	NUWC : Newport, RI	0.000	0.000		0.000		0.934	Nov 2016	-		0.934	Continuing	Continuing	Continuing
Systems Engineering/ Hardware Dev (Antenna Improvements)	WR	NSWC : Philadelphia, PA	0.000	0.000		0.000		1.407	Nov 2016	-		1.407	Continuing	Continuing	Continuing
Systems Engineering/ Hardware Dev (Antenna Improvements)	C/CPFF	FSI : San Diego	0.000	0.000		0.000		0.125	Nov 2016	-		0.125	Continuing	Continuing	Continuing
Product Development Prior Years	Various	Various : Various	110.707	0.000		0.000		0.000		-		0.000	0.000	110.707	110.707
Subtotal			230.606	10.522		20.434		23.402		-		23.402	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Cost Estimating (BRR-6)	C/CPFF	TASC : San Diego, CA	0.059	0.000		0.050	Nov 2015	0.050	Nov 2016	-		0.050	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization	Project (Number/Name) 0742 / Sub Integrated Ant System
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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Integrated logistics Support (BRR-6)	WR	NUWC : Newport, RI	0.047	0.000		0.050	Nov 2015	0.075	Nov 2016	-		0.075	Continuing	Continuing	Continuing
Integrated logistics Support (BRR-6)	C/CPFF	CSA : San Diego, CA	0.050	0.000		0.050	Nov 2015	0.050	Nov 2016	-		0.050	Continuing	Continuing	Continuing
Integrated logistics Support (OE-538)	C/CPFF	CSA : San Diego, CA	0.092	0.105	Nov 2014	0.000		0.060	Nov 2016	-		0.060	Continuing	Continuing	Continuing
Integrated Logistics Support (AdvHDR)	C/CPFF	CSA : San Diego, CA	0.000	0.000		0.075	Feb 2016	0.075	Feb 2017	-		0.075	Continuing	Continuing	Continuing
Cost Estimating (AdvHDR)	C/CPFF	TASC : San Diego, CA	0.000	0.000		0.075	Feb 2016	0.075	Feb 2017	-		0.075	Continuing	Continuing	Continuing
Cost Estimating (OE-538)	C/CPFF	TASC : San Diego, CA	0.225	0.181	Nov 2014	0.098	Nov 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Logistics Support (SubHDR)	C/CPFF	CSA : San Diego, CA	0.000	0.000		0.157	Feb 2016	0.157	Feb 2017	-		0.157	Continuing	Continuing	Continuing
Security Engineering (Antenna Trans Eng)	C/CPFF	Merdan : San Diego, CA	0.275	0.275	Nov 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Logistics Support (OE-538)	WR	NUWC : Newport, RI	0.000	0.000		0.183	Nov 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Logistics Support (OE-538)	WR	NSWC : Philadelphia, PA	0.000	0.000		0.036	Nov 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Security Engineering (Antenna Trans Eng)	C/CPFF	TBD : TBD	0.000	0.000		0.300	Nov 2015	0.250	Nov 2016	-		0.250	Continuing	Continuing	Continuing
Integrated Logistics Support (Antenna Improvements)	C/CPFF	CSA : San Diego, CA	0.000	0.000		0.000		0.050	Nov 2016	-		0.050	Continuing	Continuing	Continuing
Support Prior Years	Various	Various : Various	6.630	0.000		0.000		0.000		-		0.000	0.000	6.630	6.630
Subtotal			7.378	0.561		1.074		0.842		-		0.842	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization	Project (Number/Name) 0742 / Sub Integrated Ant System
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test & Evaluation (OE-538)	WR	COTF : Norfolk, VA	0.999	0.024	Nov 2014	0.286	Nov 2015	0.250	Nov 2016	-		0.250	Continuing	Continuing	Continuing
Test & Evaluation (SubHDR)	WR	NUWC : Newport, RI	1.143	0.152	Nov 2014	1.135	Nov 2015	1.013	Nov 2016	-		1.013	Continuing	Continuing	Continuing
Developmental/Operational T&E (OE-538)	WR	NUWC : Newport, RI	5.692	0.613	Nov 2014	1.351	Nov 2015	0.314	Nov 2016	-		0.314	Continuing	Continuing	Continuing
Test & Evaluation (SCB)	WR	NUWC : Newport, RI	0.950	0.000		0.090	Nov 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Test and Evaluation Prior Years	Various	Various : Various	4.207	0.000		0.000		0.000		-		0.000	0.000	4.207	4.207
Subtotal			12.991	0.789		2.862		1.577		-		1.577	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support (SubHDR)	C/CPFF	CSA : San Diego, CA	2.994	0.352	Dec 2014	0.476	Feb 2016	0.440	Feb 2017	-		0.440	Continuing	Continuing	Continuing
Program Management Support (AdvHDR)	C/CPFF	CSA : San Diego, CA	7.563	0.000		0.228	Feb 2016	0.240	Feb 2017	-		0.240	Continuing	Continuing	Continuing
Program Management Support (Antenna Trans Eng)	C/CPFF	CSA : San Diego, CA	3.606	0.275	Nov 2014	0.296	Nov 2015	0.384	Nov 2016	-		0.384	Continuing	Continuing	Continuing
Program Management Support (SCB)	C/CPFF	CSA : San Diego, CA	0.373	0.000		0.000		0.000		-		0.000	0.000	0.373	0.373
Program Management Support (OE-538)	C/CPFF	CSA : San Diego, CA	4.124	0.111	Nov 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Program Management Support (BRR-6)	C/CPFF	CSA : San Diego, CA	0.097	0.000		0.075	Nov 2015	0.120	Nov 2016	-		0.120	Continuing	Continuing	Continuing
Program Management Support (Antenna Improvements)	C/CPFF	CSA : San Diego, CA	0.000	0.000		0.000		0.075	Nov 2016	-		0.075	Continuing	Continuing	Continuing
Subtotal			18.757	0.738		1.075		1.259		-		1.259	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy							Date: February 2016				
Appropriation/Budget Activity 1319 / 5			R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization				Project (Number/Name) 0742 / Sub Integrated Ant System				
	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract		
Project Cost Totals	269.732	12.610	25.445	27.080	-	27.080	-	-	-		

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization	Project (Number/Name) 0742 / Sub Integrated Ant System
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Fiscal Year	2015				2016				2017				2018				2019				2020				2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition (OE-538 Inc 2) Milestones			▲ MS C								△ FRP DR	△ IOC OE-538A																
Requirements																												
System Development	■																											
Engineering Development Model	■																											
EDM Deliveries		▲ 1	▲ 1																									
Testing		▲ DT			■ FAT				△ DT	△ OT																		
Contract/Deliveries																												
LRIP Contract Options				▲ 7		△ 6																						
LRIP Deliveries								△ 7		△ 6	△ 18																	
FRP Contract Options													△ 27															
FRP Deliveries													△ 18				△ 24								△ 24			

Note: Production of OE-538 Increment 2 starting in FY20 and out will include Global Positioning System (GPS) Anti-Jam (AJ) capability funded by PMW/A 170 Sea NAVWAR Program.

Acronyms
 CPD: Capabilities Production IOC: Initial Operational Capability
 DR: Decision Review LRIP: Low Rate Initial Pr
 DT: Developmental Test MS C: Milestone C
 FAT: First Article Test OT: Operational Test
 FRP: Full Rate Production

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization	Project (Number/Name) 0742 / Sub Integrated Ant System
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Fiscal Year	2015				2016				2017				2018				2019				2020				2021							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Acquisition (SubHDR) Milestones																																
System Development									UnderwaterExplosion (UNDEX)																							
Performance Reliability Component Development									Reliability, Maintainability and Availability, (RMA) Development																							
Production Representative EDM Deliveries							2 △																									
Radome Procurement Contract Award			8 (Option) ▲				17 (Option) △				10 (Option) △				6 (Option) △				Note 1 3 (Option) △				4 (Option) △									
Radome Procurement Deliveries			23 ▲				8 △				17 (Option) △				10 (Option) △				6 (Option) △				3 (Option) △					4 (Option) △				
RMA Kit Procurement Contract Award																													12 △			

Note 1: The final 13 radomes will require a new contract.
 Note 2: UNDEX testing failure cause a one year slip in development and prototype kit delivery.

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization	Project (Number/Name) 0742 / Sub Integrated Ant System
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Fiscal Year	2015				2016				2017				2018				2019				2020				2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition (AdvHDR) Milestones																												
Requirements					▲						▲																	
Technology Demonstration																												
System Development Optical Communications, (OCOMMS) Project Agreement with United Kingdom																												
Engineering Dev. Model																												
Development Test																												
Contract/Deliveries (Down select)																												
Vendor 1																												
Vendor 2																												

Acronyms:
 AoA Analysis Of Alternatives
 LPI/LPD Low Probability of Intercept/Low Probability of Detection

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization	Project (Number/Name) 0742 / Sub Integrated Ant System
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Fiscal Year	2015				2016				2017				2018				2019				2020				2021							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Acquisition (SCB) Milestones																																
Project Arrangement with United Kingdom					Evaluate Requirements, System Component Design and Component Prototypes																											

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization	Project (Number/Name) 0742 / Sub Integrated Ant System
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Fiscal Year	2015				2016				2017				2018				2019				2020				2021											
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4								
Towed Buoy Antenna (BRR-6/6B) Components Development for Reliability Improvements	Tow Cable																																			
					Reliability, Maintainability & Availability (RMA) Development																															
	Antenna and Amplifier Improvements																																			
	Servo Valve Isolation																																			
	Failure Analysis on Key Items																																			
	Failure Analysis on Tow Cable																																			
					Buoy Shape Improvements																															
					Combine RF and Depth Cans																															
									IMU Implementation (Integrated)																											

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization	Project (Number/Name) 0742 / Sub Integrated Ant System
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Fiscal Year	2015				2016				2017				2018				2019				2020				2021							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Antenna Improvements																																
	Reliability, Maintainability & Availability (RMA) Development																															

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization	Project (Number/Name) 0742 / Sub Integrated Ant System

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 0742				
Outboard Electronics (OE)-538 Milestone C (MS C) Decision	3	2015	3	2015
OE-538 Full Rate Production Decision Review (FRP DR)	3	2017	3	2017
OE-538 Initial Operational Capability (IOC) without Global Position System (GPS) Anti-Jam (AJ)	4	2017	4	2017
OE-538 System Development	1	2015	3	2015
OE-538 Engineering Development Model (EDM) Development	1	2015	2	2015
OE-538 1st EDM Delivery	2	2015	2	2015
OE-538 2nd EDM Delivery	3	2015	3	2015
OE-538 Developmental Test (DT) for Milestone C (MS C)	2	2015	3	2015
OE-538 First Article Test	1	2016	4	2016
OE-538 DT for Full Rate Production (FRP)	1	2017	1	2017
OE-538 Operational Test (OT)	2	2017	2	2017
OE-538 Low-Rate Initial Production (LRIP) Contract Option Year 1	4	2015	4	2015
OE-538 LRIP Deliveries Year 1	4	2016	1	2017
OE-538 LRIP Contract Option Year 2	2	2016	2	2016
OE-538 LRIP Deliveries Year 2	2	2017	3	2017
OE-538 Full Rate Production (FRP) Contract Options Year 1	3	2017	3	2017
OE-538 FRP Deliveries Year 1	3	2018	2	2019
OE-538 FRP Contract Option Year 2	2	2018	2	2018
OE-538 FRP Deliveries Year 2	2	2019	2	2020
OE-538 FRP Contract Option Year 3	2	2019	2	2019

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization	Project (Number/Name) 0742 / Sub Integrated Ant System
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
OE-538 FRP Deliveries Year 3	2	2020	2	2021
OE-538 FRP Contract Option Year 4	2	2020	2	2020
OE-538 FRP Deliveries Year 4	2	2021	4	2021
OE-538 FRP Contract Option Year 5	2	2021	2	2021
Submarine High Data Rate (SubHDR) Under Water Explosion (UNDEX) Development	1	2015	3	2016
SubHDR Performance Reliability Component Development/Test	1	2015	3	2019
SubHDR Production Representative UNDEX Engineering Development Model (EDM) Deliveries	3	2016	3	2016
SubHDR Radome Procurement Contract/Option Awards	3	2015	3	2020
SubHDR Radome Production Deliveries	3	2015	3	2021
SubHDR RMA Kit Procurement Contract Award	3	2021	3	2021
AdvHDR Technology Phase	1	2018	2	2021
AdvHDR Analysis of Alternative (AoA) for LPI/LPD	1	2016	3	2017
AdvHDR Optical Communications Project Agreement with United Kingdom	1	2016	4	2019
SCB Project arrangement with United Kingdom (UK)	1	2015	4	2016
Towed Buoy Antenna (BRR-6/6B) Tow Cable Improvements	1	2015	4	2015
BRR-6/6B Antenna and Amplifier Improvements	1	2015	4	2017
BRR-6/6B Servo Valve Isolation	1	2015	4	2015
BRR-6/6B Failure Analysis on Key Items	1	2015	3	2016
BRR-6/6B Failure Analysis on Tow Cable	1	2015	4	2016
BRR-6/6B Buoy shape Improvements	1	2016	4	2018
BRR-6/6B Combine RF and Depth Cans	1	2016	4	2018
BRR-6/6B IMU Implementation (Integrated)	1	2017	4	2019
BRR-6/6B Reliability, Maintainability & Availability (RMA) Development	1	2020	4	2021
Antenna Improvements Reliability, Maintainability & Availability (RMA) Development	1	2017	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization				Project (Number/Name) 0775 / Submarine Supt Equip Prog			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
0775: Submarine Supt Equip Prog	1.179	8.064	6.204	13.215	-	13.215	9.077	9.268	9.950	10.171	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Significant increase from FY16 to FY17 attributable to continued development of TI-20/INC 2 capabilities for High Speed Network, SIRFSUP capabilities, Multifunctional Modular Mast (MMM) payload Next Generation EW System, and Communications Digital Aperture Correlation and Emitter improvements. Develop or transition from Future Naval Capability (FNC) efforts to TI-20/INC 2 capabilities for Electronic Attack, EW sensor for future Task-Oriented Technology Insertion Mast (TOTIM) planned for TI-20 platforms, improved digitizers, and EW data processing. Develop Advanced technology demonstrations for feasibility of systems capable of meeting later increments of AN/BLQ-10(B) for performance and digital data delivery.

The Submarine Support Equipment Program (SSEP) is responsible for the development and improvement of Submarine Electronic Warfare (EW) systems in support of effective operations in the following mission areas: Joint Littoral Warfare; Joint Intelligence Surveillance Reconnaissance (ISR), Indications and Warnings; Electronic Warfare; Information Operations including Cyber; and Special Operations Force (SOF) support. The rapid proliferation of complex radar, communications and navigation equipment available to potential adversaries creates an increasingly dense and sophisticated electromagnetic environment. Sustained and significant improvements to submarine EW systems are required to maintain tactical ship safety and operation effectiveness. As such EW was raised to a submarine primary mission area in FY2012 by Commander Submarine Forces, and EW is listed as the number one modernization requirement by the Submarine Tactical Requirements Group (STRG). OPNAV letter dated 17 June 12, SER N97/12U144401 further codified this need by directing development of a digital Next Generation EW system as an evolution of the AN/BLQ-10 EW program. SSEP efforts in support of these needs include: integration of technology developed and transitioned from the Advanced Submarine Support Equipment Program (ASSEP) into tactical EW systems, interface and capability integration with Submarine Warfare Federated Tactical System Modernization efforts and development of the Next Generation EW AN/BLQ-10 system.

RDTE Funding line supports the entire AN/BLQ-10 EW procurement program. Increases in RDTE budget starting in FY15 supports development of EW Next Generation Architecture (NGA). The increase in FY17 funds over PB16 plans supports two new requirements: \$0.230M was funded to satisfy the U.S. Navy Submarine Force (SUBFOR) requirement Ltr: Serial N00/5012: 17 JUN 13 to provide a Submarine Launched Decoy Buoy. \$4.1M is also provided as a zero-sum transfer from EW Next Generation Architecture (NGA) OPN funds (ML020) to support development of critical enabling technologies for TI-20 that will provide maximized AN/BLQ-10 NGA development. The increase supports critical enabling technologies that will provide maximized electronic spectrum digitization and processing as well as Electronic Attack capability. Specific NGA technology development focus areas include simultaneous transmit and receive apertures, improved antenna sensors, high bandwidth digitizers, high speed networking, large capacity data storage and retrieval, and advanced algorithms for improved system performance and new capability.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Submarine Support Equipment Program	8.064	6.204	13.215	0.000	13.215

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization	Project (Number/Name) 0775 / Submarine Supt Equip Prog

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Articles:	-	-	-	-	-
<p><i>FY 2015 Accomplishments:</i> Update AN/BLQ-10 software baseline changes for SWFTS and NPES, SPR Resolution and Software Enhancement. Development of TI-16 Processor Upgrades, remote display and vulnerability rules of thumb. Commence development of Next Generation Architecture (NGA) Increment 1 and Electronic Warfare Tactical Improvement Set (ETIS). Develop EW server, displays and control of digital Electronic Intelligence (ELINT) and digital Communications Intelligence (COMINT) subsystems. Advanced technology demonstrations for feasibility of systems capable of meeting later increments of AN/BLQ-10(B) for performance and digital data delivery.</p> <p><i>FY 2016 Plans:</i> TI-14 DT. Update AN/BLQ-10 software baseline changes for SWFTS and NPES, SPR Resolution and Software Enhancement. Complete testing of TI-16 Processor Upgrades and incorporate ETIS set into TI16 baseline. Commence development of TI-20/INC 2 for High Speed Network, SIRFSUP capabilities, Multifunctional Modular Mast (MMM) payload Next Generation EW System. Develop Communications Digital Aperture Correlation and Emitter improvements. Advanced technology demonstrations for feasibility of systems capable of meeting later increments of AN/BLQ-10(B) for performance and digital data delivery.</p> <p><i>FY 2017 Base Plans:</i> Perform TI-14 Operational Test (OT). Update AN/BLQ-10 software baseline changes for SWFTS and NPES, SPR Resolution and Software Enhancement. Integration of Submarine Launched Decoy buoys with ship interfaces and AN/BLQ-10 submarine electronic warfare system software. Develop TI-18 Processor Upgrades. Complete TI-18 NRE updates of Human Machine Interface (HMI) package to incorporate Digital Onboard Trainer and usage of I&Q data; Digital Apertures, Embedded Built in Test (BIT). Continued development of TI-20/INC 2 capabilities for High Speed Network, SIRFSUP capabilities, Multifunctional Modular Mast (MMM) payload Next Generation EW System, and Communications Digital Aperture Correlation and Emitter improvements. Develop or transition from Future Naval Capability (FNC) efforts to TI-20/INC 2 capabilities for Electronic Attack, EW sensor for future Task-Oriented Technology Insertion Mast (TOTIM) planned for TI-20 platforms, improved digitizers, and EW data processing. Develop Advanced technology demonstrations for feasibility of systems capable of meeting later increments of AN/BLQ-10(B) for performance and digital data delivery.</p> <p><i>FY 2017 OCO Plans:</i> N/A</p>					
Accomplishments/Planned Programs Subtotals	8.064	6.204	13.215	0.000	13.215

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization	Project (Number/Name) 0775 / Submarine Supt Equip Prog
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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017	FY 2017	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Cost To	
			Base	OCO	Total					Complete	Total Cost
• OPN/256000: <i>Submarine Supt Equip Prog</i>	36.938	78.816	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	296.710
• SCN/201300: <i>VIRGINIA Class Submarine</i>	56.512	57.650	58.821	-	58.821	60.015	61.215	62.562	67.567	Continuing	Continuing
• RDT&E/0604558N: <i>VIRGINIA Class Design Development</i>	1.500	1.500	1.500	-	1.500	1.500	1.526	1.557	1.557	Continuing	Continuing
• RDT&E/0603562N: <i>Advanced Submarine Support Equipment (ASSEP)</i>	3.320	4.103	4.429	-	4.429	4.143	4.403	4.725	4.828	Continuing	Continuing
• OPN/084000: <i>Sub Periscopes, Imaging Equip. and Supt Equip Program</i>	0.000	0.000	136.421	-	136.421	142.104	215.983	249.189	206.465	Continuing	Continuing

Remarks

D. Acquisition Strategy

AN/BLQ-10 (V) EW System - Procurements are executed/managed in accordance with Acquisition Plan (Rev 9) for AN/BLQ-10(V) EW System dtd 06/06/13 and the Single Acquisition Management Plan dtd 06/12/14.

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.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization	Project (Number/Name) 0775 / Submarine Supt Equip Prog
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Hardware and Software Development	Various	Various : Various	0.000	0.000		0.000		2.500	Oct 2016	-		2.500	0.000	2.500	-
Hardware and Software Development	WR	NUWC : Newport, RI	0.000	6.993	Oct 2014	4.068	Nov 2015	6.269	Oct 2016	-		6.269	Continuing	Continuing	Continuing
Subtotal			0.000	6.993		4.068		8.769		-		8.769	-	-	-

Remarks

Increase in FY15 Hardware Development supports efforts for AN/BLQ-10(B) EW Next Generation Architecture (NGA). The increase in FY17 over PB16 plans includes \$4.1M of EW NGA OPN (ML020) funds converted to RDT&E in a zero sum transfer to better reflect the developmental need in support of TI-20 critical enabling technologies. The increase in FY17 also includes \$0.230M to satisfy the U.S. Navy Submarine Force (SUBFOR) requirement to provide a Submarine Launched Decoy Buoy.

Significant increase from FY16 to FY17 attributable to continued development of TI-20/INC 2 capabilities for High Speed Network, SIRFSUP capabilities, Multifunctional Modular Mast (MMM) payload Next Generation EW System, and Communications Digital Aperture Correlation and Emitter improvements. Develop or transition from Future Naval Capability (FNC) efforts to TI-20/INC 2 capabilities for Electronic Attack, EW sensor for future Task-Oriented Technology Insertion Mast (TOTIM) planned for TI-20 platforms, improved digitizers, and EW data processing. Develop Advanced technology demonstrations for feasibility of systems capable of meeting later increments of AN/BLQ-10(B) for performance and digital data delivery.

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test Support	WR	COTF : Norfolk, VA	0.000	0.254	Oct 2014	0.260	Mar 2016	0.275	Oct 2016	-		0.275	0.000	0.789	-
Systems Engineering & Test Support	WR	NUWC : Newport, RI	1.179	0.817	Oct 2014	1.876	Nov 2015	4.171	Oct 2016	-		4.171	0.000	8.043	-
Subtotal			1.179	1.071		2.136		4.446		-		4.446	0.000	8.832	-

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals		1.179	8.064	6.204	13.215	-	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy							Date: February 2016			
Appropriation/Budget Activity 1319 / 5			R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization			Project (Number/Name) 0775 / Submarine Supt Equip Prog				
	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	

Remarks
 Development Integration and Test (DI&T) for NGA Increment I/ETIS extends into FY17 to complete testing for Increment I hardware tied to VIRGINIA new construction schedule.

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization	Project (Number/Name) 0775 / Submarine Supt Equip Prog

Fiscal Year	2015				2016				2017				2018				2019				2020				2021							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
AN/BLQ-10 Baseline Changes, SPR Resolution, and Software Enhancement: AN/BLQ-10 Baseline Changes, SPR Resolution, and Software Enhancement: Software Update	S/W Upgrade	▲			S/W Upgrade	▲			S/W Upgrade	▲			S/W Upgrade	▲			S/W Upgrade	▲			S/W Upgrade	▲			S/W Upgrade	▲			S/W Upgrade	▲		
Technical Insertion: Development, Integration & Test																																
TI-14: Process or Upgrades, Remote Log-In, Rapid Reprogramming of Threat Libraries and ES Server Correlator								▲				▲																				
TI-16: Processor Upgrades, Vulnerability Rules of Thumb, Control EW Display and Embedded Bit																▲				▲												
TI-18: Processor Upgrades, ES On-Board Trainer (OBT), Tactical Decision Aid																								▲				▲				
TI-20: High Speed Network, SIRFSUP capabilities ; MMM Payload Next Generation EW System																																
Next Generation EW System: Development, Integration & Test																																
Next Generation Architecture (Increment 1)/ETIS (DI&T)																																
Next Generation Architecture (Increment 2) (DI&T)																																
TI-APB: Integration & Test																																
APB-15																																
APB-17																																
APB-19																																
Submarine Launched Decoy Buoy																																

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization	Project (Number/Name) 0775 / Submarine Supt Equip Prog

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 0775				
AN/BLQ-10 Baseline Changes, SPR Resolution, and Software Enhancement: AN/BLQ-10 Baseline Changes, SPR Resolution, and Software Enhancement: Software Update FY15	2	2015	2	2015
AN/BLQ-10 Baseline Changes, SPR Resolution, and Software Enhancement: AN/BLQ-10 Baseline Changes, SPR Resolution, and Software Enhancement: Software Update FY16	2	2016	2	2016
AN/BLQ-10 Baseline Changes, SPR Resolution, and Software Enhancement: AN/BLQ-10 Baseline Changes, SPR Resolution, and Software Enhancement: Software Update FY17	2	2017	2	2017
AN/BLQ-10 Baseline Changes, SPR Resolution, and Software Enhancement: AN/BLQ-10 Baseline Changes, SPR Resolution, and Software Enhancement: Software Update FY18	2	2018	2	2018
AN/BLQ-10 Baseline Changes, SPR Resolution, and Software Enhancement: AN/BLQ-10 Baseline Changes, SPR Resolution, and Software Enhancement: Software Update FY19	2	2019	2	2019
AN/BLQ-10 Baseline Changes, SPR Resolution, and Software Enhancement: AN/BLQ-10 Baseline Changes, SPR Resolution, and Software Enhancement: Software Update FY20	2	2020	2	2020
AN/BLQ-10 Baseline Changes, SPR Resolution, and Software Enhancement: AN/BLQ-10 Baseline Changes, SPR Resolution, and Software Enhancement: Software Update FY21	2	2021	2	2021
TI-14: Processor Upgrades, Remote Log-In, Rapid Reprogramming of Threat Libraries and ES Server DT	4	2016	4	2016
TI-14: Processor Upgrades, Remote Log-In, Rapid Reprogramming of Threat Libraries and ES Server OT	3	2017	3	2017

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization	Project (Number/Name) 0775 / Submarine Supt Equip Prog
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
TI-16: Processor Upgrades, Vulnerability Rules of Thumb, Control EW display and Embedded bit	1	2015	4	2016
TI-16: Processor Upgrades, Vulnerability Rules of Thumb, Control EW display and Embedded bit DT	2	2018	2	2018
TI-16: Processor Upgrades, Vulnerability Rules of Thumb, Control EW display and Embedded bit OT	2	2019	2	2019
TI-18: Processor Upgrades, ES On-Board Trainer (OBT), Tactical Decision Aid	1	2018	3	2019
TI-18: Processor Upgrades, ES On-Board Trainer (OBT), Tactical Decision Aid DT	1	2020	1	2020
TI-18: Processor Upgrades, ES On-Board Trainer (OBT), Tactical Decision Aid OT	1	2021	1	2021
TI-20: High Speed Network, SIRFSUP capabilities, MMM Payload Next Generation EW System	3	2016	4	2021
Next Generation EW System: Development, Integration & Test (DI&T): Next Generation Architecture (Increment 1)/ETIS (DI&T)	1	2015	4	2017
Next Generation EW System: Development, Integration & Test (DI&T): Next Generation Architecture (Increment 2) (DI&T)	3	2016	4	2021
TI-APB: Integration & Test: APB-15	1	2016	4	2016
TI-APB: Integration & Test: APB-17	1	2018	4	2018
TI-APB: Integration & Test: APB-19	1	2020	4	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization				Project (Number/Name) 1411 / Sub Tact Comm System			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
1411: <i>Sub Tact Comm System</i>	199.856	8.648	9.353	10.002	-	10.002	10.915	10.695	10.752	10.977	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Submarine Tactical Communications System project (1411) provides submarines with communications systems designed to: (a) enhance assured information transfer via automated and integrated network management; (b) support assured Command & Control, (c) provide submarine Internet Protocol (IP) connectivity; (d) be interoperable with Nuclear Command, Control, and Communications (NC3), joint United States, and allied/coalition military networks; (e) meet NC3 strategic messaging requirements; and (f) improve reliability, maintainability, and availability. This is accomplished by providing the submarine with a properly integrated mix of fully interoperable Navy standard and Commercial Off-the-Shelf (COTS) communication equipment covering a wide range of frequencies and modes. The Common Submarine Radio Room (CSRR) transforms LOS ANGELES, OHIO (SSBN and SSGN) and SEAWOLF Class radio rooms from suites of class-specific, closed system equipment to a common (not identical) design which incorporates Open System Architecture communications equipment. CSRR leverages and continues the development of VIRGINIA Class External Communications System (ECS) design and ECS Control and Management software, applies a system-of-systems approach to design and implementation of Joint Maritime Communication System, and integrates COTS and Government Off-the-Shelf components with emerging technologies into a single centrally managed radio room architecture for all classes of submarines. The project utilizes land-based integration test facilities to integrate Command, Control, Communications, Computers, and Intelligence (C4I) programs of record components into the open architecture prior to fleet implementation on all submarine platforms. This project funds the development of a replacement simulation/stimulation suite to support training requirements. The project includes system engineering efforts associated with demonstration of new technology allowing submarines to connect to the global information grid, participate in strike group and joint operations, and support NC3 commitments. CSRR supports the Navy Strategy for achieving Information Dominance by providing the submarine resilient, robust communications capabilities for NC3, joint United States and allied/coalition military operations. The new technology will ensure the submarine's continued ability to participate in network-centric warfare and exploit its inherent stealth capabilities in support of the Navy, Joint, and allied/coalition fight to achieve total battlespace information dominance.

JUSTIFICATION FOR BUDGET ACTIVITY:

This program is funded under ENGINEERING and MANUFACTURING DEVELOPMENT because it encompasses development and demonstration of new end-items prior to fielding approval decision. The amount of RDT&E funding is dependent on the number of baselines being integrated and tested in any given year.

Funding in FY17 is to continue CSRR Increment 1 Version 4 systems engineering development for OHIO Class ballistic missile (SSBN) submarines, VIRGINIA, LOS ANGELES and SEAWOLF Class attack (SSN) submarines, OHIO Class guided missile (SSGN) submarines, and ensure Supply Chain Risk Management (SCRM) compliance. Continue development of platform specific builds for Control & Management software incorporating Increment 1 Version 4 capabilities. Continue development of the Multi-purpose Reconfigurable Training System (MRTS) software for Increment 1 Version 4 capabilities. Update acquisition documentation to reflect changes in Increment 1 Version 4 through Version 6. Complete Increment 1 Version 3 Joint Interoperability Test Command (JITC) Re-Certification. Commence CSRR Increment 1 Version 5 system engineering development and modernization.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization	Project (Number/Name) 1411 / Sub Tact Comm System
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Acquisition Decision Memorandum signed by Assistant Secretary of Navy for Research, Development & Acquisition dated 15 July 2008 approved consolidating Increments 1 and 2 to a single Increment 1 with multiple block upgrades (Versions).

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Common Submarine Radio Room (CSRR)	8.648	9.353	10.002	0.000	10.002
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					
<ul style="list-style-type: none"> - Completed Increment 1 Version 3 Operational Test (OT) test deferrals and Special Operations Forces (SOF) testing. - Completed development of platform specific builds of Control & Management (C&M) software Increment 1 Version 3 capabilities for VIRGINIA, LOS ANGELES, SEAWOLF, SSGN and SSBN Class submarines incorporating End of Life (EOL) issues due to equipment obsolescence. - Completed Multi-purpose Reconfigurable Training System (MRTS) software upgrade for Increment 1 Version 3 CSRR baseline for SSBN Class operator trainer. - Continued Supply Chain Risk Management (SCRM) assessment as part of Program Protection Plan (PPP) revision. - Continued CSRR Increment 1 Version 4 system engineering development and modernization for the LOS ANGELES, SSBN and VIRGINIA Class submarines. - Continued development of platform specific builds of Increment 1 Version 4 Control and Management software for LOS ANGELES, SSBN and VIRGINIA Class capabilities. - Continued implementation of Increment 1 Version 4 security upgrades to meet Cyber Security and multiple certification requirements for General Service (GENSER) and Sensitive Compartmented Information (SCI) for all CSRR platforms. - Continued Multi-purpose Reconfigurable Training System (MRTS) software upgrade for Increment 1 Version 4 CSRR baseline for LOS ANGELES, SSBN, and SSGN Class operator trainer and VIRGINIA Class maintenance trainer. - Continued Federal Information System Management Act (FISMA) statutory requirement for Cyber Security compliance and correction of Increment 1 Version 1 - Version 3 Cyber Security deficiencies. - Commenced Federal Information System Management Act (FISMA) statutory requirement for Cyber Security compliance and correction of Increment 1 Version 4 cyber security deficiencies. - Commenced CSRR Increment 1 Version 4 system engineering development and modernization for the SSGN and SEAWOLF Class submarines. - Commenced development of platform specific builds of Increment 1 Version 4 C&M software for SSGN and SEAWOLF Class capabilities. 					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization	Project (Number/Name) 1411 / Sub Tact Comm System

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>- Commenced updating the CSRR Acquisition Plan, Acquisition Strategy, System Engineering Plan, and Program Protection Plan to reflect changes for Increment 1 Version 4 through Version 6.</p> <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Continue Federal Information System Management Act (FISMA) statutory requirement for Cyber Security compliance and correction of Increment 1 Version 1 - Version 4 Cyber Security deficiencies. - Continue Supply Chain Risk Management (SCRM) assessment as part of PPP revision. - Continue CSRR Increment 1 Version 4 system engineering development and modernization for the LOS ANGELES, SSBN, VIRGINIA, SSGN, and SEAWOLF Class submarines. - Continue development of platform specific builds of Increment 1 Version 4 Control and Management software for LOS ANGELES, SSBN, VIRGINIA, SSGN and SEAWOLF Class capabilities. - Continue implementation of Increment 1 Version 4 security upgrades to meet Cyber Security and multiple certification requirements for General Service (GENSER) and Sensitive Compartmented Information (SCI) for all CSRR platforms. - Continue Multi-Purpose Reconfigurable Training System (MRTS) software upgrade for Increment 1 Version 4 CSRR baseline for LOS ANGELES, SSBN, and SSGN Class operator trainer and VIRGINIA Class maintenance trainer. - Continue updating the CSRR Acquisition Plan, Acquisition Strategy, System Engineering Plan, and Program Protection Plan to reflect changes for Increment 1 Version 4 through Version 6. - Commence planning for CSRR Increment 1 Version 3 Joint Interoperability Test Command (JITC) Re-Certification. - Commence development of the Test and Evaluation Master Plan (TEMP) and all preparations for Increment 1 Version 4 Developmental Test (DT) and Operational Test (OT) events. <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> - Complete CSRR Increment 1 Version 3 Joint Interoperability Test Command (JITC) Re-Certification. - Complete updating the CSRR Acquisition Plan, Acquisition Strategy, System Engineering Plan, and Program Protection Plan to reflect changes for Increment 1 Version 4 through Version 6. - Continue CSRR Increment 1 Version 4 system engineering development and modernization for the LOS ANGELES, SSBN, VIRGINIA, SSGN, and SEAWOLF Class submarines. - Continue development of platform specific builds of Increment 1 Version 4 Control and Management software for LOS ANGELES, SSBN, VIRGINIA, SSGN, and SEAWOLF Class capabilities. 					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization	Project (Number/Name) 1411 / Sub Tact Comm System

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<ul style="list-style-type: none"> - Continue implementation of Increment 1 Version 4 security upgrades to meet Cyber Security and multiple certification requirements for General Service (GENSER) and Sensitive Compartmented Information (SCI) for all CSRR platforms. - Continue Federal Information System Management Act (FISMA) statutory requirement for Cyber Security compliance and correction of Increment 1 Version 1 - Version 4 Cyber Security deficiencies. - Continue Multi-purpose Reconfigurable Training System (MRTS) software upgrade for Increment 1 Version 4 CSRR baseline for LOS ANGELES, SSBN, and SSGN Class operator trainer and VIRGINIA Class maintenance trainer. - Continue Supply Chain Risk Management (SCRM) assessment as part of Program Protection Plan revision. - Continue development of the Test and Evaluation Master Plan (TEMP) and all preparations for Increment 1 Version 4 Developmental Test (DT) and Operational Test (OT) events. - Commence CSRR Increment 1 Version 5 system engineering development and modernization for the LOS ANGELES, SSBN, VIRGINIA, SSGN, and SEAWOLF Class submarines. - Commence development of platform specific builds of Increment 1 Version 5 Control and Management software for LOS ANGELES, SSBN, VIRGINIA, SSGN, and SEAWOLF Class capabilities. - Commence contract planning for Control and Management Software contract re-compete. <p>FY 2017 OCO Plans: N/A</p>					
Accomplishments/Planned Programs Subtotals	8.648	9.353	10.002	0.000	10.002

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 313000: <i>Submarine Communications</i>	64.954	60.945	64.529	-	64.529	64.483	64.233	67.794	69.177	Continuing	Continuing

Remarks

D. Acquisition Strategy

Program Milestones: Increment 1 Version 4 Preliminary Design Review (PDR) 1Q FY16, Critical Design Review (CDR) 4Q FY16, Developmental Test (DT) 3Q FY18, Operational Test (OT) 4Q FY18, and Fielding Decision 4Q FY18. Increment 1 Version 5 PDR 4Q FY18, CDR 3Q FY19, DT 2Q FY21, OT 3Q FY21, and Fielding Decision 4Q FY21.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / <i>SSN-688 & Trident Modernization</i>	Project (Number/Name) 1411 / <i>Sub Tact Comm System</i>

E. Performance Metrics

FY17 CSRR reduces the overall cost for implementation of Command, Control, Communications Computers, and Intelligence (C4I) Programs of Record components into the submarine external communications system by implementing block upgrades and reducing the integration/installation costs.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
1319 / 5				PE 0604503N / SSN-688 & Trident Modernization				1411 / Sub Tact Comm System							
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Multi-Purpose Reconfigurable Training System (MRTS) Development	WR	SSC LANT : Charleston, SC	1.526	1.372	Dec 2015	0.777	Mar 2016	1.214	Dec 2016	-		1.214	Continuing	Continuing	Continuing
Systems Eng/Design Version 4	WR	NUWC : Newport, RI	6.015	3.678	Nov 2014	3.840	Jan 2016	3.782	Nov 2016	-		3.782	Continuing	Continuing	Continuing
Site Platform Integration/ Certification	WR	NUWC : Newport, RI	12.817	0.120	Nov 2014	0.130	Jan 2016	0.145	Nov 2016	-		0.145	Continuing	Continuing	Continuing
Software Development (CSRR)	C/CPIF	Lockheed Martin : San Diego, CA	4.460	2.095	Jan 2015	2.118	Feb 2016	2.338	Nov 2016	-		2.338	Continuing	Continuing	Continuing
Product Development Prior Years	Various	Various : Various	124.155	0.000		0.000		0.000		-		0.000	0.000	124.155	124.155
Subtotal			148.973	7.265		6.865		7.479		-		7.479	-	-	-
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics Support	WR	NUWC : Newport, RI	3.627	0.061	Nov 2014	0.192	Nov 2015	0.268	Nov 2016	-		0.268	Continuing	Continuing	Continuing
Software Engineering	WR	SSC PAC : San Diego, CA	3.481	0.170	Jan 2015	0.185	Nov 2015	0.207	Nov 2016	-		0.207	Continuing	Continuing	Continuing
Information Security/ Cyber Security (INFOSEC) Certification/Supply Chain Risk Management (SCRM) Assessment	Various	SSC PAC/SSC LANT/NUWC/ MITRE : San Diego, CA/Charleston, SC/ Newport, RI/San Diego	21.757	1.084	Nov 2014	1.536	Nov 2015	1.743	Nov 2016	-		1.743	Continuing	Continuing	Continuing
Subtotal			28.865	1.315		1.913		2.218		-		2.218	-	-	-

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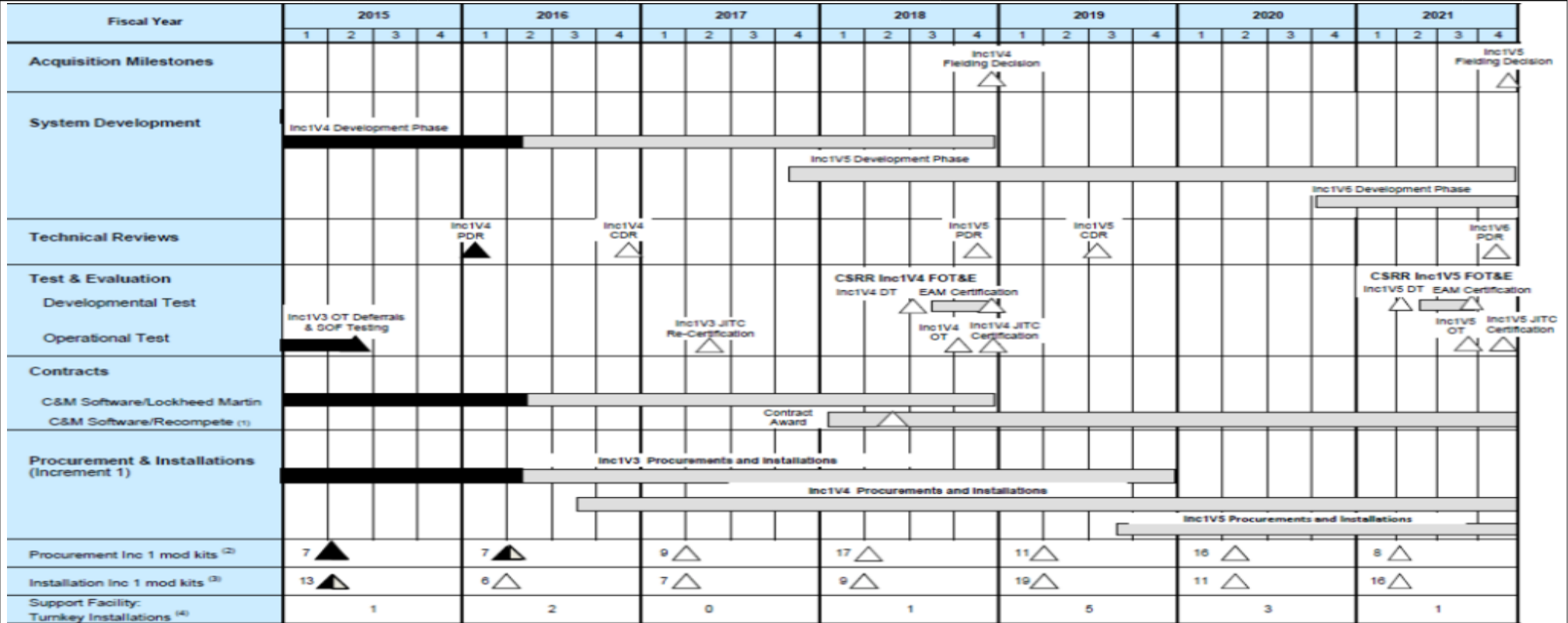
Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy

Date: February 2016

Appropriation/Budget Activity
1319 / 5

R-1 Program Element (Number/Name)
PE 0604503N / SSN-688 & Trident
Modernization

Project (Number/Name)
1411 / Sub Tact Comm System



(1) Contract planning for C&M Software/Recompete will begin in FY17

(2) Kit procurements generally begin in the second quarter but continue throughout the year. In order of Version (V3-V5). Due to Fleet rescheduling of availability periods, some procurements have been rescheduled.

(3) Installations generally begin in the second quarter but occur throughout the year based on submarine availability schedules. Due to Fleet rescheduling of availability periods, some installations have been rescheduled.

(4) Installation cost included in procurement (Turnkey) for version updates to 3 submarine class modernization reconfigurable lab assets. FY19-FY21 includes MRTS procurement (FY19:3, FY20:3, and FY21:1)

Legend		Acronyms	
▲	Scheduled Event	Inc V	Increment Version
▲	Completed Event	PDR	Preliminary Design Review
▲	Ongoing/Future Event	CDR	Critical Design Review
■	Completed Phase of Ongoing Event	DT	Developmental Test
		OT	Operational Test
		EAM	Emergency Action Message
		SOP	Special Operations Forces
		JITC	Joint Interoperability Test Command
		C&M	Control & Management

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / SSN-688 & Trident Modernization	Project (Number/Name) 1411 / Sub Tact Comm System

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 1411				
Fielding Decision (Increment 1 Version 4)	4	2018	4	2018
Fielding Decision (Increment 1 Version 5)	4	2021	4	2021
Technical Reviews (Increment 1 Version 4 Preliminary Design Review (PDR))	1	2016	1	2016
Technical Reviews (Increment 1 Version 4 Critical Design Review (CDR))	4	2016	4	2016
Technical Reviews (Increment 1 Version 5 Preliminary Design Review (PDR))	4	2018	4	2018
Technical Reviews (Increment 1 Version 5 Critical Design Review (CDR))	3	2019	3	2019
Technical Reviews (Increment 1 Version 6 Preliminary Design Review (PDR))	4	2021	4	2021
System Development (Increment 1 Version 4)	1	2015	4	2018
System Development (Increment 1 Version 5)	4	2017	4	2021
System Development (Increment 1 Version 6)	4	2020	4	2021
Contracts (Software---Lockheed Martin)	1	2015	4	2018
Contracts (Software-Follow-on to include planning)	1	2018	4	2021
Emergency Action Message (EAM) Certification (Increment 1 Version 4)	3	2018	4	2018
Emergency Action Message (EAM) Certification (Increment 1 Version 5)	2	2021	3	2021
Increment 1 Version 3 Operational Test (OT) deferrals & Special Operations Forces (SOF) testing	1	2015	2	2015
Increment 1 Version 3 Joint Interoperability Test Command (JITC) Re-Certification	2	2017	2	2017
Increment 1 Version 4 Joint Interoperability Test Command (JITC) Re-Certification	4	2018	4	2018
Increment 1 Version 5 Joint Interoperability Test Command (JITC) Re-Certification	4	2021	4	2021
Developmental Test (DT) (Increment 1 Version 4)	3	2018	3	2018
Operational Test (OT) (Increment 1 Version 4)	4	2018	4	2018

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604503N / <i>SSN-688 & Trident Modernization</i>	Project (Number/Name) 1411 / <i>Sub Tact Comm System</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Developmental Test (DT) (Increment 1 Version 5)	2	2021	2	2021
Operational Test (OT) (Increment 1 Version 5)	3	2021	3	2021
Procurement (Increment 1 Modernization Kits)	1	2015	4	2021
Installation (Increment 1 Modernization Kits)	1	2015	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604504N / <i>Air Control</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	73.592	28.669	57.928	47.404	-	47.404	65.223	51.835	51.671	52.695	Continuing	Continuing
0718: <i>MATCAL S</i>	3.559	3.868	1.412	0.314	-	0.314	1.519	0.980	0.633	0.646	Continuing	Continuing
0993: <i>Carrier ATC</i>	67.590	12.685	40.559	30.254	-	30.254	33.339	28.933	29.114	29.669	Continuing	Continuing
1657: <i>ATC Improvement</i>	2.443	0.604	0.399	0.383	-	0.383	0.406	0.416	0.425	0.434	Continuing	Continuing
3372: <i>ATC Systems</i>	0.000	11.512	15.558	16.453	-	16.453	29.959	21.506	21.499	21.946	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element provides for the development, integration, and testing of Automated Air Traffic Control (ATC) hardware and software required to provide improved flight safety and more reliable all-weather ATC and landing system capabilities at Naval Air Stations (NASs) and Marine Corps Air Stations (MCASs) and Fleet Area Control and Surveillance Facilities (FACSFAC) worldwide. Funded programs are required to upgrade or replace aging ATC and landing system equipment on aircraft, aircraft carriers, amphibious ships, NASs, MCASs and Navy/Marine Corps tactical/expeditionary airfields and remote landing sites.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under SYSTEM DEVELOPMENT AND DEMONSTRATION because it includes those projects that have passed Milestone B approval and are conducting engineering and manufacturing development tasks aimed at meeting validated requirement prior to full-rate production decision.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	29.037	57.928	53.368	-	53.368
Current President's Budget	28.669	57.928	47.404	-	47.404
Total Adjustments	-0.368	0.000	-5.964	-	-5.964
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.200	0.000			
• SBIR/STTR Transfer	-0.168	0.000			
• Program Adjustments	0.000	0.000	-5.649	-	-5.649
• Rate/Misc Adjustments	0.000	0.000	-0.315	-	-0.315

Change Summary Explanation

Funding: Decrease in Air Control by \$1.989 million in FY 17 as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy Date: February 2016

Appropriation/Budget Activity
1319: *Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)*

R-1 Program Element (Number/Name)
PE 0604504N / *Air Control*

Funding: The FY 2017 funding request was reduced by \$2.957 million to account for the availability of prior years execution balance.

Funding: FY 2015 funding reduced to finance higher Department priority need.

Schedule:

0718: The G/ATOR FY2015 efforts did not occur, it has delayed the contract award to 2nd Quarter FY2017.

0993: The Material Development Decision for AN/SPN-50(V)1 shifted from 2QFY2015 to 4QFY2015 directed by PEOT. Critical Design Review AN/SPN-50(V)1 for FY2017 was added to the FY2017 plans.

1657: The Fleet ATC Systems FY2015 efforts did not occur, all FY2015 funding was redirected to NASMOD VIDS efforts due to program priorities.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604504N / <i>Air Control</i>				Project (Number/Name) 0718 / MATCALs			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
0718: MATCALs	3.559	3.868	1.412	0.314	-	0.314	1.519	0.980	0.633	0.646	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This program provides for continued development, integration, and testing of hardware and software to meet requirements for all-weather operations and improved flight safety of Air Traffic Control (ATC) and Landing Systems at Marine Corps expeditionary airfields. An Acquisition Decision Memorandum from Jan 2005 approved the use of the U.S. Army AN/TPN-31 Air Traffic Navigation, Integration, and Coordination System (ATNAVICS) to fulfill the Air Surveillance and Precision Approach Radar and Control System (ASPARCS) requirement for Jul 2006. The ATNAVICS will replace the legacy ATC Precision Approach Radar (PAR), Airport Surveillance Radar (ASR), and Command and Control Subsystem with a High Mobility Multipurpose Wheeled Vehicle based PAR, ASR and Command and Control Subsystem. The MROC Decision Memorandum 11-2005 of Dec 2004 outlines the evolutionary improvements required by Headquarters Marine Corps. This program works with the Marine ATC Working Group identifying the requirements to implement the P3I and evolutionary product improvements as required for G/ATOR, ATNAVICS, Expeditionary ATC Towers, and Navigational Aids that support Marine Air Traffic Control Detachments.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: ASPARCS Improvements	3.868	0.617	0.264	0.000	0.264
Articles:	-	-	-	-	-
Description: Investigate and resolve obsolescence issues. Perform studies and analyses to implement P3I and other evolutionary improvements. Develop criteria for existing ASPARCS software to achieve Defense Information Infrastructure-Common Operating Environment Level 5 compliance, Information Assurance, Radar Range Extension and Mapping functionality, and enhanced simulation and training into the existing ASPARCS software. Perform Mode 5/S integration, operational functionality study and analyses with AN/TPN-31(V)7 ATNAVICS System.					
FY 2015 Accomplishments: Developed Expeditionary ATC Tower capability improvements via the Engineering Change Proposal (ECP) process as assessed by the Decision Analysis Support study conducted by NAVAIR 4.10. Performed a Data Information Part 1 ECP to address mobility, alternate power source, and locate communication (radar, visual, weather, links, Non-Classified Internet Protocol Router & Secret Internet Protocol Router) enhancing products that will provide greater situational awareness for the air traffic controller in an expeditionary environment. Performed Mode 5 Part 1 ECP for the integration, operational functionality study and analyses with AN/TPN-31(V)7 ATNAVICS System.					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604504N / Air Control	Project (Number/Name) 0718 / MATCAL S
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Performed Part 1 Tactical Air Navigation Modernization ECP to study methods of reducing the overall operational footprint of the ASPARCS and achieve increased expeditionary maneuver capability.</p> <p>FY 2016 Plans: Complete the Air Traffic Control Tower capability improvement Part 1 Engineering Change Proposal (ECP) that recommends which areas; mobility, alternate power source, and identify additional communication (radar, visual, weather, links, Non-Classified Internet Protocol Router & Secret Internet Protocol Router) products that can be upgraded via a Part 2 ECP and provide greater situational awareness for air traffic controllers utilizing these systems. Complete the Part 1 Tactical Air Navigation Modernization ECP for AMTAC.</p> <p>FY 2017 Base Plans: Develop Part 1 ECP to select and implement the next operating system for AN/TPN-31 (V)7 Air Traffic Navigation, Integration, and Coordination System (ATNAVICS).</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Ground/Air Task Oriented Radar System (G/ATOR) Block 4</p> <p align="right">Articles:</p> <p>Description: G/ATOR is multi-role, ground-based, expeditionary radar that replaces five legacy radar systems for the Marine Air Ground Task Force. It satisfies the Marine Air Command and Control System and the Ground Counter Fire/ Counter Battery capabilities. The G/ATOR replaces the AN/TPS-63 and complements the AN/TPS-59 long range radar and will provide mobile, multi-functional, three-dimensional surveillance of air breathing targets, detection of cruise missiles and Unmanned Aerial Systems, and the cueing of air defense weapons. The G/ATOR contributes to the extension of Sea Shield/Sea Strike by surveillance and detection of enemy air threats not seen by Navy sensors in the littorals by participating in a cooperative engagement network of sensors and shooters; G/ATOR enables Integrated Fire Control (IFC) and provides engage/fire on remote capability. G/ATOR surveillance coverage with IFC will provide unprecedented reach, volume and precision in the execution of Operational Maneuver From The Sea allowing Naval forces to project and sustain power deep inland.</p> <p>G/ATOR Block 4, scheduled for an Initial Operating Capability in 2QFY19, will add military air traffic control functionality, development of Mode 5/S capability, Federal Aviation Administration flight certification requirements, and the ability to integrate with AN/TPN-31(V) ATNAVICS for Precision Approach Radar. This increment of G/ATOR replaces the Marine Corps' AN/TPS-73 radar and the Airport Surveillance Radar portion of the ATNAVICS also known as Air Surveillance and Precision Approach Radar Control System.</p>	0.000 -	0.795 -	0.050 -	0.000 -	0.050 -

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604504N / <i>Air Control</i>	Project (Number/Name) 0718 / MATCALs

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p><i>FY 2015 Accomplishments:</i> The G/ATOR Program Office has experienced significant delays in completing Blocks 1-3. This has further delayed commencement of Block 4 and, as such, no G/ATOR efforts were accomplished.</p> <p><i>FY 2016 Plans:</i> Begin efforts to achieve Federal Aviation Administration (FAA) flight certification for G/ATOR. Commence Command & Control (C2) and AN/TPN-31(V)7 integration requirements. Continue Mode 5/S development for G/ATOR.</p> <p><i>FY 2017 Base Plans:</i> Complete the hardware/software development to achieve FAA flight certification for G/ATOR. Complete the hardware/software requirements for the integration of AN/TPN-31(V)7 Air Traffic Navigation, Integration, and Coordination System (ATNAVICS) and G/ATOR. Complete the Mode 5/S development for G/ATOR.</p> <p><i>FY 2017 OCO Plans:</i> N/A</p>					
Accomplishments/Planned Programs Subtotals	3.868	1.412	0.314	0.000	0.314

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPN/2815: MATCALs	19.779	10.011	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	294.376
• RDTEN/0204460M: G/ATOR	90.577	65.598	83.538	-	83.538	50.274	10.072	12.510	6.348	Continuing	Continuing
• PMC/4655: RADAR SYSTEMS	0.000	0.000	0.000	-	0.000	0.000	0.000	60.600	70.200	Continuing	Continuing
• OPN/2820: Ashore ATC Equipment/MATCALs	0.000	0.000	2.542	-	2.542	3.143	3.313	5.791	5.909	Continuing	Continuing

Remarks
Ashore ATC Equipment: FY2017-FY2021 reflects MATCALs portion of Ashore ATC Equipment budget.

D. Acquisition Strategy
An Acquisition Decision Memorandum was signed in Jan 2005 approving the procurement of the Army AN/TPN-31 ATNAVICS to fulfill the Air Surveillance and Precision Approach Radar and Control System requirement for July 2006. The MROC Decision Memorandum 11-2005 of December 2004 outlined the evolutionary improvements required by Headquarters Marine Corps. This program has joined with the Army to implement Pre-Planned Product Improvements and evolutionary product improvements. G/ATOR Block IV, scheduled for an Initial Operating Capability in 2019, will add military air traffic control FAA flight certification requirements, and the ability to integrate with AN/TPN-31 ATNAVICS for Precision Approach Radar. The Marine Air Traffic Control (ATC) Working Group identified requirements

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy Date: February 2016

Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
1319 / 5	PE 0604504N / <i>Air Control</i>	0718 / MATCALs

to address obsolescence issues with ATC Expeditionary Towers. These requirements were validated by APX-25 and a Decision Analysis Study was conducted by NAVAIR 4.10. Funding will address development of expeditionary ATC Tower capability improvements via the Engineering Change Proposal process.

E. Performance Metrics

The MATCALs RDTEN funding will be utilized to continue development of evolutionary improvements envisioned by Headquarters Marine Corps for the MATCALs Family of Systems.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604504N / Air Control	Project (Number/Name) 0718 / MATCALs
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary HDW Develop - ASPARCS Mode 5/S	WR	NAWCAD : Patuxent River, MD	0.000	1.230	Dec 2014	0.047	Dec 2015	0.107	Dec 2016	-		0.107	0.000	1.384	-
Primary HDW Develop - ASPARCS	WR	SPAWARSYSCEN : San Diego, CA	0.000	0.453	Dec 2014	0.057	Dec 2015	0.000		-		0.000	0.000	0.510	-
Primary HDW Develop - ASPARCS	C/CPFF	TRANDES : San Diego, CA	0.000	1.783	Jun 2015	0.000		0.000		-		0.000	0.000	1.783	1.783
Subtotal			0.000	3.466		0.104		0.107		-		0.107	0.000	3.677	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Software Development - G/ATOR	WR	NSWC : Dahlgren, VA	0.000	0.000		0.595	Mar 2016	0.025	Jan 2017	-		0.025	Continuing	Continuing	Continuing
Software Development - ASPARCS	WR	NAWCAD : Patuxent River, MD	3.319	0.162	Dec 2014	0.229	Dec 2015	0.107	Dec 2016	-		0.107	Continuing	Continuing	Continuing
Software Development - Mode 5/S Dev - G/ATOR	SS/CPIF	Telephonics : Huntington Station, NY	0.000	0.000		0.000		0.025	Jan 2017	-		0.025	Continuing	Continuing	Continuing
Subtotal			3.319	0.162		0.824		0.157		-		0.157	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support	WR	NAWCAD : Patuxent River, MD	0.240	0.240	Dec 2014	0.284	Dec 2015	0.050	Dec 2016	-		0.050	Continuing	Continuing	Continuing
Program Managemnt Support	WR	G/ATOR : PEO Land Systems	0.000	0.000		0.200	Mar 2016	0.000		-		0.000	0.000	0.200	-
Subtotal			0.240	0.240		0.484		0.050		-		0.050	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy							Date: February 2016				
Appropriation/Budget Activity 1319 / 5			R-1 Program Element (Number/Name) PE 0604504N / <i>Air Control</i>				Project (Number/Name) 0718 / <i>MATCAL</i> S				
	Prior Years	FY 2015	FY 2016		FY 2017 Base	FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	3.559	3.868	1.412		0.314	-		0.314	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy

Date: February 2016

Appropriation/Budget Activity
1319 / 5

R-1 Program Element (Number/Name)
PE 0604504N / Air Control

Project (Number/Name)
0718 / MATCALs

MATCALs	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
Acquisition Milestones																																
System Development																																
Software Development					G/ATOR																											
Hardware Development					ASPARCS Improvement Development																											
Production Milestones																																

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Contract Award
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2017PB - 0604504N - 0718

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604504N / <i>Air Control</i>	Project (Number/Name) 0718 / <i>MATCAL</i> S
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
MATCAL S				
Acquisition Milestones: G/ATOR Block 4	2	2019	2	2019
System Development: Software Development: G/ATOR	1	2016	2	2019
System Development: Hardware Development: ASPARCS Improvements	1	2015	4	2021
Production Milestones: G/ATOR Block 4	2	2017	2	2017

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604504N / Air Control				Project (Number/Name) 0993 / Carrier ATC			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
0993: Carrier ATC	67.590	12.685	40.559	30.254	-	30.254	33.339	28.933	29.114	29.669	Continuing	Continuing
Quantity of RDT&E Articles		-	2	1	-	1	-	-	-	-		

A. Mission Description and Budget Item Justification

Shipboard Air Traffic Control systems, interfacing with versions of the AN/TPX-42A(V) Direct Altitude and Identity Readout (DAIR), allow shipboard Air Traffic Controllers to identify, marshal, and direct aircraft within a 50 Nautical Mile (NM) radius of the ship. In recent years, the top 25 percent of the AN/SPN-43C frequency band has been reallocated to the Fixed Wireless Access Community prohibiting Air Traffic Control (ATC) Air Search Radar (ASR) operation within 50NM of the coast. Because the Navy requires an air traffic control surveillance radar, this project unit will include engineering efforts to identify requirements and develop the AN/SPN-50(V)1 as an AN/SPN-43C replacement system. In addition, bridging Engineering Change Proposals (ECP) will be required to sustain the AN/SPN-43C capability until the AN/SPN-50(V)1 is completely fielded. Finally, the AN/TPX-42A(V) DAIR underwent several phased upgrades that have resulted in a number of field changes/technology refresh/insertion efforts. System improvements include replacing militarized front-end equipment in the track processor with open architecture Commercial Off the Shelf technology, converting the operational program software to more commonly used and flexible "C" language, providing the "hooks" for potential interface with Mode 5 Identification Friend or Foe, and integrating a flat panel monitor into the controller work station. The development of an ATC common console will reduce operational costs, improve reliability, and provide compatible interfaces and commonality for all ATC workstations. The addition of an embedded trainer within AN/TPX-42A(V) will improve controller training and increase flight safety. FY2017 funding provided to order 1 AN/SPN-50(V)1 Engineering Development Model.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: AN/SPN-50	7.487	35.622	25.606	0.000	25.606
Articles:	-	2	1	-	1
Description: This project funds the development of the AN/SPN-43C replacement program (AN/SPN-50), which was previously funded under AN/SPN-43C. This system enables Air Traffic Controllers to assure the safe and expeditious movement of air traffic. This capability is an enabler in maintaining launch/recovery cycle times/sortie rates. #3 CVN NARG, #1 ATC NARG priorities.					
FY 2015 Accomplishments: Released RFP and initiated source selection for AN/SPN-50(V)1 contract award. Achieved Material Development Decision. System Requirements Review closed out. Test and Evaluation Master Plan Signed. System Requirement Document signed.					
FY 2016 Plans: Complete Source Selection for AN/SPN-50, award contract. Order two Pre-CDR configuration Engineering Development Model (EDM) units and conduct Systems Engineering. EDMs will be existing production Commercial Off The Shelf (COTS) units that will not meet all SPN-50 requirements. The EDMs will be used for					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604504N / Air Control	Project (Number/Name) 0993 / Carrier ATC
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
integration and initial DT/environmental testing. PDR & CDR planned in FY16/FY17 will determine modifications required to meet all SPN-50 requirements. FY 2017 Base Plans: Achieve Critical Design Review (CDR). Order one Post-CDR configuration EDM, conduct Systems Engineering and test. FY 2017 OCO Plans: N/A					
Title: AN/SPN-43C <div style="text-align: right;">Articles:</div> Description: This project funds the development of the AN/SPN-43C replacement program and the development of sustainment Engineering Change Proposals (ECP) for the existing system. The sustainment effort will ensure the capabilities provided by the AN/SPN-43C remain available to CVN, LHA and LHD type ships until the replacement system is fielded. FY 2015 Accomplishments: Release RFP and initiate source selection for AN/SPN-50(V)1 contract award. Continue sustainment ECPs for the AN/SPN-43C. FY 2016 Plans: Continue sustainment ECPs for AN/SPN-43C. FY 2017 Base Plans: Continue sustainment ECPs for AN/SPN-43C. FY 2017 OCO Plans: N/A	1.566	1.404	1.263	0.000	1.263
<div style="text-align: right;">Articles:</div> Description: This project funds the ongoing modernization of the AN/TPX-42 system through engineering changes and technology refresh. Specific engineering changes are: Development of a Multi Function Console (MFC) which will consolidate and replace the AN/SPN-46/35 as well as AN/TPX-42 displays with a single multifunction air traffic control display configuration; Replacement of the AN/TPX-42 proprietary Radar Data	-	-	-	-	-
Title: AN/TPX-42 <div style="text-align: right;">Articles:</div> Description: This project funds the ongoing modernization of the AN/TPX-42 system through engineering changes and technology refresh. Specific engineering changes are: Development of a Multi Function Console (MFC) which will consolidate and replace the AN/SPN-46/35 as well as AN/TPX-42 displays with a single multifunction air traffic control display configuration; Replacement of the AN/TPX-42 proprietary Radar Data	3.632	3.533	3.385	0.000	3.385
<div style="text-align: right;">Articles:</div> Description: This project funds the ongoing modernization of the AN/TPX-42 system through engineering changes and technology refresh. Specific engineering changes are: Development of a Multi Function Console (MFC) which will consolidate and replace the AN/SPN-46/35 as well as AN/TPX-42 displays with a single multifunction air traffic control display configuration; Replacement of the AN/TPX-42 proprietary Radar Data	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604504N / Air Control	Project (Number/Name) 0993 / Carrier ATC
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Processor with an open architecture design and replacement of the system's obsolete voice recorder. It is expected that the MFC will lead to a nomenclature change for this system.					
<i>FY 2015 Accomplishments:</i> Continue CATTCC/DAIR Recorder Replacement ECP; continue CATCC/AATCC DAIR Embedded Trainer ECP; Complete Multi-Function Console (MFC) Part 1 Engineering Change Proposal (ECP) and develop the Part 2 ECP.					
<i>FY 2016 Plans:</i> Continue CATTCC/DAIR Recorder Replacement ECP; Complete CATCC/AATCC DAIR Embedded Trainer ECP.					
<i>FY 2017 Base Plans:</i> Complete CATTCC/AATCC DAIR Recorder Replacement ECP; continue sustainment ECPs for AN/TPX-42.					
<i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	12.685	40.559	30.254	0.000	30.254

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPN/2831: <i>Shipboard Air Traffic Control</i>	9.366	9.346	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	218.271
• OPN/2832: <i>Automatic Carrier Landing Systems</i>	21.357	21.281	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	155.476
• OPN/2830: <i>Afloat ATC Equipment</i>	0.000	0.000	33.484	-	33.484	44.403	48.380	48.915	49.776	Continuing	Continuing

Remarks

D. Acquisition Strategy

AN/SPN-46 Computer Group replacement subprojects are part of the AN/SPN-46 Life Cycle Extension project, which is an ECP. Initial contract was awarded in November 2003 for the Radar Control Group, and the contract for the Computer Group was awarded in December 2005. AN/TPX-42 Voice/Video recorder replacement, Joint Precision Approach and Landing System Interface, Shipboard trainer, and Air Traffic Control (ATC) Console are all anticipated ECPs, with improvements being incorporated into the production of AN/TPX-42 upgrade kits. AN/SPN-43 replacement program will be an ACAT IVT program.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy Date: February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604504N / <i>Air Control</i>	Project (Number/Name) 0993 / <i>Carrier ATC</i>
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All other projects are non-ACAT upgrades to existing systems. An evolutionary acquisition approach is being used to introduce these technology advancements that either satisfy user requirements, such as all weather operation, or address supportability and cost of ownership problems.

E. Performance Metrics

Award AN/SPN-50(V)1 post-CDR EDM contract 3QFY17. Attain MS C 2QFY20.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy											Date: February 2016				
Appropriation/Budget Activity 1319 / 5						R-1 Program Element (Number/Name) PE 0604504N / Air Control					Project (Number/Name) 0993 / Carrier ATC				

Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary HDW Develop-TPX-42	WR	NAWCAD : PAX River, MD	4.647	0.400	Dec 2014	0.374	Dec 2015	0.360	Dec 2016	-		0.360	Continuing	Continuing	Continuing
Primary HDW Develop - SPN-43	WR	NAWCAD : PAX River, MD	2.745	0.500	Dec 2014	0.474	Dec 2015	0.470	Dec 2016	-		0.470	Continuing	Continuing	Continuing
Primary HDW Develop - SPN-50(V)1 Pre-CDR Configuration EDM	TBD	TBD : TBD	0.000	0.000		26.770	Mar 2016	0.000		-		0.000	203.230	230.000	230.000
Primary HDW Develop - SPN-50(V)1 Post-CDR Configuration EDM	TBD	TBD : TBD	0.000	0.000		0.000		15.516	May 2017	-		15.516	0.000	15.516	15.516
Prior year Prod Dev no longer funded in the FYDP	Various	Various : Various	17.902	0.000		0.000		0.000		-		0.000	0.000	17.902	-
Subtotal			25.294	0.900		27.618		16.346		-		16.346	-	-	-

Remarks
 FY2016: EDMs will be existing production Commercial Off the Shelf (COTS) units that will not meet all SPN-50 requirements. The EDMs will be used for integration and initial DT/environmental testing. PDR & CDR planned in FY16/FY17 will determine modifications required to meet all SPN-50 requirements.
 FY2017: The SPN-50(V)1 Post-CDR EDM will include required modifications to meet SPN-50 requirements, to include hardware redesign, development, integration and test of Transmit/Receive modules; hardware redesign, development, integration and test of above and below deck hardware, which increases redundancy to extend operational availability from 94% to 98%.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development-TPX-42	WR	NAWCAD : PAX River, MD	14.621	1.400	Dec 2014	1.734	Dec 2015	1.700	Dec 2016	-		1.700	Continuing	Continuing	Continuing
Integrated Logistics Support- TPX-42	WR	NAWCAD : PAX River, MD	1.509	0.110	Dec 2014	0.120	Dec 2015	0.120	Dec 2016	-		0.120	Continuing	Continuing	Continuing
Integrated Logistics Support - SPN-43	WR	NAWCAD : PAX River, MD	0.315	0.306	Dec 2014	0.310	Dec 2015	0.200	Dec 2016	-		0.200	Continuing	Continuing	Continuing
Integrated Logistics Support-SPN-50(V)1	WR	NAWCAD : PAX River, MD	0.305	0.500	Dec 2014	0.700	Dec 2015	0.663	Dec 2016	-		0.663	0.000	2.168	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604504N / Air Control	Project (Number/Name) 0993 / Carrier ATC
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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Studies & Analysis-SPN-50(V)1	WR	NAWCAD : PAX River, MD	0.942	2.500	Dec 2014	0.800	Dec 2015	0.763	Dec 2016	-		0.763	0.000	5.005	-
Software Development - SPN-50(V)1	WR	NAWCAD : PAX River, MD	1.218	2.087	Dec 2014	3.841	Dec 2015	3.797	Dec 2016	-		3.797	0.000	10.943	-
Studies & Analysis-SPN-43	WR	NAWCAD : PAX River, MD	1.929	0.060	Dec 2014	0.020	Dec 2015	0.020	Dec 2016	-		0.020	Continuing	Continuing	Continuing
Studies & Analysis-TPX-42	WR	NAWCAD : PAX River, MD	0.354	0.367	Dec 2014	0.100	Dec 2015	0.100	Dec 2016	-		0.100	Continuing	Continuing	Continuing
Systems Engineering-SPN-50(V)1	WR	NAWCAD : PAX River, MD	1.000	1.900	Dec 2014	2.911	Dec 2015	2.964	Dec 2016	-		2.964	0.000	8.775	-
Prior Year Support no longer funded in the FYDP	Various	Various : Various	13.393	0.000		0.000		0.000		-		0.000	0.000	13.393	-
Subtotal			35.586	9.230		10.536		10.327		-		10.327	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental Test & Evaluation- TPX-42	WR	NAWCAD : PAX River, MD	1.845	0.400	Dec 2014	0.500	Dec 2015	0.400	Dec 2016	-		0.400	Continuing	Continuing	Continuing
Development Test & Evaluation - SPN-43	WR	NAWCAD : PAX River, MD	0.200	0.700	Dec 2014	0.600	Dec 2015	0.573	Dec 2016	-		0.573	0.000	2.073	-
Operational Test & Evaluation-SPN-50(V)1	WR	OPTEVOR : Norfolk, VA	0.000	0.500	Dec 2014	0.600	Dec 2015	1.903	Dec 2016	-		1.903	0.000	3.003	-
Prior year T&E no longer funded in the FYDP	Various	Various : Various	1.707	0.000		0.000		0.000		-		0.000	0.000	1.707	-
Subtotal			3.752	1.600		1.700		2.876		-		2.876	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604504N / <i>Air Control</i>	Project (Number/Name) 0993 / <i>Carrier ATC</i>
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Carrier ATC	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	
Acquisition Milestones																													
Milestones																													
System Development																													
Hardware Development																													
	AN/SPN-43C																												
	AN/SPN43 Qual Des & Bld																												
	AN/TPX-42A(V)																												
Software Development																													
	AN/TPX-42A(V)																												
Reviews																													

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604504N / Air Control	Project (Number/Name) 0993 / Carrier ATC
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Page/Group/Row	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
Test and Evaluation	AN/SPN50(V)1 DT/OT																AN/TPX-42A(V))															
Production Milestones	AN/SPN-43C																AN/SPN-50(V)1 Pre-CDR EDM															
Contract Awards	AN/SPN-50(V)1 Pre-CDR EDM																AN/SPN-50(V)1 Post-CDR EDM															
Deliveries	AN/SPN50(V)1 Pre-CDR Configuration Prototype Del																AN/SPN50(V)1 Post-CDR Configuration Prototype Del															
	AN/TPX-42A(V)																AN/TPX-42A(V)															

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604504N / <i>Air Control</i>	Project (Number/Name) 0993 / <i>Carrier ATC</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Carrier ATC				
Acquisition Milestones: Milestones: Material Development Decision (AN/SPN-50(V)1)	4	2015	4	2015
Acquisition Milestones: Milestones: AN/SPN-50(V)1 Milestone C	2	2020	2	2020
System Development: Hardware Development: AN/SPN-43C	1	2015	4	2021
System Development: Hardware Development: Quality Design and Build (AN/SPN43C)	4	2016	3	2021
System Development: Hardware Development: AN/TPX-42A(V)	1	2015	4	2021
System Development: Software Development: AN/TPX-42A(V)	1	2015	4	2021
System Development: Reviews: Critical Design Review (CDR) (AN/SPN-50(V)1)	3	2017	3	2017
System Development: Reviews: System Requirement Review (SRR) (AN/SPN-50)	2	2015	2	2015
Page/Group/Row				
Test and Evaluation: Developmental Testing/Operational Testing (AN/SPN-50(V)1)	3	2018	4	2019
Test and Evaluation: Developmental Testing (AN/TPX-42A(V))	1	2015	4	2021
Production Milestones: Developmental Testing (AN/SPN-43C)	1	2015	4	2017
Production Milestones: Contract Awards: (AN/SPN-50(V)1) Pre-CDR EDM Contract Award	2	2016	2	2016
Production Milestones: Contract Awards: (AN/SPN-50(V)1) Post-CDR EDM Contract Award	3	2017	3	2017
Deliveries: Pre-CDR Configuration Prototype Delivery (AN/SPN-50(V)1)	2	2017	2	2017
Deliveries: Post-CDR Configuration Prototype Delivery (AN/SPN-50(V)1)	3	2018	3	2018
Deliveries: System Deliveries (TPX-42A(V))	1	2015	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604504N / <i>Air Control</i>				Project (Number/Name) 1657 / <i>ATC Improvement</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
1657: <i>ATC Improvement</i>	2.443	0.604	0.399	0.383	-	0.383	0.406	0.416	0.425	0.434	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This program provides for engineering development, integration, adaptation, and testing of new and/or modernized Air Traffic Control (ATC) systems, air navigational aids, landing systems, and ATC communication systems for Naval and Marine Corps Air Stations (NAS/MCAS) and Fleet ATC Systems. These systems are critical to Naval Aviation and provide for safe, efficient air operations. Additionally, the Federal Aviation Administration (FAA) is affecting major modernization of the National Airspace System (NAS). The Navy must maintain compatibility with FAA-developed ATC systems in order to ensure seamless interoperability within the NAS. NAS modernization initiatives in Project 1657 include the Visual Information Display System (VIDS) and follow-on Pre-Planned Product Improvements, with additional RDT&E efforts required for modified commercial-off-the-shelf ATC systems and equipment for modernization and recapitalization of these systems at our NAS, MCAS & Fleet Area Control & Surveillance Facilities (FACSFACs) worldwide. Landing Systems initiatives include re-engineering and technology insertion efforts for the Precision Approach Radar, Tactical Air Navigation System, and other landing systems.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: NAS MOD VIDS	0.604	0.199	0.191	0.000	0.191
Articles:	-	-	-	-	-
Description: Continue engineering development of pre-planned product improvements for the VIDS and initiate efforts to incorporate VIDS into the FACSFACs. Research display alternatives for Navy ATC systems, and evaluate alternatives for future communication and radar systems.					
FY 2015 Accomplishments: Continue engineering development of Pre-Planned Product Improvements for VIDS to incorporate multiple weather source inputs. Continue Standard Terminal Automation Replacement System and VIDS engineering development for technology insertion. Continue engineering efforts to maintain interoperability with the Federal Aviation Administration's next generation air traffic control system. Complete ATC roadmap development.					
FY 2016 Plans: Continue engineering development of Pre-Planned Product Improvements for VIDS to incorporate multiple weather source inputs. Continue Standard Terminal Automation Replacement System and VIDS engineering development for technology insertion. Continue engineering efforts to maintain interoperability with the FAA next generation air traffic control system.					
FY 2017 Base Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604504N / Air Control	Project (Number/Name) 1657 / ATC Improvement
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Continue engineering development of Pre-Planned Product Improvements for VIDS to incorporate multiple weather source inputs. Continue Standard Terminal Automation Replacement System and VIDS engineering development for technology insertion. Continue engineering efforts to maintain interoperability with the Federal Aviation Administration (FAA) next generation air traffic control system.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Fleet ATC Systems</p> <p align="right">Articles:</p> <p>Description: Research efforts to determine the best technical approach to integrate various data link and communication system upgrades into Navy/Marine Corps ATC Systems including but not limited to the Digital Airport Surveillance Radar into the Fleet Area Control and Surveillance Facilities Fleet Area Control Tracking System (FACTS) 3200 system. Evaluate alternatives for future processor/display, sensor and communication systems.</p> <p>All FY2015 funding was redirected to support ATC Roadmap development under NASMOD VIDS due to program priorities.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: Continue engineering development for NAVSKED/FACTS Technology Refresh and engineering efforts to maintain interoperability with the FAA's next generation air traffic control system.</p> <p>FY 2017 Base Plans: Continue engineering development for NAVSKED/FACTS Technology Refresh and engineering efforts to maintain interoperability with the FAA's next generation air traffic control system.</p> <p>FY 2017 OCO Plans: N/A</p>	0.000	0.200	0.192	0.000	0.192
	-	-	-	-	-
Accomplishments/Planned Programs Subtotals	0.604	0.399	0.383	0.000	0.383

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604504N / Air Control	Project (Number/Name) 1657 / ATC Improvement
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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPN/2840: <i>National Air Space System</i>	26.639	25.621	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	382.785
• OPN/2845: <i>Fleet Air Traffic Control Systems</i>	9.672	8.249	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	211.679
• OPN/2820: <i>Ashore ATC Equipment: NASMOD/Fleet ATC</i>	0.000	0.000	35.498	-	35.498	37.357	37.595	38.219	38.992	Continuing	Continuing

Remarks

Ashore ATC Equipment: FY2017-FY2021 reflects NASMOD and Fleet ATC portions of Ashore ATC budget.

D. Acquisition Strategy

All projects are non-ACAT upgrades to existing systems. An evolutionary acquisition approach is being used to introduce technology advancements that either satisfy emergent requirements or address supportability and cost of ownership problems.

E. Performance Metrics

The Air Traffic Control (ATC) Improvement program goal is to continue to research, evaluate and develop display and other alternatives for Navy ATC, communication and radar systems.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604504N / <i>Air Control</i>	Project (Number/Name) 1657 / <i>ATC Improvement</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary HDW Develop - VIDS	WR	SPAWAR Systems Command : Charleston, SC	1.142	0.425	Dec 2014	0.199	Dec 2015	0.191	Dec 2016	-		0.191	Continuing	Continuing	Continuing
Primary HDW Develop - Fleet ATC	WR	SPAWAR Systems Center : Charleston, SC	0.544	0.000		0.200	Dec 2015	0.192	Dec 2016	-		0.192	Continuing	Continuing	Continuing
Subtotal			1.686	0.425		0.399		0.383		-		0.383	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Systems Engineering	WR	SPAWAR Systems Center : Charleston, SC	0.757	0.179	Mar 2015	0.000		0.000		-		0.000	0.000	0.936	-
Subtotal			0.757	0.179		0.000		0.000		-		0.000	0.000	0.936	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			2.443	0.604	0.399	0.383	-	0.383	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604504N / <i>Air Control</i>	Project (Number/Name) 1657 / <i>ATC Improvement</i>
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ATC Improvement	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
System Development																												
Hardware Development	NAS MOD VIDS																											
	Fleet ATC Systems																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604504N / <i>Air Control</i>	Project (Number/Name) 1657 / <i>ATC Improvement</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>ATC Improvement</i>				
System Development: Hardware Development: NAS MOD VIDS	1	2015	4	2021
System Development: Hardware Development: Fleet ATC Systems	1	2016	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604504N / Air Control				Project (Number/Name) 3372 / ATC Systems			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3372: ATC Systems	0.000	11.512	15.558	16.453	-	16.453	29.959	21.506	21.499	21.946	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Landing System Upgrade Program (LSUP) is essential to maintain the United States Navy's capability to perform safe and expeditious aircraft landings aboard CVN and LHA/D vessels. The Navy's Precision Approach and Landing Capability requirements have necessitated Life Cycle Extension upgrades to legacy landing systems, AN/SPN-35, AN/SPN-41 and AN/SPN-46. The LSUP program will modernize technology that was developed and fielded over 30 years ago. It is estimated that without these upgrades, the Navy will lose its Automatic Carrier Landing System capability within 5 years.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: AN/SPN-46 Blk IV Upgrade	11.512	15.558	13.397	0.000	13.397
Articles:	-	-	-	-	-
Description: The AN/SPN-46 Blk IV program targets aging and obsolete components within the carrier landing systems and replaces them with modernized and sustainable components. Blk IV consists of antenna pedestal upgrades, addresses transmitter obsolescence issues, and replacement of obsolete circuit cards.					
FY 2015 Accomplishments: Begin hardware and software development of the AN/SPN-46 Blk IV upgrade. Award development contract for addressing part/circuit card obsolescence.					
FY 2016 Plans: Continue hardware and software development of the AN/SPN-46 Blk IV upgrade; continue addressing circuit card and other (part) obsolescence issues.					
FY 2017 Base Plans: Perform engineering reviews. Begin testing of the AN/SPN-46 Blk IV upgrade.					
FY 2017 OCO Plans: N/A					
Title: AN/SPN-35 Blk I Upgrade	0.000	0.000	3.056	0.000	3.056
Articles:	-	-	-	-	-
Description: This accomplishment provides for the development, upgrade, redesign, integration, and testing of the AN/SPN-35C Block I upgrade. AN/SPN-35C is the Precision Approach Radar aboard LHA/LHD class					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604504N / <i>Air Control</i>	Project (Number/Name) 3372 / <i>ATC Systems</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
ships and is used for Mode III aircraft recovery which ensures the safe approach and landing of AV-8B and various helicopters during adverse weather & night conditions. The AN/SPN-35C Block I upgrade will include engineering efforts to upgrade, redesign, replace, and support, common failure items, obsolete components, analog systems ensuring the their availability to the fleet and extending the service life of the AN/SPN-35C to 2040.					
<i>FY 2015 Accomplishments:</i> N/A					
<i>FY 2016 Plans:</i> N/A					
<i>FY 2017 Base Plans:</i> The AN/SPN-35C Block I upgrade FY2017 efforts will include the system engineering investigation & analysis, development, upgrade, and redesign of the AN/SPN-35C Pedestal, stabilization, ferrite switch, receiver, and antenna drives.					
<i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	11.512	15.558	16.453	0.000	16.453

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPN/2832: <i>Automatic Carrier Landing System</i>	21.357	21.281	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	155.476
• OPN/2830: <i>Afloat ATC Equipment/ACLS</i>	0.000	0.000	24.999	-	24.999	35.786	39.680	40.260	41.091	Continuing	Continuing

Remarks

Afloat ATC Equipment: FY2017-FY2021 reflects ACLS portion of Afloat ATC Equipment budget.

D. Acquisition Strategy

Landing System Upgrade Program consists of lifecycle extension upgrades to the AN/SPN-35C Precision Approach Radar, AN/SPN-41B Instrument Control Landing Systems and AN/SPN-46 Automatic Carrier Landing Systems which support Air Traffic Control (ATC) operations on board CVN, LHA, and/or LHD-class ships. This effort includes numerous commercial off-the-shelf (COTS) component refresh updates which are urgently needed to sustain the operational viability of these Naval ATC

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy Date: February 2016

Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
1319 / 5	PE 0604504N / <i>Air Control</i>	3372 / <i>ATC Systems</i>

systems supporting fleet air operations for at least the next 15 years until the next generation ATC system is fully implemented. This COTS refresh will include analysis and upgrade of key system components that are critical to overall system operation but have become increasingly difficult to maintain over the past few years. Recent adjustments in the direction and scope of Naval ATC systems have necessitated a re-evaluation of the long-term viability and sustainability of the current Fleet ATC equipment.

The Resources and Requirements Review Board approved the DON Precision Approach and Landing Capability (PALC) Roadmap per Decision Memorandum (DM) Ser: N8B/13U141053 dtd 03 July 2013. This PALC Roadmap re-scoped Joint Precision Approach and Landing System (JPALS) into a single increment and delayed deployment of the JPALS capability to the Fleet. As a result, a requirement to upgrade current SPNs has emerged. Per Enclosure 1 of the above DM, the Landing Systems Upgrade Program will be comprised of the AN/SPN-46, AN/SPN-35C, and AN/SPN-41B and is anticipated that each SPN upgrade will go through separate Material Development Decisions and Milestones.

E. Performance Metrics

Critical Design Review of the AN/SPN-46 Blk IV upgrade.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
1319 / 5				PE 0604504N / Air Control				3372 / ATC Systems							
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development - AN/SPN-46 Blk IV Upgrade	WR	NAWCAD : Patuxent River, MD	0.000	3.467	Jan 2015	6.877	Nov 2015	6.914	Nov 2016	-		6.914	Continuing	Continuing	Continuing
Ancillary Hardware Development - AN/SPN-46 Blk IV Upgrade	C/CPFF	Sierra Nevada Corp (SNC) : Reno, NV	0.000	7.300	Apr 2015	6.958	Dec 2015	5.101	Dec 2016	-		5.101	Continuing	Continuing	Continuing
Primary Hardware Development - AN/SPN-35 Blk I Upgrade	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.000		2.026	Nov 2016	-		2.026	Continuing	Continuing	Continuing
Ancillary Hardware Development - AN/SPN-35 Blk I Upgrade	TBD	TBD : TBD	0.000	0.000		0.000		0.272	Apr 2017	-		0.272	Continuing	Continuing	Continuing
Subtotal			0.000	10.767		13.835		14.313		-		14.313	-	-	-
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics Support (ILS)	WR	NAWCAD : Patuxent River, MD	0.000	0.200	Jan 2015	0.242	Nov 2015	0.495	Nov 2016	-		0.495	Continuing	Continuing	Continuing
Systems Engineering Support	WR	NAWCAD : Patuxent River, MD	0.000	0.145	Jan 2015	0.689	Nov 2015	0.720	Nov 2016	-		0.720	Continuing	Continuing	Continuing
Subtotal			0.000	0.345		0.931		1.215		-		1.215	-	-	-
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
AN/SPN-46 Blk IV Upgrade	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.187	Nov 2015	0.305	Nov 2016	-		0.305	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.187		0.305		-		0.305	-	-	-

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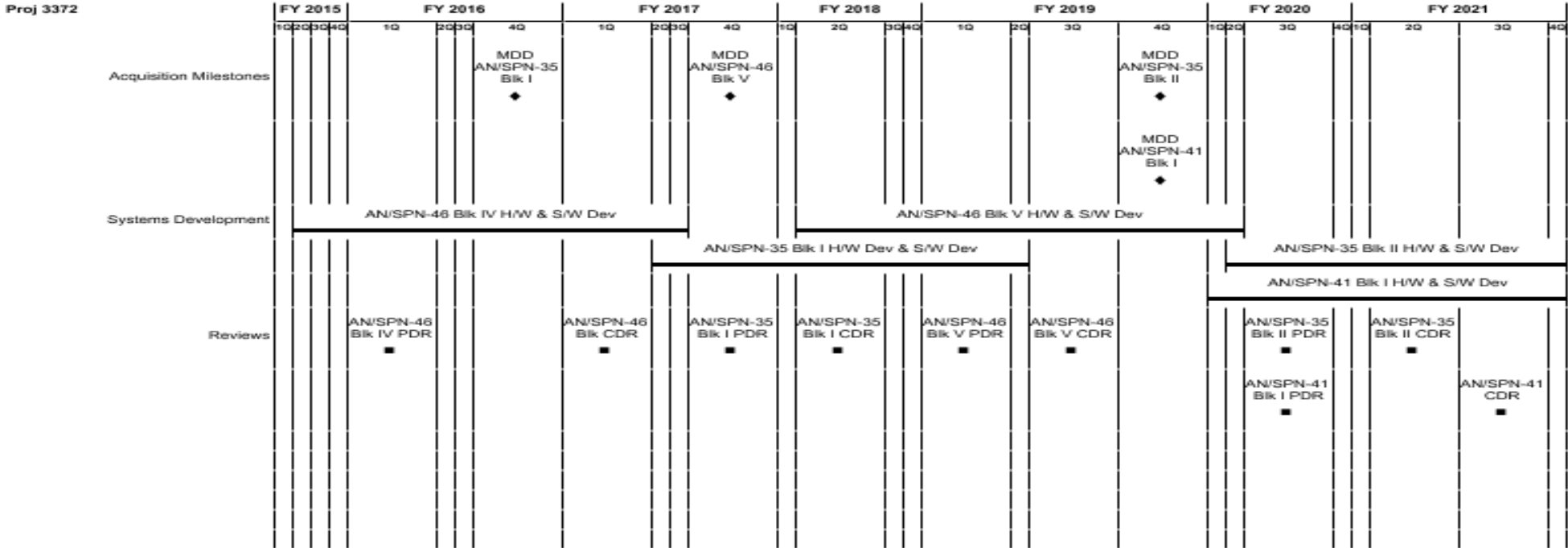
Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy

Date: February 2016

Appropriation/Budget Activity
1319 / 5

R-1 Program Element (Number/Name)
PE 0604504N / Air Control

Project (Number/Name)
3372 / ATC Systems

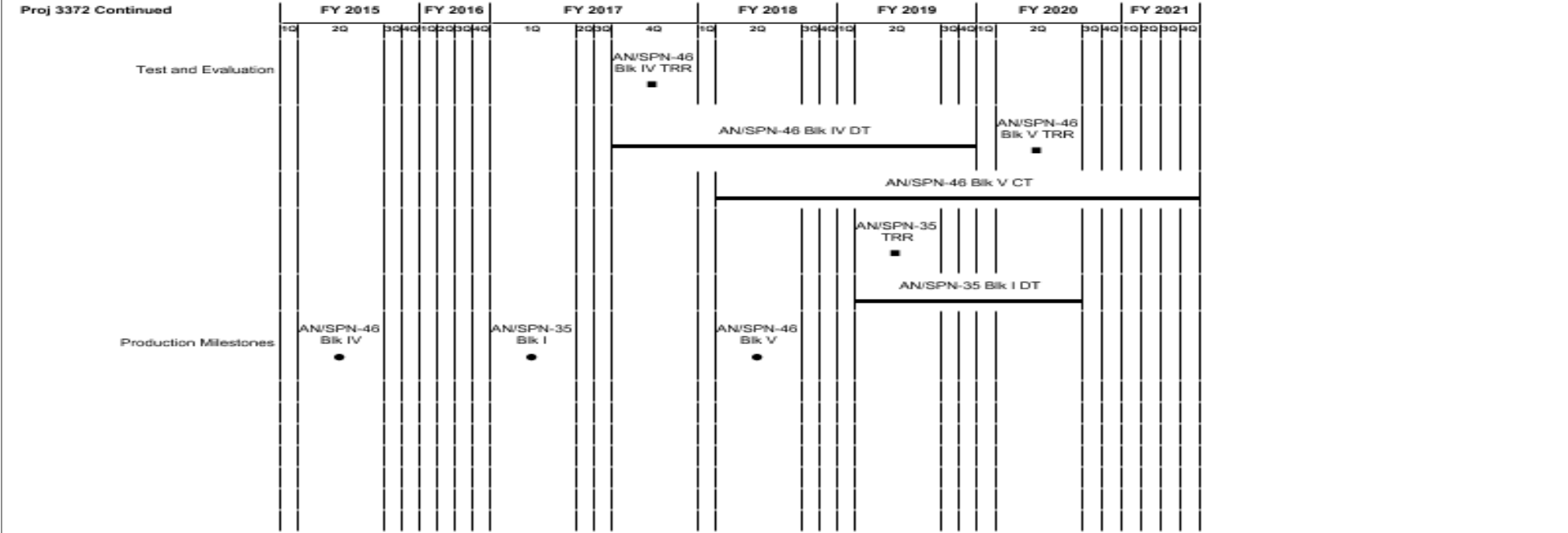


2017DOM - 0604504N - 3372

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604504N / Air Control	Project (Number/Name) 3372 / ATC Systems
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2017DOM - 0604504N - 3372

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604504N / <i>Air Control</i>	Project (Number/Name) 3372 / <i>ATC Systems</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3372				
Acquisition Milestones: MDD AN/SPN-46 Blk V	4	2017	4	2017
Acquisition Milestones: MDD AN/SPN-35 Blk I	4	2016	4	2016
Acquisition Milestones: MDD AN/SPN-35 Blk II	4	2019	4	2019
Acquisition Milestones: MDD AN/SPN-41 Blk I	4	2019	4	2019
Systems Development: AN/SPN-46 Blk IV H/W and S/W Dev	2	2015	3	2017
Systems Development: AN/SPN-46 Blk V H/W and S/W Dev	2	2018	2	2020
Systems Development: AN/SPN-35 Blk I H/W and S/W Dev	2	2017	2	2019
Systems Development: AN/SPN-35 Blk II H/W and S/W Dev	2	2020	4	2021
Systems Development: AN/SPN-41 Blk I H/W and S/W Dev	1	2020	4	2021
Reviews: AN/SPN-46 Blk IV Preliminary Design Review (PDR)	1	2016	1	2016
Reviews: AN/SPN-46 Blk IV Critical Design Review (CDR)	1	2017	1	2017
Reviews: AN/SPN-46 Blk V Preliminary Design Review (PDR)	1	2019	1	2019
Reviews: AN/SPN-46 Blk V Critical Design Review (CDR)	3	2019	3	2019
Reviews: AN/SPN-35 Blk I Preliminary Design Review (PDR)	4	2017	4	2017
Reviews: AN/SPN-35 Blk I Critical Design Review (CDR)	2	2018	2	2018
Reviews: AN/SPN-35 Blk II Preliminary Design Review (PDR)	3	2020	3	2020
Reviews: AN/SPN-35 Blk II Critical Design Review (CDR)	2	2021	2	2021
Reviews: AN/SPN-41 Blk I Preliminary Design Review (PDR)	3	2020	3	2020
Reviews: AN/SPN-41 Blk I Critical Design Review (CDR)	3	2021	3	2021
Proj 3372 Continued				
Test and Evaluation: An/SPN-46 Blk IV Test Readiness Review (TRR)	4	2017	4	2017
Test and Evaluation: AN/SPN-46 Blk IV Development Testing(DT)	4	2017	4	2019

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604504N / <i>Air Control</i>	Project (Number/Name) 3372 / <i>ATC Systems</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Test and Evaluation: AN/SPN-46 Blk V Test Readiness Review (TRR)	2	2020	2	2020
Test and Evaluation: AN/SPN-46 Blk V Development Testing (DT)	2	2018	4	2021
Test and Evaluation: AN/SPN-35 Blk I Test Readiness Review (TRR)	2	2019	2	2019
Test and Evaluation: AN/SPN-35 Blk I Development Testing(DT)	2	2019	2	2020
Production Milestones: Contract Award AN/SPN-46 Blk IV	2	2015	2	2015
Production Milestones: Contract Award AN/SPN-46 BLK V	2	2018	2	2018
Production Milestones: Contract Award AN/SPN-35 Blk I	1	2017	1	2017

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>					R-1 Program Element (Number/Name) PE 0604512N / <i>Shipboard Aviation Systems</i>							
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	541.343	120.062	120.217	112.158	-	112.158	45.880	46.619	31.576	28.097	Continuing	Continuing
2232: <i>CV/CVN Launch and Recover</i>	541.343	120.062	120.217	112.158	-	112.158	45.880	46.619	31.576	28.097	Continuing	Continuing

A. Mission Description and Budget Item Justification

CV Launch & Recovery System - This Navy unique project addresses the System Development and Demonstration (SDD) of all systems required to recover and launch Navy/Marine Corps Aircraft (Fixed/Rotary Wing and Vertical/Short Take Off and Landing) operating aboard aircraft carriers, amphibious assault ships and air capable ships. This program element includes the following:

- (1) Advanced Arresting Gear (AAG)
- (2) Aircraft Launch & Recovery Equipment Modernization
- (3) Aircraft Launch and Recovery Equipment Service Life Management program

This program is funded under SYSTEM DEVELOPMENT AND DEMONSTRATION because it includes those projects that have passed Milestone B approval and are conducting engineering and manufacturing development tasks aimed at meeting validated requirement prior to full-rate production decision.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	122.083	120.217	43.973	-	43.973
Current President's Budget	120.062	120.217	112.158	-	112.158
Total Adjustments	-2.021	0.000	68.185	-	68.185
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-2.021	0.000			
• Program Adjustments	0.000	0.000	67.435	-	67.435
• Rate/Misc Adjustments	0.000	0.000	0.750	-	0.750

Change Summary Explanation

Cost/Funding:

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604512N / <i>Shipboard Aviation Systems</i>	
<p>The FY 2017 funding request was reduced by \$3.416 million to account for the availability of prior years execution balance.</p> <p>Added FY 17 funding for AAG SDD Completion, Integrated Test and Evaluation (IT&E), and AAG interim training. AAG SDD funds were added for SDD completion delays resulting from technical failures. AAG funds for IT&E were added to complete correction of deficiencies. AAG training funds were added to continue training system development including schoolhouse formal courseware and simulators prior to RFT. These funds finance interim training and life-cycle training development and implementation for sailors operating and maintaining these new systems aboard the first in class delivery of CVN 78.</p> <p>SLMP costs were updated to reflect actuals and current planning.</p> <p>AAG Schedule: updated the Runway Arrested Landing Site (RALS) testing to reflect the most current Integrated Master Schedule (IMS). Schedule also updated to include IT&E for AAG and to reflect the shift of Jet Car Test Site (JCTS) Technical Evaluation from 4th quarter FY16 to 2nd quarter FY17.</p> <p>ALRE Modernization schedule: updated to incorporate shock and cyber security requirements to the technical baseline. System Requirements Review (SRR) shift from 3rd quarter FY 2015 to 2nd quarter FY 2016; Preliminary Design Review (PDR) shift from 4th quarter FY 2015 to 4th quarter FY 2016; Critical Design Review (CDR) from 2nd quarter FY 2016 to 1st quarter FY 2017; Test Readiness Review (TRR) shift from 4th quarter FY 2016 to 4th quarter FY 2017; Start of IMOVLAS Integrated Test shift from 1st quarter FY 2017 to 4th quarter FY 2017.</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604512N / <i>Shipboard Aviation Systems</i>				Project (Number/Name) 2232 / <i>CV/CVN Launch and Recover</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2232: <i>CV/CVN Launch and Recover</i>	541.343	120.062	120.217	112.158	-	112.158	45.880	46.619	31.576	28.097	Continuing	Continuing
Quantity of RDT&E Articles	1	-	2	4	-	4	-	-	-	-		

Note

PY article is Jet Car Track Site. FY16 Articles: Due to higher Aircraft Launch & Recovery Equipment (ALRE) program priorities, the test articles were shifted one year to the right. Service Life Management Program (SLMP) test articles refer to actual units (there are two units per ship set).

A. Mission Description and Budget Item Justification

This Navy unique project addresses the System Development and Demonstration (SDD) of all systems required to recover and launch Navy/Marine Corps Aircraft (Fixed/Rotary Wing and Vertical/Short Take-Off and Landing) operating aboard aircraft carriers (CVN), amphibious assault ships and air capable ships. This program includes the following systems under Project 2232, including the funding of production representative models for:

(1) Advanced Arresting Gear (AAG): The AAG program will design, develop, test and field an aircraft arrestment system to replace the legacy Mark 7 arresting gear. AAG systems will be installed on all new construction aircraft carriers. AAG will provide the U.S. Navy with improved operational capability, while reducing operating and support costs. The AAG system will recover all existing and projected carrier based tail hook-equipped air vehicles well into the 21st century. The AAG Program's SDD phase test article consists of a single wire configured aircraft arresting system, which includes associated hardware and software needed to conduct system integrated testing by arresting both dead-loads and aircraft.

(2) Aircraft Launch & Recovery Equipment (ALRE) Modernization: ALRE Modernization encompasses efforts required to ensure continued functional performance, operational relevance, and cybersecurity accreditation for all product lines across the ALRE program. This includes efforts required to resolve emerging obsolescence issues (both hardware and software), implement fleet driven operational capability upgrades, and comply with cybersecurity requirements and computer task order requirements for security threat mitigation. Effort includes:

(a) Improved Manually Operated Visual Landing Aid System (IMOVLAS): IMOVLAS will be the manual backup for Improved Fresnel Lens Optical Landing System (IFLOLS), which is the primary carrier Visual Landing Aid. IMOVLAS will be used in high sea states or if IFLOLS is inoperable, and will mirror current IFLOLS configuration in size & display. Two production representative models will be procured in FY 2016; the models will be utilized for environmental and developmental testing.

(3) Aircraft Launch & Recovery Equipment (ALRE) Service Life Management Program (SLMP): The ALRE SLMP for Launcher and Recovery is required to sustain carrier aviation operations of higher energy aircraft launch and recoveries that are increasing loads on the ALRE systems, and that are affecting availability, maintainability and cost. This program will consist of service life assessment and extension initiatives and will establish the design foundation (structural, reliability, and maintainability analyses), permit appropriate assessment, track and focus design changes where most needed. Four SLMP prototypes will be procured in FY 2017.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604512N / <i>Shipboard Aviation Systems</i>	Project (Number/Name) 2232 / <i>CV/CVN Launch and Recover</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Title: Advanced Arresting Gear (AAG)</p> <p align="right">Articles:</p> <p>Description: The Advanced Arresting Gear (AAG) program is designing, developing, testing and fielding an aircraft arrestment system to replace the legacy Mark 7 arresting gear.</p> <p>FY 2015 Accomplishments: Continued System Development & Demonstration (SDD) Jet Car Track Site (JCTS) performance testing utilizing deadloads. Continued test site preparation, equipment integration and non-aircraft commissioning of the AAG system and software at the Runway Arrested Landing Site (RALS) test facility. Conducted AAG Hardware Environmental Qualification Testing (EQT). Conducted CVN-78 Pre-Commissioning Unit (PCU) training for maintainers and operators who will participate in AAG's shipboard testing. Continued development of AAG logistics products and system documentation.</p> <p>FY 2016 Plans: Continue SDD execution of system integrated performance testing at the JCTS utilizing deadloads. Conduct commissioning and Aircraft Compatibility Testing (ACT) performance testing of the AAG hardware and software at the RALS test facility which results in aircraft recovery bulletins (ARB) for F/A-18 E/F enabling CVN-78 flight deck certification. Continue AAG component EQT and CVN 78 PCU training for maintainers and operators who will participate in AAG shipboard testing. Continue development of AAG logistics products and system documentation.</p> <p>FY 2017 Base Plans: Continue SDD execution of system integrated performance testing at the JCTS, ACT at RALS and continued development of AAG shipboard system/flight deck certification products (recovery bulletins for F/A-18 variants, and E-2/C-2) and logistics products (e.g. technical manuals and PCU courseware). Continue developing formal curriculum for fleet operations and maintenance training and schoolhouse training systems for future Ford class carrier crews. Provide interim training for crews until formal curriculum is completed and approved. Conduct AAG Integrated Test & Evaluation (IT&E) land-based testing using deadloads and aircraft for development of T-45 and barricade ARBs, correction of deficiency testing, EQT, shock, and reliability growth testing to achieve fleet operational requirements and maintain test unit cycles above shipboard cycles.</p> <p>FY 2017 OCO Plans: N/A</p>	107.489	108.011	102.033	0.000	102.033
Articles:	-	-	-	-	-
<p>Title: Aircraft Launch & Recovery Equipment Modernization</p> <p align="right">Articles:</p>	1.381	1.947	1.722	0.000	1.722
Articles:	-	2	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604512N / <i>Shipboard Aviation Systems</i>	Project (Number/Name) 2232 / <i>CV/CVN Launch and Recover</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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<p>Description: Improved Manually Operated Visual Landing Aid System (IMOVLAS) to improve carrier aviation operations.</p> <p>FY 2015 Accomplishments: IMOVLAS - Began the design, development and integration of the program.</p> <p>FY 2016 Plans: IMOVLAS - IMOVLAS - Conduct Systems Requirements Review (SRR), Preliminary Design Review (PDR) and manufacture two production representative models.</p> <p>FY 2017 Base Plans: IMOVLAS - Conduct Critical Design Review (CDR) and Test Readiness Review (TRR).</p> <p>FY 2017 OCO Plans: N/A</p>					
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Title: Aircraft Launch & Recovery Equipment (ALRE) Service Life Management Program (SLMP)	11.192	10.259	8.403	0.000	8.403
Articles:	-	-	4	-	4

<p>Description: ALRE SLMP analyzes launch and recovery equipment to determine feasible fielded equipment improvements.</p> <p>FY 2015 Accomplishments: Continue modeling and analysis of the launch and recovery equipment. Continue design, development and testing of Mark 7 components and subcomponents.</p> <p>FY 2016 Plans: Continue design, development and testing of Mark 7 components and subcomponents.</p> <p>FY 2017 Base Plans: Award Crosshead and Fixed Sheave contracts and procure four Crosshead and Fixed Sheave prototypes. Continue analysis of the launch and recovery equipment.</p> <p>FY 2017 OCO Plans: N/A</p>					
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Accomplishments/Planned Programs Subtotals	120.062	120.217	112.158	0.000	112.158
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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604512N / <i>Shipboard Aviation Systems</i>	Project (Number/Name) 2232 / <i>CV/CVN Launch and Recover</i>
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPN/4213: <i>Aircraft Launch & Recovery Equipment-Aircraft Launch & Recovery Equipment</i>	21.964	83.643	82.179	-	82.179	77.519	78.973	84.111	79.311	Continuing	Continuing
• SCN/2001: <i>Carrier Replacement Program</i>	1,882.425	2,555.689	2,662.567	-	2,662.567	4,361.180	1,650.189	1,734.546	3,095.202	3,375.820	38,153.421

Remarks

OPN 4213 includes portion of line item for funding Aircraft Launch & Recovery Equipment.

D. Acquisition Strategy

Advanced Arresting Gear (AAG): The Navy competitively awarded two Cost Plus Fixed Fee Technical Development phase contracts to develop the AAG system. Upon completion of the Preliminary Design and Integrated Baseline reviews, the Navy awarded a single Cost Plus Award Fee option to General Atomics for the System Development and Demonstration (SDD) phase to develop and demonstrate a production representative AAG at the NAVAIR Lakehurst Jet Car Track Site and Runway Arrested Landing Site. Continuing development on the SDD contract awarded in 2004.

Aircraft Launch & Recovery Equipment Modernization:

Improved Manually Operated Visual Landing Aid System (IMOVLAS): The Navy will develop IMOVLAS using commercial equipment racks, processors and Light Emitting Diodes (LEDs).

Aircraft Launch & Recovery Equipment Service Life Management Program (SLMP): This program will consist of Service Life Assessment and Extension initiatives and will establish the design foundation (structural, reliability and maintainability analyses), permit appropriate assessment, track and focus design changes where most needed.

E. Performance Metrics

Advanced Arresting Gear (AAG) will complete System Development and Demonstration and Integrated testing at Jet Car Track Site and Runway Arrested Landing Site. AAG will demonstrate its key performance parameters and readiness for operational test.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604512N / <i>Shipboard Aviation Systems</i>	Project (Number/Name) 2232 / <i>CV/CVN Launch and Recover</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary HW Dev-AAG	C/CPAF	Gen Atomics : San Diego, CA	378.953	72.568	Dec 2014	77.462	Dec 2015	44.154	Dec 2016	-		44.154	17.589	590.726	590.726
Primary HW Dev-AAG	WR	NAWCAD : Lakehurst, NJ	29.686	6.776	Nov 2014	12.196	Nov 2015	7.566	Nov 2016	-		7.566	Continuing	Continuing	Continuing
System Eng-AAG	WR	NAWCAD : Lakehurst, NJ	19.487	6.265	Nov 2014	2.431	Nov 2015	1.577	Nov 2016	-		1.577	Continuing	Continuing	Continuing
Primary HW/Development - AAG	WR	NAWCAD : Lakehurst, NJ	0.000	0.000		0.000		27.044	Nov 2016	-		27.044	Continuing	Continuing	Continuing
Training Development - AAG	WR	NAWCAD : Orlando, FL	0.000	0.000		0.000		6.000	Nov 2016	-		6.000	Continuing	Continuing	Continuing
Primary HW Dev-Modern IMOVLAS	WR	NAWCAD : Lakehurst, NJ	0.126	0.944	Nov 2014	1.245	Nov 2015	1.148	Nov 2016	-		1.148	Continuing	Continuing	Continuing
System Eng-Modern IMOVLAS	WR	NAWCAD : Lakehurst, NJ	0.049	0.319	Nov 2014	0.146	Nov 2015	0.140	Nov 2016	-		0.140	Continuing	Continuing	Continuing
Primary HW Dev-SLMP	WR	NAWCAD : Lakehurst, NJ	8.076	2.188	Nov 2014	2.546	Nov 2015	3.668	Nov 2016	-		3.668	Continuing	Continuing	Continuing
Prior Year Cost No Longer Funded in FYDP	Various	Various : Various	52.975	0.000		0.000		0.000		-		0.000	0.000	52.975	-
Subtotal			489.352	89.060		96.026		91.297		-		91.297	-	-	-

Remarks

Note: \$1.05M (10.5%) in Award Fees have been paid out of the \$10M Award Fee Pool; the contractor Gen Atomics, San Diego, CA has waived remaining Award Fees.

SLMP costs were updated in FY16 and FY17 to support modeling, analysis, design and development of Mark 7 components.

New Cost Categories added in FY17 and out to support AAG Integrated Test & Evaluation and training development efforts. Cost category "Primary HW/Development - AAG" is a continuation of HW development during the Integrated Test & Evaluation (IT&E) period starting in FY17.

FY14 costs updated for actuals. FY16 costs updated to support the AAG re-baseline that is required for General Atomics Primary Hardware contract to fund critical lien resolution. FY 17 provides funding for System Development and Demonstration (SDD) completion, IT&E and training development.

Primary HW Dev - AAG (General Atomics) - FY 15/FY16 funds realigned for SDD Completion. Delays due to technical failures. System Engineering - FY 15/FY16 AAG costs were realigned to support the extension of SDD and more product development occurring in the near term. Primary HW/Development - AAG at Lakehurst in FY17 provides support for IT&E land based testing, correction of deficiencies (COD), environmental qualification testing (EQT), shock and reliability growth testing. Training development - AAG provides continued training for systems development prior to ready for training and funds for interim training and life cycle training development and implementation.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604512N / <i>Shipboard Aviation Systems</i>	Project (Number/Name) 2232 / <i>CV/CVN Launch and Recover</i>
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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ILS-AAG	WR	NAWCAD : Lakehurst, NJ	12.117	2.596	Nov 2014	2.643	Nov 2015	1.706	Nov 2016	-		1.706	Continuing	Continuing	Continuing
ILS-Modern IMOVLAS	WR	NAWCAD : Lakehurst, NJ	0.010	0.118	Nov 2014	0.150	Nov 2015	0.200	Nov 2016	-		0.200	Continuing	Continuing	Continuing
ILS-SLMP	WR	NAWCAD : Lakehurst, NJ	0.235	0.210	Nov 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Studies & Analysis-SLMP	WR	NAWCAD : Lakehurst, NJ	3.889	3.445	Nov 2014	3.855	Nov 2015	2.140	Nov 2016	-		2.140	Continuing	Continuing	Continuing
Prior Year Cost No Longer Funded in FYDP	Various	Various : Various	1.506	0.000		0.000		0.000		-		0.000	0.000	1.506	-
Subtotal			17.757	6.369		6.648		4.046		-		4.046	-	-	-

Remarks

FY15 costs updated for actuals.

ILS-AAG - FY16 costs updated to support SDD completion delays due to technical failures

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Dev Test & Eval-AAG	WR	NAWCAD : Lakehurst, NJ	25.897	18.488	Nov 2014	12.743	Nov 2015	7.932	Nov 2016	-		7.932	Continuing	Continuing	Continuing
Operational T&E-AAG	WR	Various : Various	1.893	0.495	Dec 2014	0.207	Dec 2015	0.126	Nov 2016	-		0.126	Continuing	Continuing	Continuing
Integrated Test & Evaluation - AAG	WR	NAWCAD : Lakehurst, NJ	0.000	0.000		0.000		5.596	Nov 2016	-		5.596	Continuing	Continuing	Continuing
Integrated Testing-Modern IMOVLAS	WR	NAWCAD : Lakehurst, NJ	0.000	0.000		0.406	Nov 2015	0.234	Nov 2016	-		0.234	Continuing	Continuing	Continuing
Materials/Validation Testing-SLMP	WR	NAWCAD : Lakehurst, NJ	1.194	5.349	Nov 2014	3.858	Nov 2015	2.595	Nov 2016	-		2.595	Continuing	Continuing	Continuing
Prior Year Cost No Longer Funded in FYDP	Various	Various : Various	3.570	0.000		0.000		0.000		-		0.000	0.000	3.570	-
Subtotal			32.554	24.332		17.214		16.483		-		16.483	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604512N / <i>Shipboard Aviation Systems</i>	Project (Number/Name) 2232 / <i>CV/CVN Launch and Recover</i>
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks
 FY15 costs updated for actuals.

 Dev Test & Eval - AAG FY16 costs updated to support SDD completion due to technical failures.
 Materials/Validation Testing - Service Life Management Program FY16 costs were updated to support modeling, analysis design, development and testing of Mark 7 components. A schedule delay with the commissioning of the test site pushed testing further into FY16.

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Prgm Mgmt Supt	C/CPFF	Sierra : California, MD	1.157	0.261	Dec 2014	0.289	Dec 2015	0.295	Dec 2016	-		0.295	0.215	2.217	2.217
Travel	Reqn	NAVAIR : Patuxent River, MD	0.388	0.040	Oct 2014	0.040	Oct 2015	0.037	Oct 2016	-		0.037	Continuing	Continuing	Continuing
Prior Year Cost No Longer Funded in FYDP	Various	Various : Various	0.135	0.000		0.000		0.000		-		0.000	0.000	0.135	0.135
Subtotal			1.680	0.301		0.329		0.332		-		0.332	-	-	-

Remarks
 FY15 costs updated for actuals.

 FY16 costs updated to support contract estimates and actuals.

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	541.343	120.062	120.217	112.158	-	112.158	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604512N / <i>Shipboard Aviation Systems</i>	Project (Number/Name) 2232 / <i>CV/CVN Launch and Recover</i>
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ADVANCED ARRESTING GEAR (AAG)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Aquisition Milestones																												
Milestones																												
Systems Development																												
Hardware Development	SDD																											
Software Development																												
Reviews/Assessments	<div style="display: flex; justify-content: space-between;"> TRR3 ILA </div>																											
Test & Evaluation																												
Technical Evaluation	<div style="display: flex; justify-content: space-between;"> JCTS Test EQT RALS Test Shipboard Test IT&E </div>																											
Operational Evaluation	<div style="display: flex; justify-content: space-around;"> DTR JCTS DTR RALS </div>																											
Production Milestones																												
Deliveries	LRIP																											

2017PB - 0604512N - 2232

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604512N / Shipboard Aviation Systems	Project (Number/Name) 2232 / CV/CVN Launch and Recover
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ALRE MODERNIZATION	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021											
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q								
Systems Development																																				
Hardware/Software Development	SDD IMOVLAS																																			
Reviews					SRR IMOVLAS ■					PDR IMOVLAS ■	CDR IMOVLAS ■					TRR IMOVLAS ■					Obsolescence Redesign															
Test and Evaluation																																				
Technical Evaluation													IT IMOVLAS																							

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604512N / <i>Shipboard Aviation Systems</i>	Project (Number/Name) 2232 / <i>CV/CVN Launch and Recover</i>
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ALRE SERVICE LIFE MANAGEMENT PROGRAM (SLMP)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Systems Development																												
Hardware/Software Development	Eng Analysis																											
	SDD																											
Test & Evaluation																												
Technical Evaluation	Material/Validation Testing																											

2017PB - 0604512N - 2232

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604512N / <i>Shipboard Aviation Systems</i>	Project (Number/Name) 2232 / <i>CV/CVN Launch and Recover</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
ADVANCED ARRESTING GEAR (AAG)				
Aquisition Milestones: Milestones: Milestone C	3	2018	3	2018
Systems Development: Hardware Development: System Design & Development (SDD Phase)	1	2015	4	2017
Systems Development: Reviews/Assessments: Integrated Logistic Assessment (ILA)	4	2017	4	2017
Systems Development: Reviews/Assessments: Technical Readiness Review (TRR3) RALS	1	2016	1	2016
Test & Evaluation: Technical Evaluation: Jet Car Test Site (JCTS) Test	1	2015	2	2017
Test & Evaluation: Technical Evaluation: Environmental Qualification Test (EQT)	1	2015	3	2016
Test & Evaluation: Technical Evaluation: Runway Arrested Landing Site Test (RALS)	2	2015	4	2017
Test & Evaluation: Technical Evaluation: Shipboard Test / OPEVAL	3	2016	1	2019
Test & Evaluation: Technical Evaluation: Integrated Test and Evaluation	1	2017	4	2021
Test & Evaluation: Technical Evaluation: JCTS Development Test Report (DTR)	2	2017	2	2017
Test & Evaluation: Technical Evaluation: RALS Development Test Report (DTR)	1	2018	1	2018
Production Milestones: Deliveries: Low Rate Initial Production (LRIP) OPN	2	2015	2	2015
ALRE MODERNIZATION				
Systems Development: Hardware/Software Development: Design and Development	1	2015	4	2017
Systems Development: Hardware/Software Development: System Requirements Review	2	2016	2	2016
Systems Development: Hardware/Software Development: Obsolescence Redesign Development and Testing	1	2017	4	2021
Systems Development: Reviews: Preliminary Design Review (PDR)	4	2016	4	2016
Systems Development: Reviews: Critical Design Review (CDR)	1	2017	1	2017
Systems Development: Reviews: Test Readiness Review (TRR)	4	2017	4	2017

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604512N / <i>Shipboard Aviation Systems</i>	Project (Number/Name) 2232 / <i>CV/CVN Launch and Recover</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Test and Evaluation: Technical Evaluation: Integrated Test	4	2017	3	2018
<i>ALRE SERVICE LIFE MANAGEMENT PROGRAM (SLMP)</i>				
Systems Development: Hardware/Software Development: Engineering Analysis	1	2015	4	2021
Systems Development: Hardware/Software Development: System Design and Development	1	2015	4	2021
Test & Evaluation: Technical Evaluation: Material and Validation Testing	1	2015	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604518N / <i>Combat Information Center Conv</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	49.280	0.000	0.000	6.283	-	6.283	7.002	3.402	2.104	2.106	Continuing	Continuing
3094: <i>USW Decision Support</i>	49.280	0.000	0.000	6.283	-	6.283	7.002	3.402	2.104	2.106	Continuing	Continuing

A. Mission Description and Budget Item Justification

The objective the Undersea Warfare Decision Support System (USW-DSS) Project is to provide capabilities to shorten Command and Control (C2) decision processes for detection-to-engagement across multiple platforms, including those with low-bandwidth communications or intermittent connectivity. The USW-DSS decision support tool uses a Service-Oriented Architecture (SOA) encompassing existing communication links, networks, and contact pictures comprised of sensor data from air, surface, submarine, theater, and surveillance platforms to connect sensors and weapons. The capabilities delivered by USW-DSS are critical not only for the Sea Combat Commander (SCC), but also for the Theater USW Commander (TUSWC) and Anti-Submarine Warfare Commander (ASWC) to fulfill the requirement for an integrated capability to plan, conduct, and coordinate USW operations across multiple ASW platforms. USW-DSS will provide common and improved visualization, integrated USW platform sensor data sharing, reduced data entry, improved sensor performance predictions, data fusion, and reduced redundancy across USW Tactical Decision Aids (TDA). This Project will provide a greater understanding of the undersea battle space by allowing the entire force (carrier/expeditionary strike group, theater, or other) to have a common and thorough understanding of the battle space with characterized uncertainties.

USW-DSS Build 3 will be hosted on the Consolidated Afloat Networks and Enterprise Services (CANES) architecture, which will be fully SOA enabled. USW-DSS Build 3, in response to Fleet requests, will provide improved and additional functionality and increased stability/reliability while integrating data from a wider spectrum of data sources and platforms such as the P-8 and MH-60R helicopter.

The Navy continues to modernize and add capabilities to existing Programs of Record (PORs) that are significant data sources for USW-DSS. Accordingly, USW-DSS is required to develop upgrades to maintain its current capabilities and to take advantage of the source system improvements. USW-DSS utilizes an incremental build cycle and fielding plan to provide continuous improvement to the warfighter.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604518N / <i>Combat Information Center Conv</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	6.283	-	6.283
Total Adjustments	0.000	0.000	6.283	-	6.283
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	0.000	0.000	6.336	-	6.336
• Rate/Misc Adjustments	0.000	0.000	-0.053	-	-0.053

Change Summary Explanation

Decrease in CIC Conversion by \$.264M was required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

In FY17, the USW-DSS Project is being restored to provide modernization of Program of Record (PoR) ASW and C2 systems. Upgrades are required to improve capability and system interoperability. Without updates, the Common Tactical Picture (CTP) featured in USW-DSS would no longer provide a complete tactical picture. USW-DSS Build 3 will advance the Build 2 Release 3 (B2R3) CTP into a more integrated combat system tool that enables the warfighter to more rapidly and collaboratively engage the enemy thus increasing warfighting capability.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604518N / <i>Combat Information Center Conv</i>				Project (Number/Name) 3094 / <i>USW Decision Support</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3094: <i>USW Decision Support</i>	49.280	0.000	0.000	6.283	-	6.283	7.002	3.402	2.104	2.106	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project 3094 will develop the USW-DSS that will provide ASW C2 capabilities which enable the CNO vision for ASW Superiority using a "coordinated, networked force of submarines, surface ships, aircraft, and Integrated Undersea Surveillance System (IUSS) assets" with "common and unambiguous views that yield operational and tactical situational awareness in the undersea environment." USW-DSS provides capabilities to shorten C2 decision processes for detection-to-engagement across multiple platforms, including those with low-bandwidth communications or intermittent connectivity. The USW-DSS decision support tool uses a SOA encompassing existing communication links, networks, and contact pictures comprised of sensor data from air, surface, submarine, theater, and surveillance platforms to connect sensors and weapons. The capabilities delivered by USW-DSS are critical not only for the SCC but also for the TUSWC and ASWC to fulfill the requirement for an integrated capability to plan, conduct, and coordinate USW operations across multiple ASW platforms. USW-DSS will provide common and improved visualization, integrated USW platform sensor data sharing, reduced data entry, improved sensor performance predictions, data fusion, and reduced redundancy across USW TDAs. The program will provide a greater understanding of the undersea battle space by allowing the entire force (carrier/expeditionary strike group, theater, or other) to have a common and thorough understanding of the battle space with characterized uncertainties

The Navy continues to modernize and add capabilities to existing Programs of Record (POR) that are significant data sources for USW-DSS. These include, but not limited to, the AN/SQQ-89 Surface ASW Combat System, the AN/SQQ-34 Aircraft Carrier Tactical Support Center (CV-TSC) and the Global Command and Control System - Maritime (GCCS-M). Accordingly, USW-DSS is required to develop upgrades to maintain its current capabilities and to take advantage of the source system improvements.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: USW-DSS Capability Improvements	0.000	0.000	6.283	0.000	6.283
Articles:	-	-	-	-	-
Description: Design, develop, integrate, and test additional USW-DSS tools/capabilities into Build 3 including, but not limited to, CTP, Platform Data Fusion Integration, Cross-Platform Data Fusion, Automated Asset Allocation, Asset/Threat State Information, Vulnerability Analysis enhancement, ASW Track Management, Automated Re-planning, Engagement Target Pairing, improved TUSW capabilities, Data-Focused Navy Tactical Cloud Integration, and incorporate visualization/display service.					
FY 2015 Accomplishments:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604518N / <i>Combat Information Center Conv</i>	Project (Number/Name) 3094 / <i>USW Decision Support</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Not Applicable FY 2016 Plans: Not Applicable FY 2017 Base Plans: - Enhance current USW-DSS Build 2 Release 3 capabilities and integrate them into Build 3. - Design, develop, and integrate Theater ASW (TASW) tools into USW-DSS Build 3. - Maintain critical existing data source interfaces with other ASW PORs such as AN/SQQ-89, CV-TSC, and GCCS-M. FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.000	0.000	6.283	0.000	6.283

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPN/2176: <i>USW Support Equipment</i>	3.589	3.867	4.463	-	4.463	6.099	3.346	4.641	4.118	Continuing	Continuing

Remarks

D. Acquisition Strategy

- Hardware/Software development and integration via Navy Warfare Centers and Small Business contractors.

E. Performance Metrics

- Improve capability and system interoperability.
- Advance USW-DSS from Build 2/Release 3 to Build 3.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604518N / <i>Combat Information Center Conv</i>	Project (Number/Name) 3094 / <i>USW Decision Support</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary H/W & S/W Development	WR	NSWC/Carderock : MD	0.000	0.000		0.000		0.800	Nov 2016	-		0.800	Continuing	Continuing	Continuing
Primary H/W & S/W Development	WR	NUWC/Keyport : WA	0.000	0.000		0.000		0.300	Nov 2016	-		0.300	Continuing	Continuing	Continuing
Primary H/W & S/W Development	WR	NUWC/Newport : RI	0.000	0.000		0.000		0.250	Nov 2016	-		0.250	Continuing	Continuing	Continuing
Primary H/W & S/W Development	C/CPFF	Adaptive Methods : VA	0.000	0.000		0.000		2.040	Dec 2016	-		2.040	Continuing	Continuing	Continuing
Primary H/W & S/W Development	C/CPFF	Progeny : VA	0.000	0.000		0.000		1.343	Dec 2016	-		1.343	Continuing	Continuing	Continuing
Total Prior Year Costs	Various	Var : Var	49.280	0.000		0.000		0.000		-		0.000	0.000	49.280	-
Subtotal			49.280	0.000		0.000		4.733		-		4.733	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Integration and Test	C/CPFF	Adaptive Methods : VA	0.000	0.000		0.000		0.250	Dec 2016	-		0.250	Continuing	Continuing	Continuing
Integration and Test	C/CPFF	Progeny : VA	0.000	0.000		0.000		1.000	Dec 2016	-		1.000	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		1.250		-		1.250	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support	C/CPIF	CACI : VA	0.000	0.000		0.000		0.100	Dec 2016	-		0.100	Continuing	Continuing	Continuing
Program Management Support	C/CPIF	CGI Federal : VA	0.000	0.000		0.000		0.200	Dec 2016	-		0.200	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		0.300		-		0.300	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604518N / <i>Combat Information Center Conv</i>	Project (Number/Name) 3094 / <i>USW Decision Support</i>
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Proj 3094	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
USW-DSS Build 3																												
Build 3 Design / Development																												
Build 3 Integration / Test Events																												
USW-DSS Build 4																												
Build 4 Design / Development																												
Build 4 Integration / Test Events																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604518N / <i>Combat Information Center Conv</i>	Project (Number/Name) 3094 / <i>USW Decision Support</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3094				
USW-DSS Build 3: Build 3 Design / Development: Build 3 Design	1	2017	3	2017
USW-DSS Build 3: Build 3 Design / Development: Build 3 Development	3	2017	3	2018
USW-DSS Build 3: Build 3 Integration / Test Events: Build 3 Integration & Test	4	2017	4	2018
USW-DSS Build 3: Build 3 Integration / Test Events: Build 3 Certification Test	1	2019	2	2019
USW-DSS Build 4: Build 4 Design / Development: Build 4 Design	2	2019	4	2019
USW-DSS Build 4: Build 4 Design / Development: Build 4 Development	4	2019	4	2021
USW-DSS Build 4: Build 4 Integration / Test Events: Build 4 Integration & Test	4	2021	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity					R-1 Program Element (Number/Name)							
1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>					PE 0604522N / (U) <i>Air and Missile Defense Radar (AMDR) System</i>							
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	0.000	126.525	232.677	144.395	-	144.395	31.923	172.217	47.050	37.805	Continuing	Continuing
3186: <i>Air and Missile Defense Radar</i>	0.000	126.525	232.677	144.395	-	144.395	31.923	172.217	47.050	37.805	Continuing	Continuing

A. Mission Description and Budget Item Justification

Air and Missile Defense Radar (AMDR): (NOTE: FY14 and prior year funding is in PE 0604501N) The AMDR suite is being developed to fulfill Integrated Air and Missile Defense requirements for multiple ship classes. This suite consists of an S-Band radar (AMDR-S), an X-band radar and a Radar Suite Controller (RSC). Funding will develop AMDR-S and RSC, and integrate these components with an available X band radar. AMDR will provide multi-mission capabilities, simultaneously supporting both long range, exoatmospheric detection, tracking and discrimination of ballistic missiles, as well as Area and Self Defense against air and surface threats. For the Ballistic Missile Defense (BMD) capability, increased radar sensitivity and bandwidth over current radar systems are needed to detect, track and support engagements of advanced ballistic missile threats at the required ranges, concurrent with Area and Self Defense against Air and Surface threats. For the Area Air Defense and Self Defense capability, increased sensitivity and clutter capability is needed to detect, react to, and engage stressing Very Low Observable/Very Low Flyer (VLO/VLF) threats in the presence of heavy land, sea, and rain clutter. This effort provides for the development of an active phased array radar with the required capabilities to address the evolving threat. The AMDR suite will obtain performance and technology enhancements throughout its service life based upon an approach that includes modularity of hardware and software, a scalable design and Open Architecture (OA) compliance.

B. Program Change Summary (\$ in Millions)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	129.706	241.754	151.870	-	151.870
Current President's Budget	126.525	232.677	144.395	-	144.395
Total Adjustments	-3.181	-9.077	-7.475	-	-7.475
• Congressional General Reductions	-	-0.077			
• Congressional Directed Reductions	-	-9.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-3.181	0.000			
• Program Adjustments	0.000	0.000	-6.079	-	-6.079
• Rate/Misc Adjustments	0.000	0.000	-1.396	-	-1.396

Change Summary Explanation

FY17: Decrease in Air and Missile Defense Radar RDTEN by \$6.079M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity
1319: *Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)*

R-1 Program Element (Number/Name)
PE 0604522N / *(U)Air and Missile Defense Radar (AMDR) System*

Note: The funding increase in FY19-FY21 is to support long lead hardware procurement for unmanned self-defense test ship at-sea testing in support of DDG 51 FLT III and AEGIS ACB20 requirements.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604522N / (U)Air and Missile Defense Radar (AMDR) System				Project (Number/Name) 3186 / Air and Missile Defense Radar			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3186: Air and Missile Defense Radar	0.000	126.525	232.677	144.395	-	144.395	31.923	172.217	47.050	37.805	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Air and Missile Defense Radar (AMDR): (NOTE: FY14 and prior year funding is in PE 0604501N) The AMDR suite is being developed to fulfill Integrated Air and Missile Defense requirements for multiple ship classes. This suite consists of an S-Band radar (AMDR-S), an X-band radar and a Radar Suite Controller (RSC). Funding will develop AMDR-S and RSC, and integrate these components with an available X band radar. AMDR will provide multi-mission capabilities, simultaneously supporting both long range, exoatmospheric detection, tracking and discrimination of ballistic missiles, as well as Area and Self Defense against air and surface threats. For the Ballistic Missile Defense (BMD) capability, increased radar sensitivity and bandwidth over current radar systems are needed to detect, track and support engagements of advanced ballistic missile threats at the required ranges, concurrent with Area and Self Defense against Air and Surface threats. For the Area Air Defense and Self Defense capability, increased sensitivity and clutter capability is needed to detect, react to, and engage stressing Very Low Observable/Very Low Flyer (VLO/VLF) threats in the presence of heavy land, sea, and rain clutter. This effort provides for the development of an active phased array radar with the required capabilities to address the evolving threat. The AMDR suite will obtain performance and technology enhancements throughout its service life based upon an approach that includes modularity of hardware and software, a scalable design and Open Architecture (OA) compliance.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: AMDR HARDWARE (RAYTHEON)	16.893	3.864	0.490	0.000	0.490
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					
- Procured Engineering Development Model (EDM) material					
- Initiated procurement of generators for land-based test site to support DT-3 testing					
FY 2016 Plans:					
- Continue procurement of EDM material					
- Complete procurement of generators for land-based test site to support DT-3 testing					
FY 2017 Base Plans:					
- Complete procurement of EDM material					
FY 2017 OCO Plans:					
N/A					
Title: AMDR SOFTWARE (RAYTHEON)	13.782	34.767	8.164	0.000	8.164

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604522N / (U)Air and Missile Defense Radar (AMDR) System	Project (Number/Name) 3186 / Air and Missile Defense Radar

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p align="right"><i>Articles:</i></p> <p>FY 2015 Accomplishments: - Designed, coded, tested, and integrated software builds to support conduct of DT-2</p> <p>FY 2016 Plans: - Design, code, test, and integrate software builds to support conduct of DT-3</p> <p>FY 2017 Base Plans: - Complete design, code, test, and integration to support completion of DT-3</p> <p>FY 2017 OCO Plans: N/A</p>	-	-	-	-	-
<p>Title: AMDR DESIGN, SUPPORT, INTEGRATION, TEST AND EVALUATION (RAYTHEON)</p> <p align="right"><i>Articles:</i></p> <p>FY 2015 Accomplishments: - Supported working groups (WGs) to facilitate successful integration of the radar with the ship and combat system - Conducted Hardware Critical Design Review (CDR) - Conducted System CDR - Conducted Test Readiness Review (TRR) and AMDR-S String testing (DT-2) - Delivered the AMDR-S/RSC simulator</p> <p>FY 2016 Plans: - Support WGs to facilitate successful integration of the radar with the ship and combat system - Deliver the EDM to the Pacific Missile Range Facility (PMRF) - Deliver generators to PMRF - Conduct set up, integration and checkout of the EDM and generators at PMRF - Install and integrate AN/SPQ-9B at PMRF - Conduct DT-3 TRR and begin System Integration tests (DT-3) at PMRF</p> <p>FY 2017 Base Plans: - Continue and complete System Integration tests (DT-3) at PMRF</p>	41.603	83.318	30.130	0.000	30.130

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016			
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604522N / (U)Air and Missile Defense Radar (AMDR) System	Project (Number/Name) 3186 / Air and Missile Defense Radar				
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)						
		FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Conduct System Verification Review/Functional Configuration Audit/Production Readiness Review (SVR/FCA/PRR) FY 2017 OCO Plans: N/A						
Title: DESIGN, SUPPORT, AND INTEGRATION		20.676	20.167	19.362	0.000	19.362
Articles:		-	-	-	-	-
FY 2015 Accomplishments: - Supported Hardware and System CDRs - Supported delivery of the AMDR-S/RSC simulator - Supported contractor TRR and witnessed DT-2 testing						
FY 2016 Plans: - Support delivery of the EDM to PMRF - Support delivery and installation of the SPQ-9B to PMRF - Conduct the DT-3 TRR and support the DT-3 test activities at PMRF						
FY 2017 Base Plans: - Support the SVR/FCA/PRR - Develop documentation in support of Milestone C (MS C) - Support completion of DT-3 test activities at PMRF						
FY 2017 OCO Plans: N/A						
Title: TEST AND EVALUATION OPERATIONS AND ANALYSIS		8.724	17.231	43.130	0.000	43.130
Articles:		-	-	-	-	-
FY 2015 Accomplishments: - Continued test planning in support of test site requirements - Supported contractor TRR and witnessed contractor DT-2 testing						
FY 2016 Plans: - Complete test planning in support of test site requirements - Support the installation of the generators and delivery and integration of the EDM at PMRF						

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy				Date: February 2016	
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604522N / (U)Air and Missile Defense Radar (AMDR) System	Project (Number/Name) 3186 / Air and Missile Defense Radar			
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)					
	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Support DT-3 TRR and begin System Integration tests (DT-3) at PMRF FY 2017 Base Plans: - Increase due to support operations of the Military Sealift Command launch platform and developing documentation in support of MS C. - Continue and complete DT-3 testing FY 2017 OCO Plans: N/A					
Title: TEST AND EVALUATION ASSETS AND FACILITIES Articles:	22.643 -	68.978 -	39.033 -	0.000 -	39.033 -
FY 2015 Accomplishments: - Procured material for simple and complex separating ballistic missile targets and other test assets to support DT-3 test efforts - Maintained PMRF test site facility - Provided engineering services for required modifications to DT-3 targets FY 2016 Plans: - Continue to procure material for simple and complex separating ballistic missile targets and other test assets to support DT-3 test efforts - Maintain PMRF test site facility - Provide engineering services for required modifications to DT-3 targets - Modify Military Sealift Command launch platform to support test events at PMRF FY 2017 Base Plans: - Provide PMRF range services in support of DT-3 test efforts - Provide engineering services in support of DT-3 flight testing FY 2017 OCO Plans: N/A					
Title: PROGRAM MANAGEMENT Articles:	2.204 -	4.352 -	4.086 -	0.000 -	4.086 -
FY 2015 Accomplishments:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604522N / (U)Air and Missile Defense Radar (AMDR) System	Project (Number/Name) 3186 / Air and Missile Defense Radar

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<ul style="list-style-type: none"> - Provided support to Integrated Product Teams (IPTs) and working groups (WGs) required for program execution of the E&MD contract - Analyzed and assessed contractor deliverables - Conducted regular Program Management Reviews - Assisted in cost, schedule and performance management, contract management and oversight, earned value assessment, and risk identification and mitigation - Provided support to the Hardware CDR and System CDR - Provided support to the TRR to facilitate the start of DT-2 testing - Provided support to technical interchange meetings <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Provide support to IPT and WGs required for program execution of the E&MD contract - Support DT-2 and DT-3 test activities - Analyze and assess contractor deliverables - Conduct regular Program Management Reviews - Assist in cost, schedule and performance management, contract management and oversight, earned value assessment, and risk identification and mitigation - Provide support to the TRR to facilitate the start of DT-3 testing - Provide support to technical interchange meetings <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> - Provide support to IPT and WGs required for program execution of the E&MD contract - Analyze and assess contractor deliverables - Conduct regular Program Management Reviews - Assist in cost, schedule and performance management, contract management and oversight, earned value assessment, and risk identification and mitigation - Provide support to the SVR/FCA/PRR - Provide support to technical interchange meetings - Support DT-3 test activities - Support MS C <p>FY 2017 OCO Plans: N/A</p>					
Accomplishments/Planned Programs Subtotals	126.525	232.677	144.395	0.000	144.395

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604522N / (U)Air and Missile Defense Radar (AMDR) System	Project (Number/Name) 3186 / Air and Missile Defense Radar

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>			<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u>	
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	<u>Total Cost</u>
• SCN/2122: DDG 51	2,924.381	4,207.664	3,227.251	-	3,227.251	3,532.909	3,545.913	3,595.403	3,665.113	Continuing	Continuing

Remarks

D. Acquisition Strategy

AMDR: Plans for the Air and Missile Defense Radar are to leverage research and development investments, integrate sufficiently matured advanced technologies from technology risk reduction efforts, and incorporate Open Architecture approaches to develop a scalable radar design with major improvements in power, sensitivity, resistance to natural and man-made environments over current radar systems for simultaneous multi-mission BMD, Area and Self Defense Anti-Air Warfare (AAW). System design will be accomplished by employing proven technologies and commercial standards to lower schedule risk and develop a product with the lowest life-cycle cost.

Program scope consists of the following phases: a Concept Studies phase; a Technology Development phase, which included competitive prototyping; an E&MD phase, which includes completion of a full Engineering Development Model (EDM) for land-based testing; and transition to production. The detailed scope of this acquisition is defined in the approved Milestone B AMDR Acquisition Strategy (AS).

E. Performance Metrics

- Complete Technology Development (TD) phase System Requirements Review, Test Readiness Review, TD Prototype testing, TD System Functional Review, and TD Preliminary Design Review (PDR)
- Achieve Milestone B decision to proceed into E&MD phase
- Award E&MD contract
- Conduct E&MD Phase Integrated Baseline Review
- Conduct Hardware Delta PDR and System Delta PDR
- Conduct Hardware and System CDRs
- Complete Engineering Development Model (EDM) testing
- Achieve Milestone C decision to proceed into production and exercise Low Rate Initial Production (LRIP) options

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604522N / (U)Air and Missile Defense Radar (AMDR) System	Project (Number/Name) 3186 / Air and Missile Defense Radar
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Engineering and Manufacturing Development	C/CPIF	Raytheon : Sudbury, MA	0.000	72.278	Mar 2015	121.949	Oct 2015	38.784	Oct 2016	-		38.784	Continuing	Continuing	Continuing
Subtotal			0.000	72.278		121.949		38.784		-		38.784	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Systems Engineering	MIPR	GTRI : Atlanta, GA	0.000	0.568	Feb 2015	0.360	Feb 2016	0.346	Jan 2017	-		0.346	Continuing	Continuing	Continuing
Systems Engineering	SS/CPFF	JHU/APL : Baltimore, MD	0.000	6.599	Jan 2015	6.113	Feb 2016	5.876	Jan 2017	-		5.876	Continuing	Continuing	Continuing
Systems Engineering	MIPR	MIT : Cambridge, MD	0.000	0.887	Mar 2015	0.841	Feb 2016	0.809	Jan 2017	-		0.809	Continuing	Continuing	Continuing
Systems Engineering	WR	NRL : Washington, DC	0.000	0.943	Feb 2015	1.014	Dec 2015	0.975	Oct 2016	-		0.975	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC/CR : Crane, IN	0.000	1.782	Feb 2015	1.861	Feb 2016	1.789	Oct 2016	-		1.789	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC/DD : Dahlgren, VA	0.000	5.230	Jan 2015	4.084	Feb 2016	3.929	Oct 2016	-		3.929	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC/PHD : Port Hueneme, CA	0.000	1.271	Mar 2015	1.941	Nov 2015	1.866	Oct 2016	-		1.866	Continuing	Continuing	Continuing
Systems Engineering	C/CPIF	SPA (SEAPORT) : Washington, DC	0.000	1.958	Apr 2015	0.000		0.000		-		0.000	0.000	1.958	-
Systems Engineering	MIPR	ARL : Adelphi, MD	0.000	0.382	Feb 2015	0.314	Dec 2015	0.324	Nov 2016	-		0.324	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC/CD : Carderock, MD	0.000	0.289	Jan 2015	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC/Corona : Corona, CA	0.000	0.230	Jan 2015	0.247	Nov 2015	0.237	Oct 2016	-		0.237	Continuing	Continuing	Continuing
Systems Engineering	Allot	DISA : Scott AFB, Illinois	0.000	0.004	Nov 2014	0.003	Oct 2015	0.004	Oct 2016	-		0.004	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604522N / (U)Air and Missile Defense Radar (AMDR) System	Project (Number/Name) 3186 / Air and Missile Defense Radar
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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Systems Engineering	C/CPIF	TBD : TBD	0.000	0.000		0.000		2.529	Jan 2017	-		2.529	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC IH : Indian Head, MD	0.000	0.339	Mar 2015	0.227	Feb 2016	0.219	Jan 2017	-		0.219	Continuing	Continuing	Continuing
Systems Engineering	SS/FFP	Northrop Grumman : Baltimore, MD	0.000	0.000		0.444	Feb 2016	0.459	Jan 2017	-		0.459	Continuing	Continuing	Continuing
Systems Engineering	C/FFP	DRS Power & Control Technologies, Inc. : Milwaukee, WI	0.000	0.194	Aug 2015	0.000		0.000		-		0.000	0.000	0.194	-
Systems Engineering	SS/CPIF	SPA : Washington, DC	0.000	0.000		2.718	Feb 2016	0.000		-		0.000	0.000	2.718	-
Subtotal			0.000	20.676		20.167		19.362		-		19.362	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test and Evaluation	WR	COMOPTEVFOR : Norfolk, VA	0.000	0.249	Apr 2015	0.685	Feb 2016	0.587	Jan 2017	-		0.587	Continuing	Continuing	Continuing
Test and Evaluation	MIPR	GTRI : Atlanta, GA	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Test and Evaluation	SS/CPFF	JHU/APL : Baltimore, MD	0.000	4.901	Jan 2015	5.742	Feb 2016	2.858	Jan 2017	-		2.858	Continuing	Continuing	Continuing
Test and Evaluation	MIPR	MIT : Cambridge, MD	0.000	0.256	Mar 2015	0.402	Feb 2016	1.520	Jan 2017	-		1.520	Continuing	Continuing	Continuing
Test and Evaluation	WR	NAWC WD : Pt. Mugu, CA	0.000	0.788	Dec 2014	2.937	Jan 2016	2.622	Dec 2016	-		2.622	0.000	6.347	-
Test and Evaluation	WR	NRL : Washington, DC	0.000	0.000		1.121	Dec 2015	1.431	Oct 2016	-		1.431	Continuing	Continuing	Continuing
Test and Evaluation	WR	NSWC/DD : Dahlgren, VA	0.000	0.917	Jan 2015	4.716	Jan 2016	5.391	Oct 2016	-		5.391	Continuing	Continuing	Continuing
Test and Evaluation	WR	NSWC/PHD : Port Hueneme, CA	0.000	1.530	Mar 2015	1.967	Nov 2015	10.424	Oct 2016	-		10.424	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

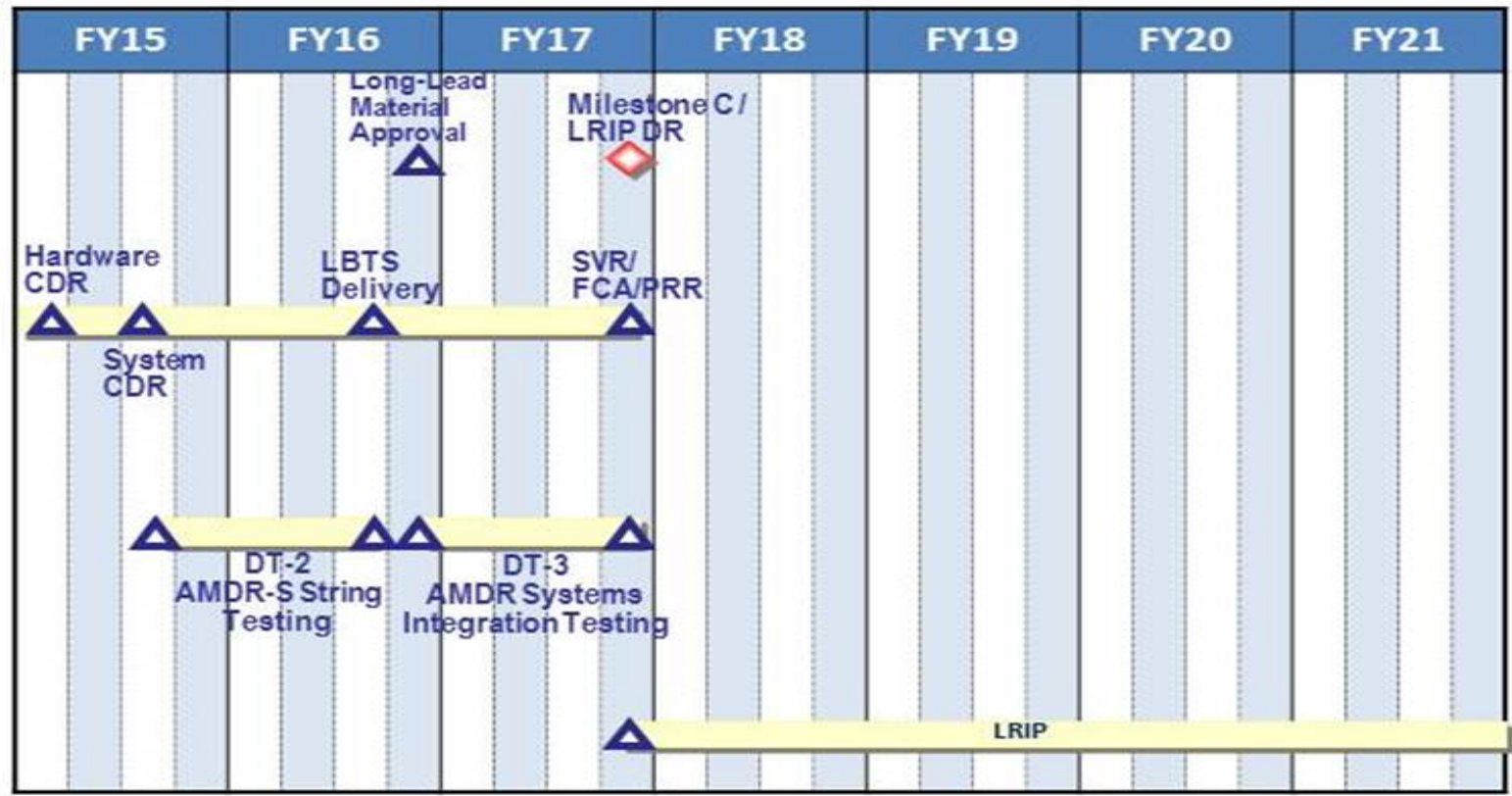
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604522N / (U)Air and Missile Defense Radar (AMDR) System	Project (Number/Name) 3186 / Air and Missile Defense Radar
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation	WR	PMRF : Kekaha, HI	0.000	0.821	Dec 2014	1.640	Feb 2016	18.220	Dec 2016	-		18.220	Continuing	Continuing	Continuing
Test and Evaluation	C/CPIF	SPA (SEAPORT) : Washington, DC	0.000	0.816	Apr 2015	0.000		0.000		-		0.000	0.000	0.816	-
Test and Evaluation	WR	SCSC Wallops : Wallops Island, VA	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Test and Evaluation	WR	SPAWAR : San Diego, CA	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Test and Evaluation	WR	NSWC/PHD WS : Port Hueneme, CA	0.000	17.327	Mar 2015	55.538	Oct 2015	15.516	Oct 2016	-		15.516	Continuing	Continuing	Continuing
Test and Evaluation	C/CPFF	TBD : TBD	0.000	0.000		0.000		1.270	Dec 2016	-		1.270	Continuing	Continuing	Continuing
Test and Evaluation	WR	NSWC Corona : Corona, CA	0.000	3.707	Jan 2015	1.798	Dec 2015	2.675	Oct 2016	-		2.675	Continuing	Continuing	Continuing
Test and Evaluation	WR	Military Sealift Command (MSC) : Washington, DC	0.000	0.000		7.065	Feb 2016	19.121	Jan 2017	-		19.121	Continuing	Continuing	Continuing
Test and Evaluation	WR	CNA-ONR : Arlington, VA	0.000	0.055	May 2015	0.060	Feb 2016	0.060	Jan 2017	-		0.060	Continuing	Continuing	Continuing
Test and Evaluation	C/BA	MDA : Redstone Arsenal, AL	0.000	0.000		0.518	Jan 2016	0.468	Dec 2016	-		0.468	0.000	0.986	-
Test and Evaluation	SS/CPIF	SPA : Washington, DC	0.000	0.000		2.020	Feb 2016	0.000		-		0.000	0.000	2.020	-
Subtotal			0.000	31.367		86.209		82.163		-		82.163	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Support Management Services	C/CPIF	SPA (SEAPORT) : Washington, DC	0.000	1.102	Apr 2015	0.000		0.000		-		0.000	0.000	1.102	-
Travel	Allot	PEOIS2 : Washington, DC	0.000	0.117	Feb 2015	0.115	Feb 2016	0.114	Dec 2016	-		0.114	Continuing	Continuing	Continuing

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604522N / (U)Air and Missile Defense Radar (AMDR) System	Project (Number/Name) 3186 / Air and Missile Defense Radar



2015-07-07 1500

CDR	Critical Design Review	FCA	Functional Configuration Audit	PRR	Production Readiness Review
DR	Decision Review	LBTS	Land Based Test Site	SVR	System Verification Review
DT	Developmental Test	LRIP	Low-Rate Initial Production		

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604522N / (U)Air and Missile Defense Radar (AMDR) System	Project (Number/Name) 3186 / Air and Missile Defense Radar

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3186				
E&MD HW Critical Design Review (CDR)	1	2015	1	2015
E&MD System CDR	3	2015	3	2015
E&MD AMDR-S String Testing (DT-2)	3	2015	3	2016
Engineering Development Model delivered to Land Based Test Site	3	2016	3	2016
LRIP Long Lead Material Approval	4	2016	4	2016
E&MD AMDR System Integration Testing (DT-3)	4	2016	4	2017
System Verification Review/Functional Configuration Audit/Production Readiness Review	4	2017	4	2017
Milestone C/Low Rate Initial Production (LRIP) Decision Review (DR)	4	2017	4	2017
LRIP Production	4	2017	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604558N / <i>New Design SSN</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	2,304.347	85.786	157.056	113.013	-	113.013	150.700	88.337	78.194	88.084	Continuing	Continuing
1947: <i>New Design SSN HM&E</i>	1,448.383	35.533	80.498	83.586	-	83.586	98.206	46.387	39.163	48.248	Continuing	Continuing
1950: <i>New Design SSN Combat Sys Dev</i>	826.236	33.187	31.508	26.977	-	26.977	49.862	39.261	36.286	37.032	Continuing	Continuing
3062: <i>Submarine Multi-Mission Team Trainer</i>	29.728	2.561	7.550	2.450	-	2.450	2.632	2.689	2.745	2.804	Continuing	Continuing
9999: <i>Congressional Adds</i>	0.000	14.505	37.500	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	52.005

Program MDAP/MAIS Code: 516

A. Mission Description and Budget Item Justification

The U.S. Navy must maintain a submarine fleet that is of sufficient capability and numbers to defend American interests. The VIRGINIA Class Submarine, formerly the New Attack Submarine (New SSN), is being designed to fulfill this need. It will counter the potential threats of the next century in a multi-mission capable submarine that has the ability to provide covert, sustained combat presence in denied waters. The primary goal of the program is to develop an affordable yet capable submarine by evaluating a broad range of system and technology alternatives, and pursuing cost reduction, producibility improvement, and technical risk management. This Program Element (PE) provides the technology, prototype components, and systems engineering needed to design and construct the VIRGINIA Class Submarine and build its Command, Control, Communications, and Intelligence (C3I) System. This PE directly supports the following VIRGINIA Class Submarine missions: (1) covert strike warfare; (2) anti-submarine warfare; (3) covert intelligence collection/surveillance, indication and warning, and electronic warfare; (4) anti-surface ship warfare; (5) special warfare; (6) mine warfare; and (7) battle group support.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	87.695	122.556	115.333	-	115.333
Current President's Budget	85.786	157.056	113.013	-	113.013
Total Adjustments	-1.909	34.500	-2.320	-	-2.320
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-3.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	37.500			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.908	0.000			
• Program Adjustments	0.000	0.000	0.001	-	0.001
• Rate/Misc Adjustments	-0.001	0.000	-2.321	-	-2.321

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity
 1319: *Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)*

R-1 Program Element (Number/Name)
 PE 0604558N / *New Design SSN*

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 9999: *Congressional Adds*

Congressional Add: *Small Business Technology Insertion*

Congressional Add: *New Design SSN SBIR (Cong)*

Congressional Add Subtotals for Project: 9999

Congressional Add Totals for all Projects

	FY 2015	FY 2016
	0.000	12.500
	14.505	25.000
	14.505	37.500
	14.505	37.500

Change Summary Explanation

Decrease in New Design SSN RD TEN by \$4.913M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

The FY 2017 funding request was reduced by \$14.332 million to account for the availability of prior years execution balance.

The FY 2017 funding request was increased to support ongoing Acoustic Superiority tasking, specifically the South Dakota Improvement Program.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604558N / <i>New Design SSN</i>				Project (Number/Name) 1947 / <i>New Design SSN HM&E</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
1947: <i>New Design SSN HM&E</i>	1,448.383	35.533	80.498	83.586	-	83.586	98.206	46.387	39.163	48.248	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project encompasses all the ship system development efforts for the VIRGINIA Class Submarine and the Technology Insertion Program for reducing cost and upgrading performance of future hulls by virtue of improvements in ship systems. Technology development implementation and logistics for developmental items, and VIRGINIA Class test & evaluation are included. This project is essential for pursuit of high priority Design For Affordability (DFA) and Reduced Total Ownership Cost (RTOC) initiatives while achieving platform requirements and providing mission capability and flexibility. The thrust of these efforts will be to develop and apply multiple advanced system technologies which are integrated into the design of the VIRGINIA Class Submarine. Technologies developed in this program will be considered for applicability to the Ohio Replacement Program (ORP) for commonality opportunities. New technologies are being transitioned from industry and government research and development programs where doing so offers substantial performance improvement and/or affordability payoffs. Transition opportunities include those from the Defense Advanced Research Projects Agency (DARPA) Sensors & Payloads program and Office of Naval Research (ONR) Future Naval Capabilities Program.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: New Design SSN HM&E	19.130	61.179	79.595	0.000	79.595
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Continued concept development for Acoustic Superiority prototype systems. These included the Large Vertical Array, new hull treatments and machinery changes: Concept development entailed the production and test of several system sub-components that were used to validate performance and functionality. Developed overall system and sub-system performance specifications. Developed a full schedule for design, test and material procurement to support prototype installation on SSN South Dakota (SSN790) during a planned FY18 availability via the South Dakota Insertion Program (SDIP), the resulting efforts support entry into preliminary design and risk reduction efforts of the systems in FY16. Continued development of concepts and technologies for Reduced Total Ownership Cost (RTOC) and integration into VIRGINIA Class technical baseline. Continued to address emergent reliability issues associated with HM&E components. Continued HM&E obsolescence redesign for Block IV and Block V. Continued transition of products from the Office of Naval Research Manufacturing Technology Program (MANTECH). Initiated the transition of products from the Office of Naval Research (ONR) Future Naval Capability (FNC) Program.					
FY 2016 Plans: Complete development of Acoustic Superiority prototype systems. Begin preliminary design of all necessary systems and subsystem components required to support the installation on SSN790. Initiate critical item					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604558N / <i>New Design SSN</i>	Project (Number/Name) 1947 / <i>New Design SSN HM&E</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>qualification testing. Conduct risk reduction efforts and refine prototype designs. Initiate procurement of long lead materials to support production of prototype systems. Initiate planning for full scale testing of improvements during post availability period.</p> <p>Transition development, material qualification, and prototype manufacturing efforts for the Improved Advanced Hybrid (IAH) propulsor for planned full scale demonstration. Continue development of concepts and technologies for Reduced Total Ownership Cost (RTOC) and integration into VIRGINIA Class technical baseline. Continue to address emergent reliability issues associated with HM&E components. Continue HM&E obsolescence redesign for Block IV and Block V. Continue transition of products from the Office of Naval Research Manufacturing Technology Program (MANTECH). Continue the transition of products from the Office of Naval Research (ONR) Future Naval Capability (FNC) Program.</p> <p>FY 2017 Base Plans: Complete preliminary design and risk reduction efforts of Acoustic Superiority prototype systems. Complete qualification testing of all system subcomponents. Complete detailed installation and arrangement drawings for shipboard demonstration. Oversee expanded design/build efforts between shipbuilder and qualified vendors for material design acceptance, fabrication and qualification. Integrate quality control solutions into component design/build process. Begin production of all system components and installation fixtures. Continue planning for full scale testing of improvements during post availability period.</p> <p>Transition development, material qualification, and prototyped development efforts for the Improved Advanced Hybrid (IAH) propulsor for planned full scale demonstration. Continue to address emergent reliability issues associated with HM&E components. Continue HM&E obsolescence redesign for Block IV and Block V. Continue transition of products from the Office of Naval Research Manufacturing Technology Program (MANTECH). Continue the transition of products from the Office of Naval Research (ONR) Future Naval Capability (FNC) Program.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: TEST AND EVALUATION</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: Continue work associated with previous test events (IOT&E, Arctic environment, Low Frequency Active, Dry-Deck Shelter). This consists mainly of documenting and testing fixes to noted deficiencies identified by COTF as well as addressing recommendations from DOT&E.</p>	16.403	19.319	3.991	0.000	3.991
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604558N / <i>New Design SSN</i>	Project (Number/Name) 1947 / <i>New Design SSN HM&E</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Commenced preparations for Block III FOT&E that will begin in FY16. The testing is required by law to demonstrate effectiveness of the affordability enhancements that were included in all Block III submarines which included a major redesign of the submarine bow, thus necessitating an increase in funding from FY15 to FY16. The VIRGINIA Class Mission Areas that will be tested are Strike Warfare, Anti-Submarine Warfare, Anti-Surface Warfare, Intelligence, and Cybersecurity. Modeling and Simulation applications necessary to support Block III FOT&E commenced the necessary Verification, Validation and Accreditation efforts to ensure they can supplement test results as necessary. Additionally, conducted required studies to ensure the planned testing will accomplish all objectives (Live Fire, Tomahawk Flight Safety) as well as pay some upfront costs associated with the test events.</p> <p><i>FY 2016 Plans:</i> Continue work associated with previous test events (IOT&E, Arctic environment, Low Frequency Active, Dry-Deck Shelter). This consists mainly of documenting and testing fixes to noted deficiencies identified by COTF as well as addressing recommendations from DOT&E. Commence Block III FOT&E. The testing is required by law to demonstrate effectiveness of the affordability enhancements that were included in all Block III submarines which included a major redesign of the submarine bow. The VIRGINIA Class Mission Areas that will be tested are Strike Warfare, Anti-Submarine Warfare, Anti-Surface Warfare, Intelligence, and Cybersecurity. Also plan to conduct the second Low Frequency Active test period. Plan to complete Anti-Surface, Intelligence, Cybersecurity Mission Areas, and make final preparations for the TLAM Flight Test scheduled to occur in first quarter FY17. Purchase materials (including Exercise Torpedoes) and secure test ranges to complete Mission Area testing. Prepare for required Strike testing and support Cruise Missile Material Certification. The program must launch two missiles during the test event. The Flight Test will certify Block III submarines to load and shoot Tomahawk Missiles.</p> <p><i>FY 2017 Base Plans:</i> Continue work associated with previous test events (IOT&E, Arctic environment, Low Frequency Active, Dry-Deck Shelter). This consists mainly of documenting and testing fixes to noted deficiencies identified by COTF as well as addressing recommendations from DOT&E. Complete Block III FOT&E. The testing is required by law to demonstrate effectiveness of the affordability enhancements that were included in all Block III submarines which included a major redesign of the submarine bow. The VIRGINIA Class Mission Areas that will be tested are Strike Warfare, Anti-Submarine Warfare, Anti-Surface Warfare, Intelligence, and Cybersecurity. Plan to complete Anti-Submarine Warfare and Strike Mission Areas to include the TLAM Flight Test.</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604558N / <i>New Design SSN</i>	Project (Number/Name) 1947 / <i>New Design SSN HM&E</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Complete all post-test analysis and publish required reports.					
<i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	35.533	80.498	83.586	0.000	83.586

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• SCN/2013: VA CL	5,832.079	5,340.110	4,999.774	-	4,999.774	4,942.085	6,482.887	6,645.646	4,328.526	0.000	93,770.996
• O&M,N/0204283N: <i>Sub Ops & Safety</i>	33.938	31.355	23.828	-	23.828	25.738	27.175	27.731	29.305	Continuing	Continuing
• OPN/0942: VA CL <i>Support Equipment</i>	70.094	35.747	68.812	-	68.812	48.511	71.231	44.390	45.279	Continuing	Continuing
• RDT&E/0604580N: <i>VIRGINIA Payload Module</i>	116.222	167.719	107.234	-	107.234	71.989	0.000	0.000	0.000	0.000	520.446

Remarks

D. Acquisition Strategy

The VIRGINIA Class Submarine Program has implemented Integrated Product and Process Development (IPPD). The traditional distinct phasing of the design process has been replaced with the continuous concurrent engineering IPPD process. The IPPD approach has facilitated a smoother transition from design to manufacturing and has reduced the number of changes typically encountered during construction of the lead and early follow-on ships. In September 1997, Congress passed a law allowing Electric Boat (EB) and Northrop Grumman Newport News (NGNN), now Huntington Ingalls Industries (HII), to team for production of the first four VIRGINIA Class Submarines. Under the teaming agreement, EB remained the design yard for the VIRGINIA Class Submarine and HII became a part of the IPPD process. The Program Office is managing three Multi-Year Procurement (MYP) contracts. The first and second contracts are for the Block II (FY04-08) and Block III (FY09-13) ships. The third contract is for Block IV (FY14-18) ships awarded April 2014. All Block I & II ships (SSNs 774-783) have been delivered. The lead and 2nd ship of Block III ship, SSN 784 and SSN 785, delivered in August 2014 and June 2015 with the remaining 6 ships awarded and under construction. The first three ships of Block IV have begun construction, with the remaining 7 under contract.

E. Performance Metrics

Successful completion of Milestone III Review. Successful completion of Final Operational Test and Evaluation (FOT&E) for Technology Insertion (TI)-08 and Block III. Ships continue to deliver with progressive schedule and quality improvement.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604558N / <i>New Design SSN</i>	Project (Number/Name) 1947 / <i>New Design SSN HM&E</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Component Development	WR	NSWC : Carderock, MD	237.422	3.045	Nov 2014	12.162	Nov 2015	6.000	Nov 2016	-		6.000	Continuing	Continuing	Continuing
Component Development	WR	NUWC : Newport, RI	109.982	1.250	Nov 2014	3.793	Nov 2015	2.840	Nov 2016	-		2.840	Continuing	Continuing	Continuing
Component Development	WR	NRL : Washington, DC	6.668	0.350	Feb 2015	1.282	Nov 2015	0.230	Nov 2016	-		0.230	Continuing	Continuing	Continuing
Component Development	C/CPFF	Electric Boat : Groton, CT	611.101	9.635	Nov 2014	34.223	Nov 2015	21.050	Nov 2016	-		21.050	Continuing	Continuing	Continuing
Component Development	C/CPFF	Electric Boat : Groton, CT	22.964	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Component Development	C/CPFF	Electric Boat : Groton, CT	39.819	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Component Development	PO	SUPSHIP : Groton, CT	66.990	1.200	Jan 2015	2.681	Dec 2015	49.475	Dec 2016	-		49.475	Continuing	Continuing	Continuing
Component Development	SS/CPFF	Lockheed Martin : Not Specified	16.524	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Component Development	SS/CPFF	Lockheed Martin : Not Specified	2.070	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Component Development	SS/CPFF	Applied Research Laboratory : Penn State University	22.571	0.500	Feb 2015	1.117	Dec 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Component Development	SS/FP	National Shipbuilding Research Program : Not Specified	3.445	0.400	Mar 2015	0.894	Mar 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Component Development	Various	Micellaneous : Not Specified	16.674	2.250	Feb 2015	5.027	Dec 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			1,156.230	18.630		61.179		79.595		-		79.595	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SBIR/STTR	TBD	TBD : TBD	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Subtotal			0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604558N / <i>New Design SSN</i>	Project (Number/Name) 1947 / <i>New Design SSN HM&E</i>
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation - DT&E	WR	NSWC : Carderock, MD	92.160	0.488	Nov 2014	0.370	Nov 2015	0.190	Nov 2016	-		0.190	Continuing	Continuing	Continuing
Test and Evaluation - LFT&E	WR	NSWC : Carderock, MD	2.317	0.730	Nov 2014	0.850	Nov 2015	0.850	Nov 2016	-		0.850	Continuing	Continuing	Continuing
Test and Evaluation - DT&E	WR	NSWC : Dahlgren, VA	0.315	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Test and Evaluation - DT&E	WR	NUWC : Newport, RI	117.591	9.161	Nov 2014	10.604	Nov 2015	0.300	Nov 2016	-		0.300	Continuing	Continuing	Continuing
Test and Evaluation - OT&E	PO	COMOPTEVFOR : Norfolk, VA	15.913	0.900	Feb 2015	0.670	Nov 2015	0.690	Nov 2016	-		0.690	Continuing	Continuing	Continuing
Test and Evaluation - LFT&E	C/CPFF	Electric Boat : Groton, CT	1.520	0.225	Feb 2015	0.125	Dec 2015	0.250	Dec 2016	-		0.250	Continuing	Continuing	Continuing
Test and Evaluation - DT&E	C/CPAF	SEAPORT : Rockville, MD	20.987	0.700	Feb 2015	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Test and Evaluation - DT&E	C/CPFF	Progeny : Manassas, VA	6.377	0.999	Feb 2015	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Test and Evaluation - DT&E	Various	Micellaneous : Not Specified	11.932	0.000	Feb 2015	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Test and Evaluation - DT&E	WR	PMA 280 : Pax River, MD	0.000	3.200	Nov 2014	2.538	Dec 2015	0.000		-		0.000	0.000	5.738	-
Test and Evaluation - DT&E	C/CPFF	NUWC : Newport, RI - CORE Team	0.000	0.000		4.162	May 2016	1.711	Dec 2016	-		1.711	0.000	5.873	-
Subtotal			269.112	16.403		19.319		3.991		-		3.991	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	C/CPAF	SEAPORT : Rockville, MD	20.525	0.500	Feb 2015	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Travel	PO	Not Specified : Not Specified	1.919	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy

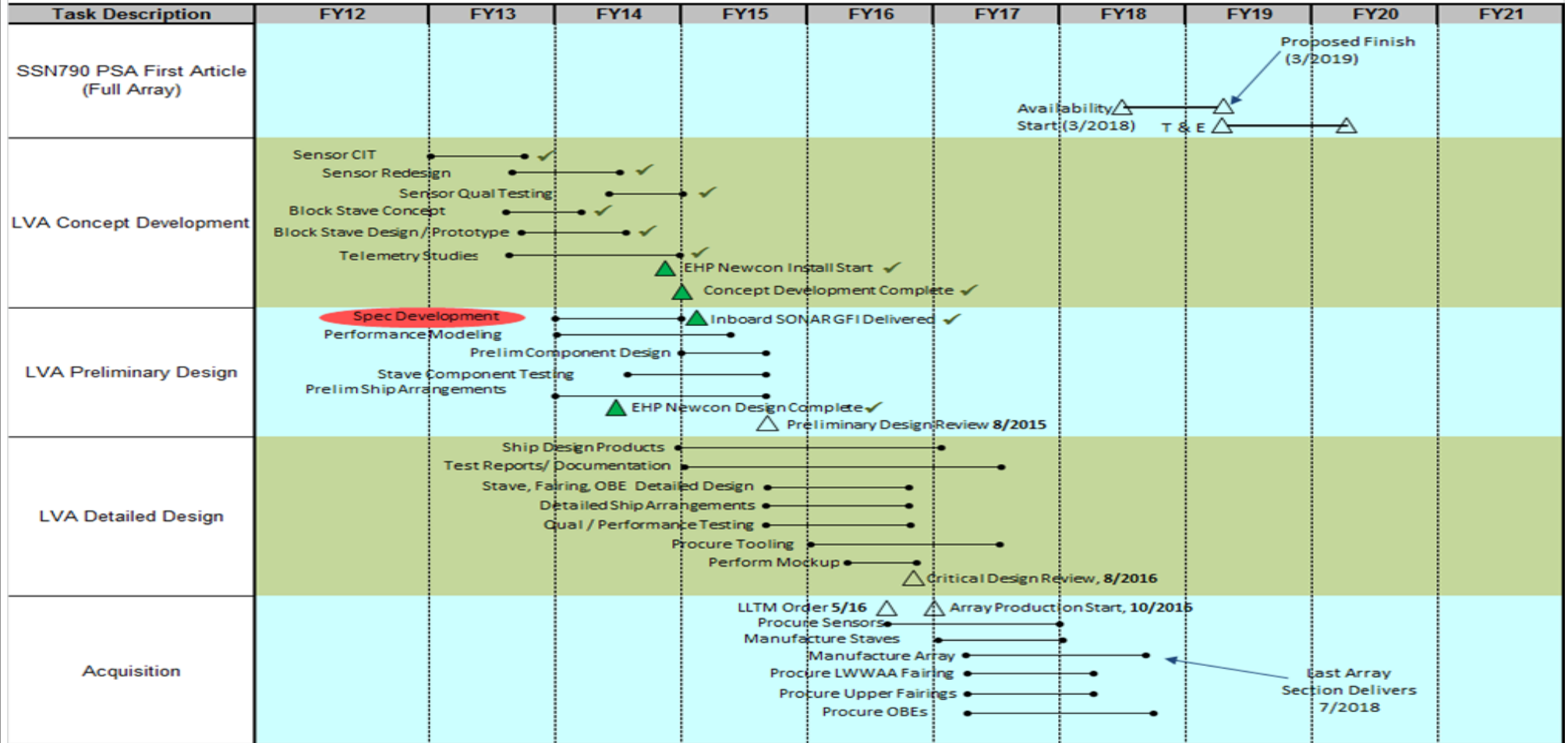
Date: February 2016

Appropriation/Budget Activity
1319 / 5

R-1 Program Element (Number/Name)
PE 0604558N / New Design SSN

Project (Number/Name)
1947 / New Design SSN HM&E

SSN790 LVA High Level Schedule and Milestones



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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604558N / <i>New Design SSN</i>	Project (Number/Name) 1947 / <i>New Design SSN HM&E</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 1947				
Block III FOT&E DT-III C	1	2015	3	2016
Block III FOT&E OT-III C	2	2016	2	2017
Post Shakedown Availability (PSA SSN 784)	4	2015	3	2016
Post Shakedown Availability (PSA SSN 785)	2	2016	4	2016
Post Shakedown Availability (SSN 786)	3	2016	1	2017
LFA Re-Test	4	2016	1	2017
Post Shakedown Availability (PSA SSN 787)	2	2017	3	2017
Post Shakedown Availability (PSA SSN 788)	3	2017	4	2017
Ship Delivery (SSN 790)	4	2017	4	2017
Post Shakedown Availability (PSA SSN 789)	2	2018	3	2018
Post Shakedown Availability with Acoustic Superiority Installation (SSN 790)	2	2018	2	2019
Post Shakedown Availability (PSA SSN 791)	1	2019	2	2019
Post Shakedown Availability (PSA SSN 792)	4	2019	2	2020
Post Shakedown Availability (PSA SSN 793)	1	2020	3	2020
Post Shakedown Availability (PSA SSN 794)	3	2020	1	2021
Post Shakedown Availability (PSA SSN 795)	1	2021	3	2021
Machinery Improvements Design / Modification (SSN 790)	1	2015	3	2018
Treatments Design / Acquisition (SSN 790)	3	2015	2	2018
LVA Preliminary Design Review (SSN 790)	3	2015	3	2015
New Treatment Large Patch Installation (SSN 784)	4	2015	2	2016
Large Vertical Array Detail Design/Acquisition (SSN 790)	1	2016	3	2018
Land / Install Improved Advanced Hybrid (IAH) Aft Assembly (SSN 790)	2	2016	2	2016

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604558N / <i>New Design SSN</i>	Project (Number/Name) 1947 / <i>New Design SSN HM&E</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
LVA Critical Design Review (SSN 790)	3	2016	3	2016
Install IAH Rotor and Tailcone (SSN 790)	1	2017	1	2017

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604558N / <i>New Design SSN</i>				Project (Number/Name) 1950 / <i>New Design SSN Combat Sys Dev</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
1950: <i>New Design SSN Combat Sys Dev</i>	826.236	33.187	31.508	26.977	-	26.977	49.862	39.261	36.286	37.032	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project encompasses the top level systems development, test and integration into the ship of the VIRGINIA Class Submarine C3I System, which includes multiple subsystems. The scope of the system is expanded from Sonar and Combat Control subsystems to include AN/BLQ-10 Electronic Support Measures, Exterior Communications, Submarine Regional Warfare System, Navigation, Total Ship Monitoring, Imaging, Tactical Acoustic Communications, Radar, Interior Communications, Tactical Support Devices, Fiber Optic Cable Subsystem, and Special Purpose Subsystems, such as Battle Force Team Trainer and others. VIRGINIA Class Submarine specific development efforts include requirements definition, software, hardware development, software/hardware test, prototype production, and electronic integration as well as physical integration into the platform.

The VIRGINIA Class Submarine implementation approach is based on Open System, Commercial-off-the-Shelf (COTS) Non-Developmental Items or subsystems. The program leverages on-going subsystems developments or developing new subsystems where needed to satisfy VIRGINIA Class requirements. The recurring cost of VIRGINIA Class Submarine C3I Systems is being reduced to meet the program's affordability goals. Modifications to many subsystems must be developed to: (1) reduce the shipbuilding and construction recurring costs through the use of COTS components; (2) use proven computer technologies to evolve to an Open System design; (3) enhance capabilities to support expanded operational requirements, reduced manning, and reduced shipboard component footprint.

To meet the collective future threat, the submarine force must operate as effectively in littoral regions as it traditionally has in open ocean. Close coordination with surface battle groups and airborne units is essential to mission accomplishment. To meet the VIRGINIA Class Submarine mission, the following capabilities are provided by the

VIRGINIA Class Submarine C3I System: (1) passive and active detection of multiple contacts, including early warning threat determination through processing and analysis of sensor data; (2) classification of sensor data for the purpose of identifying contacts; (3) localization (tracking) of contacts through target motion analysis; (4) preset, launch, and control of weapons and countermeasures; (5) improved communication and connectivity with other battle group elements, airborne units, and special operations forces; (6) incorporation of vertical launch system to enhance strike warfare; and (7) more effective covert surveillance through video imaging with onboard digital enhancement capabilities, and improved electronic warfare analysis capabilities.

The F1950 project mission includes an ongoing post VIRGINIA Class TECH/OPEVAL RDT&E effort to continue the development of VIRGINIA Unique Combat System Improvements. The VIRGINIA Class C3I will continue to leverage backfit communities' efforts, but even with common systems that the Navy has developed there will continue to be VIRGINIA Unique capability improvements required.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604558N / <i>New Design SSN</i>	Project (Number/Name) 1950 / <i>New Design SSN Combat Sys Dev</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Title: C3I Systems Engineering</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: Completed preliminary design of the BPS-xx Radar, and arrangements and ship interfaces for the replacement inertial navigation system targeted for inclusion in the Blk IV contract ship deliveries. Completed specifications and initiated preliminary design of Large Vertical Array outboard electronic bottles and inboard power supply and processing suite sizing estimates for the South Dakota Improvement Program.</p> <p>FY 2016 Plans: Complete critical design of the BPS-xx Radar and initiate qualification testing. Initiate preliminary sub-system design for the replacement inertial navigation system targeted for inclusion in the Blk IV contract ship deliveries. Continue preliminary design of the Large Vertical Array inboard and outboard system for the South Dakota Improvement Program.</p> <p>FY 2017 Base Plans: Conduct testing of the SSN792 BPS-xx Radar system installed at the shipbuilding off-hull and assembly test site. Complete critical sub-system design of the replacement inertial navigation system targeted for inclusion in the Blk IV contract commencing SSN794. Initiate Large Vertical Array inboard electronics (Unit 6500) design, and develop FY18/FY19 plans and contracts to complete Test and Integration, test fixture development, outboard electronics bottle simulator development, upgrade of the data recording server, and maintenance strategy/ILS product development for this equipment.</p> <p>FY 2017 OCO Plans: N/A</p>	12.634	12.594	12.695	0.000	12.695
<p>Title: Sonar Combat Control and Architecture Subsystems</p> <p align="right">Articles:</p> <p>Description: Continued the development of S/CC/A System Improvements to maintain VIRGINIA Class Commonality to backfit fleet.</p> <p>FY 2015 Accomplishments: Continued development and C3I system level integration of the TI14/APB13 configuration slated for the last 4 hulls of the Block III contract (SSN788-791). Initiated the multi-year migration of the interface software from</p>	20.553	18.914	14.282	0.000	14.282

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
CORBA to AMQP to mitigate obsolescence. Initiated environmental qualification testing of the T114 pedigree hardware . FY 2016 Plans: Continue the development and C3I system level integration of the T114/APB13 configuration slated for the last 4 hulls of the Block III contract (SSN788-791). Continue the multi-year migration of the interface software from CORBA to AMQP to mitigate obsolescence. Continue environmental qualification testing of the T114 pedigree hardware. FY 2017 Base Plans: Initiate development and C3I system level integration of the T114/APB15 configuration slated for the first hull of the Block IV contract (SSN792). Continue the multi-year migration of the interface software from CORBA to AMQP to mitigate obsolescence. Complete environmental qualification testing of the T114 pedigree hardware. FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	33.187	31.508	26.977	0.000	26.977

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• SCN/2013: VA CL	5,832.079	5,340.110	4,999.774	-	4,999.774	4,942.085	6,482.887	6,645.646	4,328.526	0.000	93,770.996
• O&M,N/0204283N: <i>Sub Ops & Safety</i>	33.938	31.355	23.828	-	23.828	25.738	27.175	27.731	29.305	Continuing	Continuing
• OPN/0942: VA CL <i>Support Equipment</i>	70.094	35.747	79.412	-	79.412	46.283	71.231	44.390	45.279	Continuing	Continuing
• RDT&E/0604580N: <i>Virginia Payload Module</i>	120.602	167.719	100.234	-	100.234	68.989	0.000	0.000	0.000	0.000	514.826

Remarks

D. Acquisition Strategy

The VIRGINIA Class Submarine Program has implemented Integrated Product and Process Development (IPPD). The traditional distinct phasing of the design process has been replaced with the continuous concurrent engineering IPPD process. The IPPD approach has facilitated a smoother transition from design to manufacturing and has reduced the number of changes typically encountered during construction of the lead and early follow-on ships. In September 1997, Congress passed a law allowing Electric Boat (EB) and Northrop Grumman Newport News (NGNN), now Huntington Ingalls Industries (HII), to team for production of the first four VIRGINIA Class

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy Date: February 2016

Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
1319 / 5	PE 0604558N / <i>New Design SSN</i>	1950 / <i>New Design SSN Combat Sys Dev</i>

Submarines. Under the teaming agreement, EB remained the design yard for the VIRGINIA Class Submarine and HII became a part of the IPPD process. The Program Office is managing three Multi-Year Procurement (MYP) contracts. The first and second contracts are for the Block II (FY04-08) and Block III (FY09-13) ships. The third contract is for Block IV (FY14-18) ships awarded April 2014. All Block I & II ships (SSNs 774-783) have been delivered. The first 2 ships of the Block III contract, SSN784 and SSN785 delivered in August 2014 and June 2015, respectively, and the remaining 6 ships of the Block will deliver at an increased construction rate of 2 ships/year. The first three ships of Block IV have begun construction, with the remaining 7 under contract.

E. Performance Metrics

Successful completion of Milestone III Review. Successful completion of Final Operational Test and Evaluation (FOT&E) for Technology Insertion (TI)-08 and Block III. Successful implementation of Reduced Total Ownership Costs (RTOC) initiatives. Improved state of readiness at delivery as measured by the Board of Inspection and Survey and reported in their findings.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604558N / <i>New Design SSN</i>	Project (Number/Name) 1950 / <i>New Design SSN Combat Sys Dev</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
PTR Corrections	Various	Various : TBD	30.088	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Unique Virginia Class Improvements	Various	Various : TBD	58.308	9.889	Feb 2015	10.057	Nov 2015	9.932	Feb 2017	-		9.932	Continuing	Continuing	Continuing
Advanced Display Sys (AN/UYQ-70)	SS/CPIF	Lockheed Martin : St. Paul, MN	35.410	1.179	Feb 2015	1.200	Nov 2015	0.000	Feb 2017	-		0.000	Continuing	Continuing	Continuing
Photonics	C/CPIF	Kollmorgen : Northampton, MA	57.516	1.753	May 2015	1.782	May 2016	0.650	Jan 2017	-		0.650	Continuing	Continuing	Continuing
Electronic Support Measures	C/FFP	Lockheed Martin : Syracuse, NY	38.067	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Platform Integration	SS/CPFF	Electric Boat : Groton, CT	49.354	1.589	Jan 2015	1.617	Nov 2015	2.450	Nov 2016	-		2.450	Continuing	Continuing	Continuing
Technology Refreshment	Various	Various : TBD	20.355	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Technical Direction Agent	WR	NUWC : Newport, RI	295.884	7.767	Jan 2015	7.900	Jan 2016	7.550	Nov 2016	-		7.550	Continuing	Continuing	Continuing
Technology Refreshment/ Info. Assurance	C/CPFF	Progeny Systems : Manassas, VA	36.407	1.998	Feb 2015	2.030	Nov 2015	0.810	Jan 2017	-		0.810	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC : Carderock, MD	11.962	0.891	Jan 2015	0.906	Nov 2015	0.690	Nov 2016	-		0.690	Continuing	Continuing	Continuing
Systems Engineering	WR	SSC : Charleston, SC	7.618	0.550	Feb 2015	0.559	Nov 2015	0.550	Nov 2016	-		0.550	Continuing	Continuing	Continuing
Systems Engineering	WR	NUWC : Keyport, WA	11.188	0.348	Jan 2015	0.354	Nov 2015	0.895	Nov 2016	-		0.895	Continuing	Continuing	Continuing
Miscellaneous	Various	Various : TBD	137.776	4.383	Feb 2015	2.183	Nov 2015	1.350	Feb 2017	-		1.350	Continuing	Continuing	Continuing
Subtotal			789.933	30.347		28.588		24.877		-		24.877	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Various	Various	Various : TBD	6.212	0.000		0.000		0.000		-		0.000	0.000	6.212	-
Subtotal			6.212	0.000		0.000		0.000		-		0.000	0.000	6.212	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604558N / <i>New Design SSN</i>	Project (Number/Name) 1950 / <i>New Design SSN Combat Sys Dev</i>
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Contractor Support Services/ETS	C/CPAF	URS : Rockville, MD	29.896	2.840	Feb 2015	2.920	Dec 2015	2.100	Dec 2016	-		2.100	Continuing	Continuing	Continuing
DAWDF	Various	Various : Various	0.195	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			30.091	2.840		2.920		2.100		-		2.100	-	-	-

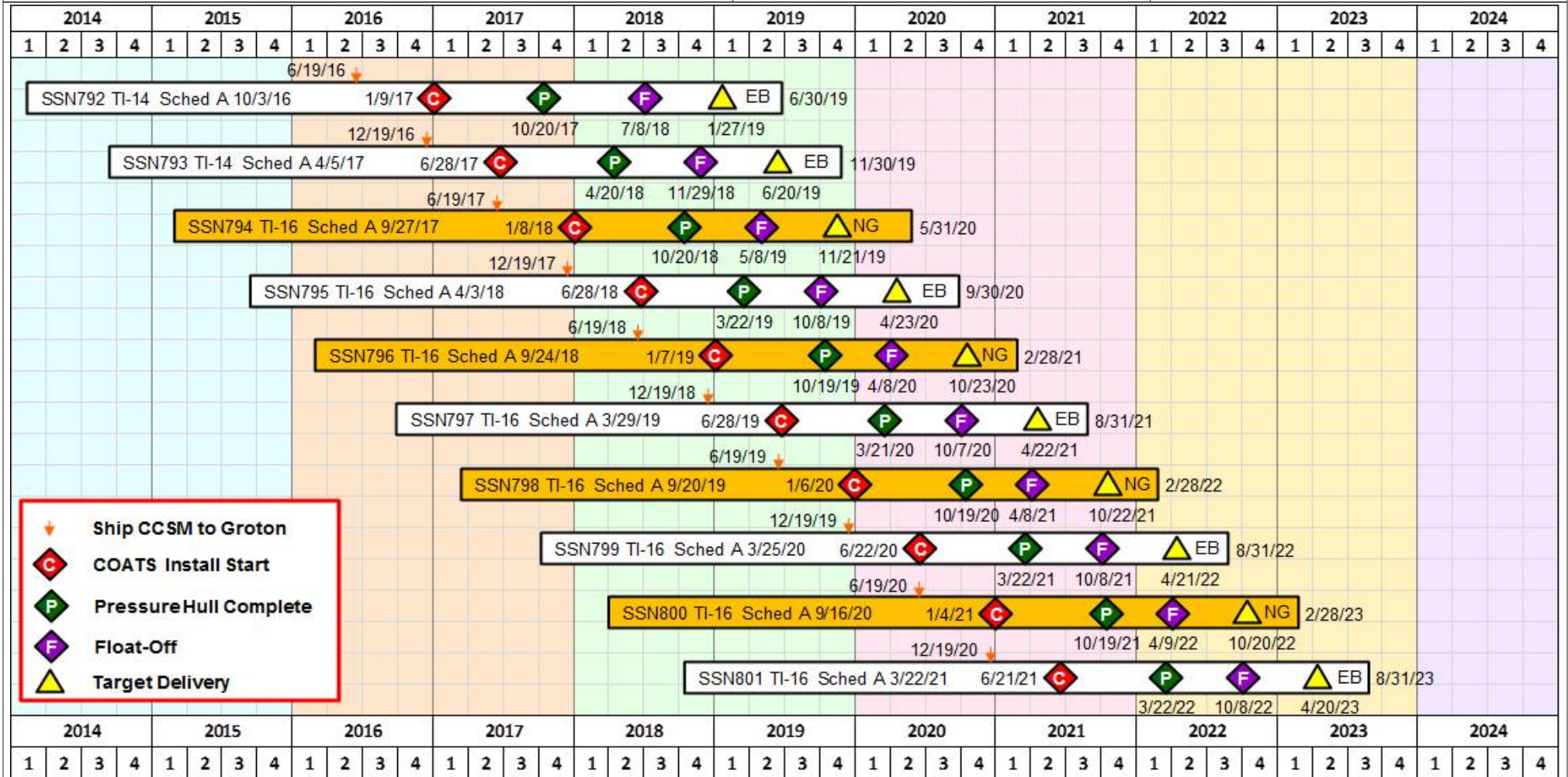
	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
	Project Cost Totals		826.236	33.187	31.508	26.977	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604558N / <i>New Design SSN</i>	Project (Number/Name) 1950 / <i>New Design SSN Combat Sys Dev</i>
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- ↓ Ship CCSM to Groton
- C** COATS Install Start
- P** Pressure Hull Complete
- F** Float-Off
- △** Target Delivery

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604558N / <i>New Design SSN</i>	Project (Number/Name) 1950 / <i>New Design SSN Combat Sys Dev</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Proj 1950</i>				
Pressure Hull Complete SSN (786)	1	2015	1	2015
COATS Install Start (SSN 788)	2	2015	2	2015
Target Delivery (SSN 785)	3	2015	3	2015
COATS Install Start (SSN 789)	4	2015	4	2015
Pressure Hull Complete SSN (787)	4	2015	4	2015
Float-Off (SSN 786)	4	2015	4	2015
Pressure Hull Complete SSN (788)	1	2016	1	2016
COATS Install Start (SSN 790)	2	2016	2	2016
Float-Off (SSN 787)	2	2016	2	2016
Target Delivery (SSN 786)	2	2016	2	2016
COATS Install Start (SSN 791)	3	2016	3	2016
Float-Off (SSN 788)	3	2016	3	2016
Pressure Hull Complete SSN (789)	4	2016	4	2016
Target Delivery (SSN 787)	4	2016	4	2016
Pressure Hull Complete SSN (790)	1	2017	1	2017
Target Delivery (SSN 788)	1	2017	1	2017
COATS Install Start (SSN 792)	2	2017	2	2017
Float-Off (SSN 789)	2	2017	2	2017
COATS Install Start (SSN 793)	3	2017	3	2017
Pressure Hull Complete SSN (791)	3	2017	3	2017
Float-Off (SSN 790)	3	2017	3	2017
Target Delivery (SSN 789)	4	2017	4	2017

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604558N / <i>New Design SSN</i>	Project (Number/Name) 1950 / <i>New Design SSN Combat Sys Dev</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Pressure Hull Complete SSN (792)	1	2018	1	2018
Float-Off (SSN 791)	1	2018	1	2018
Target Delivery (SSN 790)	1	2018	1	2018
COATS Install Start (SSN 794)	2	2018	2	2018
COATS Install Start (SSN 795)	3	2018	3	2018
Pressure Hull Complete SSN (793)	3	2018	3	2018
Target Delivery (SSN 791)	3	2018	3	2018
Float-Off (SSN 792)	4	2018	4	2018
Pressure Hull Complete SSN (794)	1	2019	1	2019
Float-Off (SSN 793)	1	2019	1	2019
COATS Install Start (SSN 796)	2	2019	2	2019
Pressure Hull Complete SSN (795)	2	2019	2	2019
Target Delivery (SSN 792)	2	2019	2	2019
COATS Install Start (SSN 797)	3	2019	3	2019
Float-Off (SSN 794)	3	2019	3	2019
Target Delivery (SSN 793)	3	2019	3	2019
Pressure Hull Complete SSN (796)	1	2020	1	2020
Float-Off (SSN 795)	1	2020	1	2020
Target Delivery (SSN 794)	1	2020	1	2020
COATS Install Start (SSN 798)	2	2020	2	2020
Pressure Hull Complete SSN (797)	2	2020	2	2020
COATS Install Start (SSN 799)	3	2020	3	2020
Float-Off (SSN 796)	3	2020	3	2020
Target Delivery (SSN 795)	3	2020	3	2020
Pressure Hull Complete SSN (798)	1	2021	1	2021
Float-Off (SSN 797)	1	2021	1	2021

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604558N / <i>New Design SSN</i>	Project (Number/Name) 1950 / <i>New Design SSN Combat Sys Dev</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Target Delivery (SSN 796)	1	2021	1	2021
COATS Install Start (SSN 800)	2	2021	2	2021
Pressure Hull Complete SSN (799)	2	2021	2	2021
COATS Install Start (SSN 801)	3	2021	3	2021
Float-Off (SSN 798)	3	2021	3	2021
Target Delivery (SSN 797)	3	2021	3	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604558N / <i>New Design SSN</i>				Project (Number/Name) 3062 / <i>Submarine Multi-Mission Team Trainer</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3062: <i>Submarine Multi-Mission Team Trainer</i>	29.728	2.561	7.550	2.450	-	2.450	2.632	2.689	2.745	2.804	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

To achieve desired submarine force readiness levels, it is necessary to construct highly sophisticated shore based Combat System Team Trainers capable of training personnel in all aspects of submarine approach, attack and surveillance operations in a controlled, simulated environment. The Combat Control System (CCS) MK1, CCS MK2, and AN/BYG-1, along with sonar systems AN/BSY-1, AN/BQQ-5, and AN/BQQ-10 are installed on SSN and SSGN class submarines. These tactical systems are planned for future upgrades with the next hardware and software revisions which will provide enhanced War Fighter capabilities. The Tactical Acoustic Rapid COTS (commercial-off-the-shelf) Insertion (ARCI) phased upgrades are also being installed with future revisions. The Advanced Processing Builds (APB) and Technical Insertion (TI) sensors, which feed technology insertion into the CCS/Acoustic development, directly impact the trainers.

The Submarine Multi-Mission Team Trainer (SMMTT) supports operator, employment, strike, and Battle Group training for enlisted and officer pipelines. The SMMTT provides operators and combat teams the opportunity to train ashore, prior to, and between deployments. The shore based training provides a means of maintaining team proficiency in stand alone or in combined team mode prior to ship deployment.

FY-16 RDTE,N Line 3062 was increased in support of SSBN Modernization. This funding will be used for the development, test and evaluation of new sensors and stimulation/simulation hardware and software required to integrate with tactical systems to build new SSBN Attack Centers.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Submarine Multi-Mission Team Trainer	2.561	7.550	2.450	0.000	2.450
Articles:	-	-	-	-	-
Description: To achieve desired submarine force readiness levels, it is necessary to construct highly sophisticated shore based Combat System Team Trainers capable of training personnel in all aspects of submarine approach, attack and surveillance operations in a controlled, simulated environment.					
FY 2015 Accomplishments: Developed implementation of latest Advanced Processor Build (APB), Technical Insertion (TI) and associated training displays. These efforts included new sensor developments and simulations to match advancements in					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604558N / <i>New Design SSN</i>	Project (Number/Name) 3062 / <i>Submarine Multi-Mission Team Trainer</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
tactical systems supported by SMMTT. These efforts integrated the APB into the SMMTT baseline along with completing and integrating the LCCA sensor.					
<i>FY 2016 Plans:</i> Develop implementation of latest Advanced Processor Build (APB), Technical Insertion (TI) and associated training displays. These efforts include new sensor developments and simulations to match advancements in tactical systems supported by SMMTT. These efforts will also integrate the APB into the SMMTT baseline along with completing and integrating the LCCA sensor. In addition, the 3062 RDTE,N line was increased in support of SSBN Modernization. This funding will be used for the development, test and evaluation of new sensors and stimulation/simulation hardware and software required to integrate with tactical systems to build new SSBN Attack Centers.					
<i>FY 2017 Base Plans:</i> Develop implementation of latest Advanced Processor Build (APB), Technical Insertion (TI) and associated training displays. These efforts include new sensor developments and simulations to match advancements in tactical systems supported by SMMTT. These efforts will also integrate the APB into the SMMTT baseline along with completing and integrating the LCCA sensor.					
<i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	2.561	7.550	2.450	0.000	2.450

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• OPN/5661/Attack Cent: <i>Submarine Training Device Mods</i>	0.000	0.000	13.663	-	13.663	11.722	21.153	22.750	23.524	Continuing	Continuing

Remarks

D. Acquisition Strategy

The SMMTT program software development is accounted for in this RDTE,N line. All production kits are procured in OPN PE 0804731N BLI 566100 and 566200, cost code TD009.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604558N / <i>New Design SSN</i>	Project (Number/Name) 3062 / <i>Submarine Multi-Mission Team Trainer</i>

E. Performance Metrics

Within 90 days of introduction to the Fleet, this RDTE,N project shall develop required changes to the Control and Display Documentation and Interface Description Language (IDL) Interfaces for the initial development for new sensors that are required to simulate/stimulate the TI/APB for the AN/BQQ-5 and AN/BYG-1 in the SMMTT Trainer.

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604558N / <i>New Design SSN</i>	Project (Number/Name) 3062 / <i>Submarine Multi-Mission Team Trainer</i>
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Fiscal Year	2015				2016				2017				2018				2019				2020				2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD	BE	BF
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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3062				
Interface design updates: Interface Design Updates	1	2015	4	2021
Software Development Updates: Software Development Updates (SIM/STIM)	1	2015	4	2021
Software Builds: Software Builds	1	2015	4	2021
Advanced Processing Build(APB) Upgrades: Advanced Processing Build (APB) Upgrades	1	2015	4	2021
Hard Ware Tech Insertion Updates: Hard Ware Tech Insertion Updates	1	2015	4	2021
Beam Simulation for Sonar Trainers: Beam Simulation for Sonar Trainers	2	2015	4	2015
Beam Simulation for Sonar Trainers BSST EDM Updates: Beam Simulation for Sonar Trainers BSST EDM	2	2015	4	2015
SSGN 726 Development: SSSGN Development	1	2019	1	2020
SSGN 726 Build: SSGN 726 Build	4	2019	3	2020
SSBN Software Development: SSBN Software Development	1	2016	1	2017
SSBN Software Testing: SSBN Software Testing	3	2016	3	2017
SSBN EOM Delivery: EOM Delivery	1	2016	1	2017

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604558N / <i>New Design SSN</i>				Project (Number/Name) 9999 / <i>Congressional Adds</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
9999: <i>Congressional Adds</i>	0.000	14.505	37.500	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	52.005
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This FY 15 RDT&E Congressional add for small business technology insertion will be applied to existing small business contracts to continue VA Class combat systems development in the areas of sonar, electronic warfare, weapons systems launch, information assurance and advanced submarine control systems.

The FY16 RDT&E Congressional add for small business technology insertion will be applied to existing small business contracts to continue VA Class combat systems development in the areas of sonar, electronic warfare, weapons systems launch, information assurance and advanced submarine control systems.

The FY16 RDT&E Congressional add for New Design SSN SBIR (Cong) is for VA Class submarine hydro-dynamic enhancements.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016
Congressional Add: Small Business Technology Insertion	0.000	12.500
FY 2015 Accomplishments: N/A		
FY 2016 Plans: N/A		
Congressional Add: New Design SSN SBIR (Cong)	14.505	25.000
FY 2015 Accomplishments: N/A		
FY 2016 Plans: N/A		
Congressional Adds Subtotals	14.505	37.500

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Successful completion of Milestone III Review. Successful completion of Final Operational Test and Evaluation (FOT&E) for Technology Insertion (TI)-08 and Block III.

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604558N / <i>New Design SSN</i>	Project (Number/Name) 9999 / <i>Congressional Adds</i>
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FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Proj 9999	
VA Class Small Business Technology Insertion: VA Class Small Business Technology Insertion	██████████

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604558N / <i>New Design SSN</i>	Project (Number/Name) 9999 / <i>Congressional Adds</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 9999				
VA Class Small Business Technology Insertion: VA Class Small Business Technology Insertion	2	2015	4	2015

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604562N / <i>Submarine Tactical Warfare System</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	507.298	37.768	52.713	43.160	-	43.160	49.629	61.484	65.270	66.647	Continuing	Continuing
0236: <i>SSN Comb Cont Sys Imprvmnt (ENG)</i>	507.298	37.768	43.213	43.160	-	43.160	49.629	61.484	65.270	66.647	Continuing	Continuing
9999: <i>Congressional Adds</i>	0.000	0.000	9.500	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	9.500

A. Mission Description and Budget Item Justification

Project Unit 0236: This program develops Commercial-Off-The-Shelf (COTS) based software and hardware upgrades to integrate improved tactical and weapons control capabilities for multiple submarine Classes (SSN-688, SSGN, SEAWOLF, SSBN and VIRGINIA (Post Shakedown Availability)). The AN/BYG-1 is the combat control system common across submarine platforms which incorporates tactical control, payload control, and tactical Local Area Network (LAN) functions into a single development program. AN/BYG-1 allows the submarine to rapidly update the ship safety tactical picture, integrate the common tactical picture into the battlegroup, improve torpedo interfaces, and provide Tactical TOMAHAWK (TOMAHAWK Block IV) capability. The hardware upgrades, Technology Insertions (TI) are developed on a biennial basis to provide improved capability and address COTS obsolescence. Funding also accommodates the biennial integration of software Advanced Processing Builds (APB) for both tactical control (APB(T)) and payload control (APB(P)) subsystems. The tactical control integration effort incorporates the integration of other sensor (ESM, sonar, radar, etc.) inputs to provide a common operational picture and improved situational awareness in an information assurance (IA) compliant environment. The Weapon Control development effort described in PB-16 has been renamed Payload Control to account for non-weaponized unmanned vehicles. The payload control development effort provides improvements to the payloads control subsystem based on improvements to missiles and torpedoes as well as development of a modernized Payload Control System (PCS) architecture to support various payload such as, but not limited to, Modular Undersea Heavyweight Vehicle (MUHV), Unmanned Undersea Vehicles, Unmanned Aerial Systems (UAS), torpedoes, and Sub Launched Mobile Mines (SLMM). Provides funding for the development of Payloads Launch System, Multi-tube Weapons System (MTWS), Information Assurance (IA) system, Onboard Team Trainer (OBTT), and Command, Control, Computer and Intelligence Maintenance Tool (C3IMT).

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	38.985	48.213	44.721	-	44.721
Current President's Budget	37.768	52.713	43.160	-	43.160
Total Adjustments	-1.217	4.500	-1.561	-	-1.561
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-5.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	9.500			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.217	0.000			
• Program Adjustments	0.000	0.000	-0.555	-	-0.555

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604562N / <i>Submarine Tactical Warfare System</i>
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• Rate/Misc Adjustments	0.000	0.000	-1.006	-	-1.006
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Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 9999: *Congressional Adds*

Congressional Add: Combat and Weapons Systems Modernization

Congressional Add Subtotals for Project: 9999

Congressional Add Totals for all Projects

	FY 2015	FY 2016
Congressional Add Subtotals for Project: 9999	0.000	9.500
Congressional Add Totals for all Projects	0.000	9.500

Change Summary Explanation

Decrease in Submarine Tactical Warfare System RDTEN by \$1.802M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

The FY 2017 funding request was reduced by \$2.266 million to account for the availability of prior years execution balance.

Increased FY17-FY19 funding due to Unmanned Aerial System (UAS)

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604562N / <i>Submarine Tactical Warfare System</i>				Project (Number/Name) 0236 / <i>SSN Comb Cont Sys Imprvmnt (ENG)</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
0236: <i>SSN Comb Cont Sys Imprvmnt (ENG)</i>	507.298	37.768	43.213	43.160	-	43.160	49.629	61.484	65.270	66.647	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project Unit 0236: This program develops Commercial-Off-The-Shelf (COTS) based software and hardware upgrades to integrate improved tactical and weapons control capabilities for multiple submarine Classes (SSN-688, SSGN, SEAWOLF, SSBN and VIRGINIA (Post Shakedown Availability)). The AN/BYG-1 is the combat control system common across submarine platforms which incorporates tactical control, payload control, and tactical Local Area Network (LAN) functions into a single development program. AN/BYG-1 allows the submarine to rapidly update the ship safety tactical picture, integrate the common tactical picture into the battlegroup, improve torpedo interfaces, and provide Tactical TOMAHAWK (TOMAHAWK Block IV) capability. The hardware upgrades, Technology Insertions (TI) are developed on a biennial basis to provide improved capability and address COTS obsolescence. Funding also accommodates the biennial integration of software Advanced Processing Builds (APB) for both tactical control (APB(T)) and payload control (APB(P)) subsystems. The tactical control integration effort incorporates the integration of other sensor (ESM, sonar, radar, etc.) inputs to provide a common operational picture and improved situational awareness in an information assurance (IA) compliant environment. The Weapon Control development effort described in PB-16 has been renamed Payload Control to account for non-weaponized unmanned vehicles. The payload control development effort provides improvements to the payloads control subsystem based on improvements to missiles and torpedoes as well as development of a modernized Payload Control System (PCS) architecture to support various payload such as, but not limited to, Modular Undersea Heavyweight Vehicle (MUHV), Unmanned Undersea Vehicles, Unmanned Aerial Systems (UAS), torpedoes, and sub launched mobile mines (SLMM). Provides funding for the development of Payloads Launch System, Multi-tube Weapons System (MTWS), Information Assurance (IA) system, Onboard Team Trainer (OBTT), and Command, Control, Computer and Intelligence Maintenance Tool (C3IMT).

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Advanced Processing Builds	13.928	18.955	15.735	0.000	15.735
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Continued development of APB-15 into AN/BYG-1 (TI-14) baseline.					
FY 2016 Plans: Complete APB-15 integration into AN/BYG-1 (TI-14) baseline. Support development of APB-17 into AN/BYG-1 baseline.					
FY 2017 Base Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604562N / <i>Submarine Tactical Warfare System</i>	Project (Number/Name) 0236 / <i>SSN Comb Cont Sys Imprvmnt (ENG)</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Continue development of APB-17 into AN/BYG-1 (TI-16) baseline. FY 2017 OCO Plans: N/A					
Title: AN/BYG-1 TI-14 FY 2015 Accomplishments: Continued development, integration and test of the next generation AN/BYG-1 (TI-14) for SSN 688/SSGN/VA Class submarines. FY 2016 Plans: Complete development, integration and test of the next generation AN/BYG-1 (TI-14) for SSN 688/SSGN/VA Class submarines. FY 2017 Base Plans: N/A FY 2017 OCO Plans: N/A	6.734	4.887	0.000	0.000	0.000
Articles:	-	-	-	-	-
Title: AN/BYG-1 TI-16 FY 2015 Accomplishments: Begin development, integration and test of the next generation AN/BYG-1 (TI-16) for SSN 688/SSGN/SSBN/VA Class submarines. FY 2016 Plans: Continue development, integration and test of the next generation AN/BYG-1 (TI-16) for SSN 688/SSGN/SSBN/VA Class submarines. FY 2017 Base Plans: Continue development, integration and test of the next generation AN/BYG-1 (TI-16) for SSN 688/SSGN/SSBN/VA Class submarines. FY 2017 OCO Plans:	4.254	6.508	6.782	0.000	6.782
Articles:	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604562N / <i>Submarine Tactical Warfare System</i>	Project (Number/Name) 0236 / <i>SSN Comb Cont Sys Imprvmnt (ENG)</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
Title: AN/BYG-1 TI-18 FY 2015 Accomplishments: N/A FY 2016 Plans: N/A FY 2017 Base Plans: Begin development, integration and test of the next generation AN/BYG-1 (TI-18) for SSN 688/SSGN/SSBN/VA Class submarines. FY 2017 OCO Plans: N/A	0.000 -	0.000 -	4.070 -	0.000 -	4.070 -
Title: Payload Control System Upgrade FY 2015 Accomplishments: Begin development process to modernize the Payload Control System architecture to support various payloads. FY 2016 Plans: Continue development process to modernize the Payload Control System architecture to support various payloads. FY 2017 Base Plans: Continue development process to modernize the Payload Control System architecture to support various payloads. FY 2017 OCO Plans: N/A	3.500 -	5.100 -	5.300 -	0.000 -	5.300 -
Title: Testing FY 2015 Accomplishments:	4.597 -	2.899 -	3.987 -	0.000 -	3.987 -

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604562N / <i>Submarine Tactical Warfare System</i>	Project (Number/Name) 0236 / <i>SSN Comb Cont Sys Imprvmnt (ENG)</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Completed DT/OT for AN/BYG-1 APB-13 on SSN 688/SSGN/Seawolf/VA Class submarines.</p> <p>FY 2016 Plans: Begin DT/OT for AN/BYG-1 APB-15 on SSN 688/SSGN/Seawolf/VA Class submarines.</p> <p>FY 2017 Base Plans: Complete DT/OT for AN/BYG-1 APB-15 on SSN 688/SSGN/Seawolf/VA Class submarines.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Information Assurance (IA)</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: Completed integration of IA Toolkit and continue IA Certification Testing on BYG-1 TI-14</p> <p>FY 2016 Plans: Develop integration of IA Toolkit and continue IA Certification Testing on BYG-1 TI-16</p> <p>FY 2017 Base Plans: Complete integration of IA Toolkit and continue IA Certification Testing on BYG-1 TI-16</p> <p>FY 2017 OCO Plans: N/A</p>	4.755 -	4.864 -	4.714 -	0.000 -	4.714 -
<p>Title: Unmanned Aerial System (UAS)</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans: Begin Unmanned Aerial System (UAS) development and integration efforts.</p> <p>FY 2017 OCO Plans:</p>	0.000 -	0.000 -	2.572 -	0.000 -	2.572 -

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604562N / <i>Submarine Tactical Warfare System</i>	Project (Number/Name) 0236 / <i>SSN Comb Cont Sys Imprvmnt (ENG)</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
Accomplishments/Planned Programs Subtotals	37.768	43.213	43.160	0.000	43.160

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

This budget integrates APBs developed by the advanced development community. This program has been tailored in accordance with the new DoD5000 directive to incorporate annual MDA production reviews. Advanced Processing Builds (APB) products associated with AN/BYG-1 Release-To-Fleet 3Q 2015, 3Q 2017 and 3Q 2019.

E. Performance Metrics

AN/BYG-1 Submarine Combat and Payload Control System performance metrics for each Advanced Processor Build (APB) and Technology Insertion (TI) cycle are contained in the classified Capability Production Document (CPD) annex to the overarching system requirements as laid out in the Capabilities Development Document (CDD). Each APB cycle receives an updated CPD based on fleet required capabilities.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
1319 / 5				PE 0604562N / Submarine Tactical Warfare System				0236 / SSN Comb Cont Sys Imprvmnt (ENG)							
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
AN/BYG-1 TECH INSERTION	C/CPIF	GENERAL DYNAMICS (GDAIS) : FAIR LAKES, VA	85.098	5.123	Oct 2014	5.147	Oct 2015	5.736	Oct 2016	-		5.736	Continuing	Continuing	Continuing
AN/BYG-1 TECH INSERTION	C/CPIF	GENERAL DYNAMICS (GDAIS) : PITTSFIELD, MA	34.854	3.246	Oct 2014	3.233	Oct 2015	0.661	Oct 2016	-		0.661	Continuing	Continuing	Continuing
GOVERNMENT ENGINEERING	WR	NUWC : NEWPORT, RI	80.704	1.448	Oct 2014	1.399	Oct 2015	1.531	Oct 2016	-		1.531	Continuing	Continuing	Continuing
INFORMATION ASSURANCE	C/CPAF	PROGENY : MANASSAS, VA	28.968	4.755	Oct 2014	4.864	Oct 2015	4.108	Oct 2016	-		4.108	Continuing	Continuing	Continuing
AN/BYG-1 Tech Insertion	C/CPAF	Lockheed Martin (LM-MSS) : Manassas, VA	3.634	1.171	Oct 2014	1.616	Oct 2015	1.069	Oct 2016	-		1.069	Continuing	Continuing	Continuing
UNMANNED AERIAL SYSTEM	C/CPIF	GENERAL DYNAMIC (PCS) : PITTSFIELD, MA	0.000	0.000		0.000		1.087	Oct 2016	-		1.087	Continuing	Continuing	Continuing
UNMANNED AERIAL SYSTEM	WR	NUWC : NEWPORT, RI	0.000	0.000		0.000		1.061	Oct 2016	-		1.061	Continuing	Continuing	Continuing
UNMANNED AERIAL SYSEM	WR	NRL : WASHINGTON, DC	0.000	0.000		0.000		0.424	Oct 2016	-		0.424	Continuing	Continuing	Continuing
Subtotal			233.258	15.743		16.259		15.677		-		15.677	-	-	-
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
APB SOFTWARE INTEGRATION	C/CPIF	GENERAL DYNAMICS (GDAIS) : FAIRLAKES, VA	69.096	5.160	Oct 2014	7.157	Oct 2015	8.548	Oct 2016	-		8.548	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
1319 / 5				PE 0604562N / Submarine Tactical Warfare System				0236 / SSN Comb Cont Sys Imprvmnt (ENG)							
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
APB SOFTWARE INTEGRATION	C/CPIF	GENERAL DYNAMICS : PITTSFIELD, MA	19.427	2.768	Oct 2014	5.055	Oct 2015	3.825	Oct 2016	-		3.825	Continuing	Continuing	Continuing
APB SOFTWARE INTEGRATION	WR	NUWC : NEWPORT, RI	47.661	1.666	Oct 2014	4.835	Oct 2015	4.672	Oct 2016	-		4.672	Continuing	Continuing	Continuing
APB SOFTWARE INTEGRATION	C/CPAF	LOCKHEED MARTIN (LM-MSS) : MANASSAS, VA	8.387	3.893	Oct 2014	3.270	Oct 2015	3.335	Oct 2016	-		3.335	Continuing	Continuing	Continuing
SOFTWARE DEVELOPMENT	Various	VARIOUS : VARIOUS:Not Specified	48.071	1.902	Oct 2014	1.902	Oct 2015	2.283	Oct 2016	-		2.283	Continuing	Continuing	Continuing
Subtotal			192.642	15.389		22.219		22.663		-		22.663	-	-	-
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
DEVELOPMENT TEST & EVALUATION	WR	NUWC : NEWPORT, RI	34.683	1.498	Oct 2014	0.932	Oct 2015	0.949	Oct 2016	-		0.949	Continuing	Continuing	Continuing
TEST & EVALUATION	C/CPIF	GENERAL DYNAMICS : FAIRLAKES, VA	7.420	1.277	Oct 2014	0.711	Oct 2015	0.724	Oct 2016	-		0.724	Continuing	Continuing	Continuing
TEST & EVALUATION	C/CPIF	GENERAL DYNAMICS : PITTSFIELD, MA	1.524	1.277	Oct 2014	0.711	Oct 2015	0.724	Oct 2016	-		0.724	Continuing	Continuing	Continuing
TEST & EVALUATION	C/CPAF	PROGENY : MANASSAS, VA	0.907	0.466	Oct 2014	0.466	Oct 2015	0.474	Oct 2016	-		0.474	Continuing	Continuing	Continuing
OPERATIONAL TEST & EVALUATION	WR	COMOPTEVFOR : NORFOLK, VA	16.674	0.079	Oct 2014	0.079	Oct 2015	0.080	Oct 2016	-		0.080	Continuing	Continuing	Continuing
Subtotal			61.208	4.597		2.899		2.951		-		2.951	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy

Date: February 2016

Appropriation/Budget Activity
1319 / 5

R-1 Program Element (Number/Name)
PE 0604562N / *Submarine Tactical Warfare System*

Project (Number/Name)
0236 / *SSN Comb Cont Sys Imprvmnt (ENG)*

Fiscal Year	2015				2016				2017				2018				2019				2020				2021						
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4			
Acquisition Milestones				△ Annual MDA Program Review				△ Annual MDA Program Review				△ Annual MDA Program Review				△ Annual MDA Program Review				△ Annual MDA Program Review				△ Annual MDA Program Review				△ Annual MDA Program Review			
AITD Iss. and Certification	AITD-15							AITD-17								AITD-19								AITD-21							
Development, Test, and Certification	E1-14											E1-18								E1-20								E1-22			
ANSDYD-1 Test & Evaluation Milestones	APE-13 (CPIC)							APE-15 (CPIC)								APE-17 (CPIC)								APE-19 (CPIC)							

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604562N / <i>Submarine Tactical Warfare System</i>	Project (Number/Name) 0236 / <i>SSN Comb Cont Sys Imprvmnt (ENG)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Page 1				
Acq Milestones: Annual MDA Program Review - FY15	4	2015	4	2015
Acq Milestones: Annual MDA Program Review - FY16	4	2016	4	2016
Acq Milestones: Annual MDA Program Review - FY17	4	2017	4	2017
Acq Milestones: Annual MDA Program Review - FY18	4	2018	4	2018
Acq Milestones: Annual MDA Program Review - FY19	4	2019	4	2019
Acq Milestones: Annual MDA Program Review - FY20	4	2020	4	2020
Acq Milestones: Annual MDA Program Review - FY21	4	2021	4	2021
APB I&T, Certification: APB-15: APB-15	1	2015	4	2017
APB I&T, Certification: APB-17: APB-17	1	2016	4	2019
APB I&T, Certification: APB-19: APB-19	1	2018	4	2021
APB I&T, Certification: APB-21: APB-21	1	2020	4	2021
Development, I&T Certification: TI-14: TI-14	1	2015	4	2016
Development, I&T Certification: TI-16: TI-16	1	2015	4	2018
Development, I&T Certification: TI-18: TI-18	1	2017	4	2020
Development, I&T Certification: TI-20: TI-20	1	2019	4	2021
Development, I&T Certification: T-22: TI-22	1	2021	4	2021
Test & Evaluation Milestones: AN/BYG-1: APB-13 DT/OT	1	2015	1	2015
Test & Evaluation Milestones: AN/BYG-1: APB-15 DT/OT	4	2016	1	2017
Test & Evaluation Milestones: AN/BYG-1: APB-17 DT/OT	4	2018	1	2019
Test & Evaluation Milestones: AN/BYG-1: APB-19 DT/OT	4	2020	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604562N / <i>Submarine Tactical Warfare System</i>	Project (Number/Name) 9999 / <i>Congressional Adds</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
9999: <i>Congressional Adds</i>	0.000	0.000	9.500	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	9.500
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project Unit 9999:

This congressional add provides funding to modernize Combat and Weapons Systems in the efforts below.

Attack in a Minute (AIM): Continue development of this Fleet desired capability for APB17. Complete algorithm development. Update new display with inputs from Fleet. Execute demonstrations to ensure the updates meet the Fleet needs.

Cyber Security: Complete Vulnerability Assessment and manage results. Develop corrections for Account Management. Accelerate CYBERSAFE Control Point hardening and Tactics, Techniques and Procedures (TTP) development. Resolve training issues with Type Commanders.

Weapon Control Advanced Message Queuing Protocol (AMQP) transitions: Common Object Request Broker Architecture (CORBA) middleware will become unsupported in 2020. There is a SWFTS roadmap planning all system middleware transitions. This effort modernizes portions of the WC middleware to AMQP, the latest standard.

WCS Code Modernization with The Software Revolution, Inc. (TSRI): The effort will select additional WC code portions and translate them from ADA to C++.

APB5+: Effort accelerates software updates to support the new PMS404 torpedo.

Common Infrastructure Services (CIS): Design network updates so common functions are more readily available to systems using them. Virtualize some applications which will reside in the CIS footprint.

Combat System of the Future (CSOF): Accelerate ongoing efforts to virtualize BYG-1 and improve open architecture.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016
Congressional Add: Combat and Weapons Systems Modernization	0.000	9.500

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604562N / <i>Submarine Tactical Warfare System</i>	Project (Number/Name) 9999 / <i>Congressional Adds</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016
<i>FY 2015 Accomplishments:</i> N/A		
<i>FY 2016 Plans:</i> N/A		
Congressional Adds Subtotals	0.000	9.500

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

Once developed, these modernization upgrades will be part of the TI/APB software baselines, utilizing the same Acquisition Strategy as the Tactical Warfare System. The program budget integrates APBs developed by the advanced development community. This program has been tailored in accordance with the new DoD5000 directive to incorporate annual MDA production reviews. Advanced Processing Builds (APB) products associated with AN/BYG-1 Release-To-Fleet 3Q 2015, 3Q 2017 and 3Q 2019.

E. Performance Metrics

AN/BYG-1 Submarine Combat and Payload Control System performance metrics for each Advanced Processor Build (APB) and Technology Insertion (TI) cycle are contained in the classified Capability Production Document (CPD) annex to the overarching system requirements as laid out in the Capabilities Development Document (CDD). Each APB cycle receives an updated CPD based on Fleet required capabilities.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604562N / <i>Submarine Tactical Warfare System</i>	Project (Number/Name) 9999 / <i>Congressional Adds</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Attack in a Minute	C/CPIF	General Dynamics : Pittsfield, MA	0.000	0.000		1.500	Oct 2015	0.000		-		0.000	0.000	1.500	-
Cyber Security	C/CPAF	Progeny : Manassas, VA	0.000	0.000		2.000	Oct 2015	0.000		-		0.000	0.000	2.000	-
WCS Code Modernization	C/CPIF	General Dynamics : Pittsfield, MA	0.000	0.000		1.540	Oct 2015	0.000		-		0.000	0.000	1.540	-
APB5+	C/CPIF	General Dynamics : Pittsfield, MA	0.000	0.000		0.460	Oct 2015	0.000		-		0.000	0.000	0.460	-
Common Infrastructure Services	C/CPIF	General Dynamics : Fairlakes, VA	0.000	0.000		1.800	Oct 2015	0.000		-		0.000	0.000	1.800	-
Government Engineering	WR	NUWC : Newport, RI	0.000	0.000		0.200	Oct 2015	0.000		-		0.000	0.000	0.200	-
Combat System of the Future (CSOF)	Various	Various (Not specified) : Not Specified	0.000	0.000		2.000	Oct 2015	0.000		-		0.000	0.000	2.000	-
Subtotal			0.000	0.000		9.500		0.000		-		0.000	0.000	9.500	-

Remarks
 Combat System of the Future (CSOF) effort will leverage existing SBIR Contracts (Rite Solutions, MIKEL and ASSETT) to accelerate virtualization and open architecture.

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000	9.500	0.000	-	0.000	0.000	9.500	-

Remarks

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604562N / <i>Submarine Tactical Warfare System</i>	Project (Number/Name) 9999 / <i>Congressional Adds</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Page 1				
Acquisition Milestones: Annual MDA Program Review - FY16	4	2016	4	2016
Acquisition Milestones: Annual MDA Program Review - FY17	4	2017	4	2017
APB I&T, Certification: APB-17: APB-17	1	2016	4	2019
Test and Evaluation Milestones: AN/BYG-1: APB-17 DT/OT	4	2018	1	2019

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604567N / <i>Ship Contract Design/ Live Fire T&E</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	569.229	39.459	38.925	65.002	-	65.002	67.591	69.901	53.871	56.267	Continuing	Continuing
1803: <i>Ship Contract Design</i>	122.308	2.639	8.049	2.209	-	2.209	3.870	3.212	3.286	3.356	Continuing	Continuing
2465: <i>LHA(R) FLT Design and Total Ship Integration</i>	234.858	7.116	8.508	9.488	-	9.488	8.095	14.572	2.404	6.013	Continuing	Continuing
3108: <i>CVN 80 Total Ship Integration</i>	0.000	0.000	1.000	30.103	-	30.103	32.910	31.908	27.607	25.873	Continuing	Continuing
3179: <i>CVN-79 Total Ship Integration</i>	153.772	18.499	13.387	17.081	-	17.081	16.810	14.729	15.069	15.392	Continuing	Continuing
3369: <i>Hybrid Electric Drive</i>	0.000	7.814	3.773	1.691	-	1.691	1.503	1.439	1.374	1.412	Continuing	Continuing
3374: <i>MPF(F)</i>	0.000	0.000	0.000	0.694	-	0.694	0.463	0.000	0.000	0.000	0.000	1.157
4007: <i>CVN 21 LFT&E</i>	58.291	3.391	4.208	3.736	-	3.736	3.940	4.041	4.131	4.221	Continuing	Continuing

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): 333, 223

A. Mission Description and Budget Item Justification

This Program Element (PE) directly supports the Navy's Shipbuilding Plan by providing for the development of engineering, programmatic and acquisition documentation including ship specifications (including performance specifications) and contractual documentation associated with acquisition of Navy ships. This PE also supports the Congressionally mandated Live Fire Test and Evaluation (LFT&E) program for new ship designs.

Contract Design has traditionally been the engineering development of the technical and contractual definition of the ship design (including ship specifications and drawings) to a level of detail sufficient for shipbuilders to make a sound estimate of the construction cost and schedule. Additionally, the contract design package developed under this PE has provided the technical baseline from which the Navy selects the shipbuilder who then develops the detail design package required to support the construction and eventual delivery of the ship. This PE also supports the development of design methodologies/tools which facilitate and optimize the transition from ship design documents to efficient production of new ships and ship conversions, and supports engineering planning and ship affordability studies.

Under Acquisition Reform for new design ships, traditional distinct phasing of the design process has been replaced with a continuous concurrent engineering Integrated Product and Process Development (IPPD) process extending through and after contract award. This serves to maintain the focus of multi-discipline teams consisting of the government, shipbuilder, system programs, and suppliers. Government/Industry Integrated Product Team(s) (IPTs) will utilize the IPPD process to develop the design in an Integrated Product and Data Environment (IPDE). The design approach is part of an acquisition strategy that is based on commercial practices and incorporates a phased technical definition.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604567N / <i>Ship Contract Design/ Live Fire T&E</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	40.016	49.712	40.880	-	40.880
Current President's Budget	39.459	38.925	65.002	-	65.002
Total Adjustments	-0.557	-10.787	24.122	-	24.122
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-10.787			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.557	0.000			
• Program Adjustments	0.000	0.000	26.741	-	26.741
• Rate/Misc Adjustments	0.000	0.000	-2.619	-	-2.619

Change Summary Explanation

Decrease in Ship Contract Design/Live Fire T&E by \$0.565 million as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

Cost/Funding:

Project 2465: Funding increase is to support for LHA 6 LFT&E Requirements.

Project 3179: Realigned FY 15 funding from Project 2465 to support increased Design for Affordability efforts on CVN 79

Project 3108: Added additional funding for CVN 78-class cost reduction efforts

Project 3374: Beginning in FY 2017, efforts previously financed under the National Sealift Defense Fund (NDSF) BA 04, Project 3110 (Maritime Prepositioning Force Future) are financed under this program element. FY 2015 NDSF BA 04 Project 3110 amount: \$8.454M. FY 2016 NDSF BA 04 Project 3110 amount: \$1.768M. This project is not a new start.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604567N / Ship Contract Design/ Live Fire T&E				Project (Number/Name) 1803 / Ship Contract Design			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
1803: <i>Ship Contract Design</i>	122.308	2.639	8.049	2.209	-	2.209	3.870	3.212	3.286	3.356	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

DDG Modernization:

The major effort is the engineering development of the technical and contractual definition of the ship's design (e.g. ship specifications and drawings), with sufficient details for the planning yard to make a sound estimate of cost and schedule. It also serves as the technical definition from which the planning yard develops the detailed design and testing package required to build and test the ship. It provides the Navy with a digital, ship design knowledge base, including lessons learned, required to ensure that a proper development, analysis and evaluation can be conducted of any current or future planned.

Another area this project funds is the development of specific Navy ship criteria and standards for newly developed technologies. Additionally, as new laws are passed, new safety regulations and environmental criteria are developed and other legal/Congressional requirements identified, this project funds the translation into Navy ship design criteria and standards. This project also funds the translation of the traditional Ship Specifications into performance-based criteria, which supports the development of design methodologies/tools which facilitate and optimize the transition from ship design documents to ship alterations. This project also supports ship survivability studies, superstructure integrity analysis, developmental and operational testing, gun weapon system software integration and next generation Machinery Control System (MCS) software integration.

Expeditionary Mobile Base (ESB) (formerly MLP AFSB)

Funds are for performance specification development, and Dynamic Interface Testing for various airframes as part of the ESB Special Operations Forces (SOF) Backfit.

TFCA - NAVSEA Boundary Defense Capability:

Computer security upgrades and mitigation for operating machinery, machinery controllers, and machinery control systems.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Ship Contract Design	2.639	2.299	2.209	0.000	2.209
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					
For DDGs, specific efforts include, but are not limited to Engineering Analysis, feasibility studies, structural analysis for hull integrity, and topside analysis related to the next generation MCS software integration and GEDMS .					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / <i>Ship Contract Design/ Live Fire T&E</i>	Project (Number/Name) 1803 / <i>Ship Contract Design</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>CG Class specific efforts include, but are not limited to; aluminum cracking studies and superstructure repair planning to ensure CGs are able to reach expected service life and developmental and operational test events related to Baseline 9.</p> <p>Another area this project funds is the development of specific Navy ship criteria and standards for newly developed technologies. Additionally, as new laws are passed, new safety regulations and environmental criteria are developed and other legal/Congressional requirements identified, this project funds the translation into Navy ship design criteria and standards. This project also funds the translation of the traditional Ship Specifications into performance-based criteria, which supports the development of design methodologies/tools which facilitate and optimize the transition from ship design documents to ship alterations.</p> <p>FY 2016 Plans: For DDGs, specific efforts include, but are not limited to Engineering Analysis, feasibility studies, structural analysis for hull integrity, and information assurance requirements related to the next generation MCS software integration.</p> <p>CG Class specific efforts include, but are not limited to, aluminum cracking studies, superstructure repair planning, sustainment studies, extended service life studies, and new alteration development to ensure CGs are able to reach expected service life as well as information assurance requirements related to the Integrated Ship Control system.</p> <p>Another area this project funds is the development of specific Navy ship criteria and standards for newly developed technologies. Additionally, as new laws are passed, new safety regulations and environmental criteria are developed and other legal/Congressional requirements identified, this project funds the translation into Navy ship design criteria and standards. This project also funds the translation of the traditional Ship Specifications into performance-based criteria, which supports the development of design methodologies/tools which facilitate and optimize the transition from ship design documents to ship alterations.</p> <p>FY 2017 Base Plans: Continue ship design and alteration development for superstructure cracking/aluminum sensitization in CG's and for DDG 51 Flt IIA ship design to include development of structural reliability and other alterations to include helo hangar door reliability improvements in FY 17.</p> <p>FY 2017 OCO Plans:</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / <i>Ship Contract Design/ Live Fire T&E</i>	Project (Number/Name) 1803 / <i>Ship Contract Design</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
Title: ESB FY 2015 Accomplishments: N/A FY 2016 Plans: Performance Spec development and Dynamic Interface Testing for Expeditionary Mobile Base (ESB) 3 (formerly MLP AFSB 3) SOF Equipment (MH-60, AH-6 and CH-47), Dynamic Interface Testing/AVCERT (for CV22 and MQ-8C) and SESEF/EMC Testing in support of SOF backfit efforts. FY 2017 Base Plans: N/A FY 2017 OCO Plans: N/A	0.000	3.750	0.000	0.000	0.000
Articles:	-	-	-	-	-
Title: Boundary Defense Capability FY 2015 Accomplishments: N/A FY 2016 Plans: Begin efforts to implement external boundary cyber defense capability. FY 2017 Base Plans: N/A FY 2017 OCO Plans: N/A	0.000	2.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
Accomplishments/Planned Programs Subtotals	2.639	8.049	2.209	0.000	2.209

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / Ship Contract Design/ Live Fire T&E	Project (Number/Name) 1803 / Ship Contract Design
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• OPN 0900: <i>DDG Mod</i>	324.219	421.195	367.766	-	367.766	636.893	585.026	585.003	658.303	4,517.590	9,611.783
• WPN 4223: <i>Cruiser Modernization Weapons</i>	38.800	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	263.060
• OPN 0960: <i>CG Modernization</i>	375.500	0.000	0.000	-	0.000	0.000	0.000	0.000	116.317	0.000	2,586.335

Remarks

D. Acquisition Strategy

Continuing systems and software development for both development models and production machinery control units at Land Based Engineering Sites.

E. Performance Metrics

CG:

Aluminum sensitization study to determine the lifetime until sensitization for aluminum alloys and stress and buckling analysis of the CG 47 Class ship structure, and develop proposed fatigue fixes in the high stress areas to produce a technical report with modifications or improvements to the ship that may be necessary to preclude cracking in the areas of concern. Evaluation of composite patch and development of composite patch installation procedures as a method for repairing cracks. Development of ultrasonic impact treatment guidance as a method for repairing cracks. Evaluation of different coating that can prevent cracking and different aluminum alloys that are sensitization resistant. Additionally, review and track distributed services margins, predict future system loads, develop technical reports and make recommendation to ensure reaching hull service life.

DDG Modernization:

Efforts for DDG Mod include design and development for next generation MCS software integration.

ESB:

Completion of Dynamic Interface Testing.

Task Force Cyber Awareness (TFCA):

NAVSEA Boundary Defense Capability.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / Ship Contract Design/ Live Fire T&E	Project (Number/Name) 1803 / Ship Contract Design
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CG Mod Electronics Systems Eng	C/CPAF	Lockheed : Martin, Moorestown, NJ	17.413	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
DON Energy Initiative - OEM	C/FPIF	L-3 Maritime Systems : Leesburg, VA	34.857	0.000		0.000		0.000		-		0.000	0.000	34.857	-
DON Energy Initiative	WR	NSWC/SSES : Philadelphia, PA	3.629	0.000		0.000		0.000		-		0.000	0.000	3.629	-
Engineering Development and Design	Various	COTF/NAVAIR/NSWCDD/NSWCPC/NSWCPC/NSWCSSSES : DC/MD/PA/CA	1.085	0.000		0.000		0.000		-		0.000	0.000	1.085	-
Preliminary and Contract Design	C/FPIF	NASSCO : San Diego, CA	6.500	0.000		0.000		0.000		-		0.000	0.000	6.500	-
Hybrid Electric Drive	C/CPIF	L-3 Maritime Systems : Leesburg, VA	6.911	0.000		0.000		0.000		-		0.000	0.000	6.911	-
Hybrid Electric Drive	C/CPAF	Rolls Royce : Walpole, MA	0.100	0.000		0.000		0.000		-		0.000	0.000	0.100	-
Hybrid Electric Drive	C/CR	General Atomics : San Diego, CA	0.040	0.000		0.000		0.000		-		0.000	0.000	0.040	-
Hybrid Electric Drive	C/CPAF	Herren Engineering : Alexandria, VA	0.600	0.000		0.000		0.000		-		0.000	0.000	0.600	-
Hybrid Electric Drive	C/CPAF	Syntek : Arlington, VA	0.099	0.000		0.000		0.000		-		0.000	0.000	0.099	-
Hybrid Electric Drive	WR	NSWC/SSES : Philadelphia, PA	0.750	0.000		0.000		0.000		-		0.000	0.000	0.750	-
Hybrid Electric Drive	TBD	Not Specified : Not Specified	8.500	0.000		0.000		0.000		-		0.000	0.000	8.500	-
Subtotal			80.484	0.000		0.000		0.000		-		0.000	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)					Project (Number/Name)						
1319 / 5				PE 0604567N / Ship Contract Design/ Live Fire T&E					1803 / Ship Contract Design						
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
DDG/CGM Program / Engineering Spt	WR	NSWC/DD : Dahlgren, VA	4.376	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
DDGM Program/ Engineering Spt	Various	SUPSHIP/BATH : Bath, ME	3.331	0.000		0.000		0.350	Jan 2017	-		0.350	Continuing	Continuing	Continuing
DDG/CGM Program / Engineering Spt	C/CPAF	CSC/BAE : Hampton, VA	4.713	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
DDG/CGM Program / Engineering Spt	WR	SPAWARSYSCEN : Charleston, SC	1.397	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
CGM Program / Engineering Spt	WR	NRL : Washington, DC	0.617	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
CGM Program / Engineering Spt	C/CPAF	JJMA/ALION : Washington, DC	2.947	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
DDG/CGM Program / Engineering Spt	C/CPAF	Lockheed Martin : Moorestown, NJ	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
DDG/CGM Program / Engineering Spt	WR	NSWC/PHD : Port Hueneme, CA	2.889	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Logistics Support	C/CPFF	CSC : Washington DC	0.085	0.000		0.000		0.000		-		0.000	0.000	0.085	-
CGM/DDG Program / Engineering Spt	WR	COMOPTEVFOR : Norfolk, VA	0.420	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
DDGM/HED Program / Engineering Spt	WR	NSWC/SSES : Philadelphia, PA	4.900	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
DDGM Program / Engineering Spt	WR	NSWC/SSES : Philadelphia, PA	1.115	2.389	Dec 2014	2.147	Feb 2016	1.599	Jan 2017	-		1.599	0.000	7.250	-
HED Program / Engineering Spt	WR	NSWC/SSES : Philadelphia, PA	0.500	0.000		0.000		0.000		-		0.000	0.000	0.500	-
HED	C/CPAF	L-3 Maritime Systems : Leesburg, VA	1.048	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
CG Program / Engineering Spt	WR	NSWC/BETHESDA : Bethesda, MD	9.256	0.050	Dec 2014	0.051	Feb 2016	0.100	Jan 2017	-		0.100	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / Ship Contract Design/ Live Fire T&E	Project (Number/Name) 1803 / Ship Contract Design
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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CG Program / Engineering Spt	Various	SUPSHIP/ PASCAGOULA : Pascagoula, MS	4.230	0.200	Dec 2014	0.101	Feb 2016	0.160	Jan 2017	-		0.160	Continuing	Continuing	Continuing
ESB	Various	TBD : TBD	0.000	0.000		3.750	Jan 2016	0.000		-		0.000	0.000	3.750	-
NAVSEA Boundary Defense Capability	Various	TBD : TBD	0.000	0.000		2.000	Mar 2016	0.000		-		0.000	0.000	2.000	-
Subtotal			41.824	2.639		8.049		2.209		-		2.209	-	-	-

Remarks
Award dates for ESB reflects initial date of incremental funding execution in support of ESB SOF MOD backfit efforts.

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals		122.308	2.639		8.049		2.209		-	2.209	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / Ship Contract Design/ Live Fire T&E	Project (Number/Name) 1803 / Ship Contract Design
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Fiscal Year	2015				2016				2017				2018				2019				2020				2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones																												
CG Baseline 4 Mod Design																												
CG Class Designs																												
DDG Technical Insertion 16 Mod Design																												
DDG FLT IIA Mod Design																												
CG Deliveries (CG 59,61,62,64)																												
DDG Deliveries (DDG 61,80,81,84,87)																												
DDG Class Design																												
ESB																												
Boundary Defense Capability																												
Production Milestones																												
CG Deliveries																												
Production Milestones																												
DDG Deliveries																												
CG Baseline 4 Mod Design																												
DDG Technical Insertion 16 Mod Design																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / <i>Ship Contract Design/ Live Fire T&E</i>	Project (Number/Name) 1803 / <i>Ship Contract Design</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 1803				
CGM Baseline 4 Mod Design	1	2016	4	2020
CG Class Design	1	2015	4	2021
DDG Technical Insertion 16 Mod Design	1	2015	4	2019
DDG FLT IIA Mod Design	1	2015	2	2019
CG Deliveries (CG 59,61,63,64)	3	2015	4	2021
DDGM Deliveries (DDG 61,80,81,84,87)	1	2015	3	2021
DDG Class Design	1	2015	4	2021
ESB Dynamic Interface Testing	2	2016	2	2017
ESB Performance Spec Development for SOF MOD Backfit	2	2016	2	2016
Boundary Defense Capability	1	2016	4	2016

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604567N / Ship Contract Design/ Live Fire T&E				Project (Number/Name) 2465 / LHA(R) FLT Design and Total Ship Integration			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2465: LHA(R) FLT Design and Total Ship Integration	234.858	7.116	8.508	9.488	-	9.488	8.095	14.572	2.404	6.013	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
Project MDAP/MAIS Code: 333												

A. Mission Description and Budget Item Justification

The increase in funding from FY 16 to FY 17 is due to increased developmental, operational, and live fire testing on LHA 6 in FY 17.

This project provides the contract design, development and testing efforts for the Amphibious Assault Ship Replacement Program LHA(R). The LHA (R) is a ship construction program designed to: (1) provide a functional replacement for the Amphibious Assault Ships which reached the end of their extended service lives in FY15 (2) be a key platform in the Amphibious Readiness Group (ARG) of the future and (3) provide for an affordable and sustainable amphibious ship development program. LHA(R) ships will provide forward presence and power projection as an integral part of Joint, inter-agency, and multi-national maritime expeditionary forces. Additionally, LHA(R) will be designed to operate for sustained periods in transit to and operations in an Amphibious Objective Area to include the embarkation, deployment, and landing of a Marine Landing Force in an assault by helicopters and tilt rotors (MV-22) supported by Joint Strike Fighters (F-35B).

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: LHA (R) FLT 0 Design and Total Ship Integration - LHA 6	2.792	3.098	7.022	0.000	7.022
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					
LHA 6 Continued Development Testing (DT-B3).					
LHA 6 Continued Test and Evaluation Master Plan (TEMP) Rev B.					
LHA 6 Continued Operational Test and Evaluation (OT&E).					
LHA 6 Continued evaluating the interoperability data supporting Key Performance Parameters (KPP).					
LHA 6 Continued Vulnerability Assessment Report I (VAR I).					
LHA 6 Initiated Final Vulnerability Assessment Report (VAR).					
LHA 6 Continued Total Ship Survivability Trial (TSST) preparations.					
LHA 6 Continued LHA Class Reliability Maintainability and Availability (RMA).					
FY 2016 Plans:					
LHA 6 Continue Development Testing (DT-B3).					
LHA 6 Complete Test and Evaluation Master Plan (TEMP) Rev B.					
LHA 6 Continue Operational Test and Evaluation (OT&E).					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / Ship Contract Design/ Live Fire T&E	Project (Number/Name) 2465 / LHA(R) FLT Design and Total Ship Integration

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
LHA 6 Continue evaluating the interoperability data supporting Key Performance Parameters (KPP). LHA 6 Complete Vulnerability Assessment Report I (VAR I). LHA 6 Continue Final Vulnerability Assessment Report (VAR). LHA 6 Continue Total Ship Survivability Trial (TSST) preparations. LHA 6 Continue LHA Class Reliability Maintainability and Availability (RMA). FY 2017 Base Plans: LHA 6 Complete Development Testing (DT-B3). LHA 6 Complete Operational Test and Evaluation (OT&E). LHA 6 Complete evaluation of the interoperability data supporting Key Performance Parameters (KPP). LHA 6 Complete Final Vulnerability Assessment Report (VAR). LHA 6 Complete Total Ship Survivability Trial (TSST). LHA 6 Continue LHA Class Reliability Maintainability and Availability (RMA). FY 2017 OCO Plans: N/A					
Title: LHA (R) FLT 1 Design and Total Ship Integration - LHA 8 <div style="text-align: right;">Articles:</div>	4.324	5.410	2.466	0.000	2.466
FY 2015 Accomplishments: LHA 8 Continued Milestone Documentation, Gate Reviews and Defense Acquisition Board (DAB) Program Reviews. LHA 8 Completed Early Industry Involvement. LHA 8 Completed Early Operational Assessment effort. LHA 8 Continued Operational Test and Evaluation (OT&E) preparations. LHA 8 Continued Test and Evaluation Master Plan (TEMP) Rev B. LHA 8 Continued Vulnerability Assessment Report (VAR). LHA 8 Completed Contract Design. LHA 8 Issued Advance Procurement RFP for Advance Procurement & Detail Design. LHA 8 Awarded Advance Procurement for Systems Engineering. FY 2016 Plans: LHA 8 Complete Advance Procurement for Systems Engineering. LHA 8 Complete Milestone Documentation, Gate Reviews and Defense Acquisition Board (DAB) Program Reviews.	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / Ship Contract Design/ Live Fire T&E	Project (Number/Name) 2465 / LHA(R) FLT Design and Total Ship Integration

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
LHA 8 Continue Operational Test and Evaluation (OT&E) preparations. LHA 8 Complete Test and Evaluation Master Plan (TEMP) Rev B. LHA 8 Continue Vulnerability Assessment Report (VAR). LHA 8 Begin Enterprise Air Search Radar (EASR) integration efforts. LHA 8 Issue Advance Procurement Award for Detail Design & Long Lead Time and Materials.					
<i>FY 2017 Base Plans:</i> LHA 8 Initiate Reliability Availability Maintainability analysis. LHA 8 Continue Vulnerability Assessment Report (VAR). LHA 8 Continue Air Search Radar integration efforts. LHA 8 Continue Operational Test & Evaluation preparation for Operational Assessment (OA).					
<i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	7.116	8.508	9.488	0.000	9.488

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• SCN/3041: LHA (R) Ships	29.093	476.543	1,623.024	-	1,623.024	1,678.512	0.000	0.000	0.000	0.000	10,224.072

Remarks

D. Acquisition Strategy

Acquisition strategy signed February 7, 2005 approved strategy for sole source to Northrop Grumman Shipbuilding (NGSB) (Now Huntington Ingalls Industries, Inc.) to incorporate previous LHD engineering, design and producibility lessons-learned into LHA(R). Advanced Procurement (AP) contract for Long Lead-Time Material (LLTM) procurement and engineering support awarded July 05 with continuation of these efforts in FY06 prior to award of Detail Design and Construction (DD&C) contract on 1 June 2007. The AP contract was subsumed by the FPI DD&C contract.

LHA 7 DD&C contract awarded on May 31, 2012.

LHA 8 is the lead ship in FLT 1, which reincorporates the well deck. AP started 2QTR FY15 to support FY17 DD&C award.

E. Performance Metrics

Successfully achieve Initial Operational Capability, successfully complete Operational Test and Milestone Reviews.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
1319 / 5				PE 0604567N / Ship Contract Design/ Live Fire T&E				2465 / LHA(R) FLT Design and Total Ship Integration							
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Ship Design	WR	NSWC : Various	97.905	0.000		0.000		0.000		-		0.000	0.000	97.905	-
Ship Design	C/CPFF	HII : Pascagoula, MS	5.009	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Ship Design	C/CPFF	Various : Various	36.094	3.639	Dec 2014	4.536	Dec 2015	1.692	Dec 2016	-		1.692	5.007	50.968	-
Special Studies	WR	NSWC : Panama City, FL	4.800	0.000		0.000		0.000		-		0.000	0.000	4.800	-
Subtotal			143.808	3.639		4.536		1.692		-		1.692	-	-	-
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	MIPR	JITC : Fort Huachuca, AZ	4.231	0.097	Dec 2014	0.081	Dec 2015	0.154	Dec 2016	-		0.154	0.200	4.763	-
Operational Test & Evaluation	WR	OPTEVFOR/ MCOTEA/NAVSUP : Norfolk, VA/ Quantico, VA	15.504	1.086	Dec 2014	1.668	Dec 2015	3.403	Dec 2016	-		3.403	7.296	28.957	-
Live Fire Test & Evaluation	WR	NSWC : Various	56.497	1.109	Dec 2014	1.237	Dec 2015	3.589	Dec 2016	-		3.589	4.038	66.470	-
Subtotal			76.232	2.292		2.986		7.146		-		7.146	11.534	100.190	-
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	C/CPFF	Various : Various	14.175	1.135	Dec 2014	0.936	Dec 2015	0.608	Dec 2016	-		0.608	1.000	17.854	-
Travel	Various	Navsea Travel : Washington, DC	0.632	0.050	Jun 2015	0.050	Dec 2015	0.042	Dec 2016	-		0.042	0.090	0.864	-
Defense Acquisition Workforce	Various	Various : Various	0.011	0.000		0.000		0.000		-		0.000	0.000	0.011	-
Subtotal			14.818	1.185		0.986		0.650		-		0.650	1.090	18.729	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy								Date: February 2016					
Appropriation/Budget Activity 1319 / 5				R-1 Program Element (Number/Name) PE 0604567N / Ship Contract Design/ Live Fire T&E				Project (Number/Name) 2465 / LHA(R) FLT Design and Total Ship Integration					
	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	234.858	7.116		8.508		9.488		-		9.488	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / Ship Contract Design/ Live Fire T&E	Project (Number/Name) 2465 / LHA(R) FLT Design and Total Ship Integration
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FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Proj 2465	
LHA 6 Developmental Testing	[Redacted]
LHA 6 Operational Testing	[Redacted]
LHA 6 Vulnerability Assessment Report (VAR)	[Redacted]
LHA 6 Reliability Maintainability and Availability (RMA)	[Redacted]
LHA 6 JSF FOT&E	[Redacted]
LHA 8 Contract Design	[Redacted]
LHA 8 Early Industry Involvement	[Redacted]
LHA 8 Gate Reviews	[Redacted]
LHA 8 Operational Assessment Efforts	[Redacted]
LHA 8 Advance Procurement for Systems Engineering	[Redacted]
LHA 8 Enterprise Air Search Radar (EASR) Integration	[Redacted]
LHA 8 Reliability Maintainability and Availability (RMA)	[Redacted]
LHA 8 Vulnerability Assessment Report	[Redacted]

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / <i>Ship Contract Design/ Live Fire T&E</i>	Project (Number/Name) 2465 / <i>LHA(R) FLT Design and Total Ship Integration</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2465				
LHA 6 Developmental Testing	1	2015	1	2017
LHA 6 Operational Testing	1	2015	3	2017
LHA 6 Vulnerability Assessment Report (VAR)	1	2015	3	2017
LHA 6 Reliability Maintainability and Availability (RMA)	1	2015	2	2020
LHA 6 JSF FOT&E	3	2019	3	2019
LHA 8 Contract Design	1	2015	4	2015
LHA 8 Early Industry Involvement	1	2015	4	2015
LHA 8 Gate Reviews	1	2015	3	2016
LHA 8 Operational Assessment Efforts	1	2015	4	2021
LHA 8 Advance Procurement for Systems Engineering	2	2015	2	2016
LHA 8 Enterprise Air Search Radar (EASR) Integration	1	2016	4	2020
LHA 8 Reliability Maintainability and Availability (RMA)	3	2017	4	2021
LHA 8 Vulnerability Assessment Report	1	2015	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604567N / Ship Contract Design/ Live Fire T&E				Project (Number/Name) 3108 / CVN 80 Total Ship Integration			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3108: CVN 80 Total Ship Integration	0.000	0.000	1.000	30.103	-	30.103	32.910	31.908	27.607	25.873	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 223

A. Mission Description and Budget Item Justification

The increase from FY 16 to FY 17 is due to increased integration efforts in Enterprise Air Surveillance Radar and beginning CVN 78 class Design for Affordability efforts in FY 17.

Development and related testing of CVN 78 Class aircraft carrier specific technologies, the infusion of the ship technology base into existing and future aircraft carriers, and the potential realization of subsystem design capabilities not currently feasible. This project also funds the Contract Design efforts for the CVN 80. This project transitions the minimum sustaining technologies required to address obsolescence, critical survivability shortfalls as identified in CVN 78 Class testing, future requirements, and technologies which did not mature in time to support the CVN 78 or CVN 79. All systems developed in this project have the potential to support emerging requirements and other promising system technologies for insertion into new aircraft carrier designs. The emphasis is directed toward developing ship hull, mechanical, propulsion, electrical, aviation, warfare systems, and combat support systems, sub-systems and components to maintain aircraft carrier affordability, manpower requirements, survivability, and operational capabilities and to meet the requirements of existing and pending regulations and statutes critical to the operation of future aircraft carriers. This project also encompasses those tasks required to support CVN 80 procurement, including, but not limited to engineering support, programmatic and program support, modeling and simulation, manpower and program related studies, and design support systems, such as the Integrated Digital Environment.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Enterprise Air Surveillance Radar (EASR)	0.000	1.000	8.489	0.000	8.489
Articles:	-	-	-	-	-
FY 2015 Accomplishments: N/A					
FY 2016 Plans: Conduct/prepare risk analysis/reports: changes and risk of change to CVN 79/80 baseline. Execute Requirements Engineering, Architecture: radar and infrastructure requirements, test planning, and continue the architecture model database including incorporating CVN-78 design updates and evaluate impacts (physical/ logical) for system deferral, upgrades, and elimination items. Combat System Testing; conduct test site survey for EASR and EASR Radar Suite elements and integration testing. Conduct study to determine moving CANES					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / <i>Ship Contract Design/ Live Fire T&E</i>	Project (Number/Name) 3108 / <i>CVN 80 Total Ship Integration</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
to Phase 2 with minimal impact to ship installation and key events. Evaluate and incorporate CFE Networks as part of the DoD Risk Management Framework to support Cyber Security Requirements.					
<i>FY 2017 Base Plans:</i> Continue conducting / preparing risk reduction studies / reports, to include development of a risk / opportunity database to support future-decision making. Continue conducting technology assessment studies. Execute Requirements Engineering and Architecture, including creating a radar specification traceability matrix to the CVN ORD and development and maintenance of a new CVN Warfare System architecture. Conduct ship integration studies for GFI vetting, tracking and delivery. Continue conducting onboard and off-board EMI / EMC studies due to new the radar sensor. Continue analyzing / performing integrated topside design due to new radar sensor. Conduct power interface trade studies based upon radar prime power requirement and conduct trade studies to analyze platform power against transformer design and platform power against cost of ship modification. Continue conducting system integration studies related to the TEMP: platform impacts & updates to TEMP; cybersecurity analysis; ISP updates supporting Net Ready KPP. Continue conducting RMA and ILS Studies, to include trade studies and identification of investment opportunities / requirements. Continue preparing / updating acquisition support documents, cost estimates and the RFP.					
<i>FY 2017 OCO Plans:</i> N/A					
<i>Title:</i> CVN 78 Class Design for Affordability (DFA)	0.000	0.000	21.614	0.000	21.614
<i>Articles:</i>	-	-	-	-	-
<i>FY 2015 Accomplishments:</i> N/A					
<i>FY 2016 Plans:</i> N/A					
<i>FY 2017 Base Plans:</i> Conduct or support feasibility and tradeoff studies on new and modified shipboard systems and equipment. Studies shall include engineering analyses, including KPP impact assessments; identification of subsystem, integration, logistics, and testing impacts; material procurement; preliminary cost estimates for decision making purposes; development of potential contract change documentation; conducting / supporting ship checks; developmental testing; and report development and submission. Discover and assess CVN 78 Class DFA initiatives. Develop cost-saving initiatives, game changers, business case analyses, and DFA initiatives to					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / <i>Ship Contract Design/ Live Fire T&E</i>	Project (Number/Name) 3108 / <i>CVN 80 Total Ship Integration</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
continue to drive affordability into the carrier program. Perform CVN 80-specific engineering calculations and technical analysis in the areas of technical performance measures, system component calculations, environmental safety and health, and human factors engineering, survivability, and vulnerability, automation systems software, shock and vibration, and engineered components support.					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.000	1.000	30.103	0.000	30.103

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• SCN / 2001: <i>Carrier Replacement Program</i>	1,219.425	2,431.929	2,662.567	-	2,662.567	4,361.180	1,650.189	1,734.546	3,095.202	Continuing	Continuing
• RDTEN / 0603570N: <i>Propulsion Plant Development (PU 2692)</i>	60.459	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1,526.813
• SCN / 5300: <i>Completion of Prior Year Shipbuilding Programs</i>	663.000	123.760	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1,374.860
• RDTEN / 0604112N: <i>Project Units 2208, 4004</i>	46.308	98.105	70.528	-	70.528	96.339	83.499	43.653	26.693	Continuing	Continuing
• OMN / 1B2B: <i>CVN 78 Ford Class Training (12BJ0)</i>	4.788	38.389	14.111	-	14.111	4.844	3.844	3.918	4.001	Continuing	Continuing
• RDTEN / 0604501N: <i>Project Unit 3236 Advanced Radar Technology</i>	0.589	23.301	68.037	-	68.037	68.411	27.601	0.000	0.000	0.000	187.939
• OPN /5664: <i>Surface Training Equipment</i>	0.000	0.000	4.733	-	4.733	4.010	0.000	0.000	0.000	0.000	8.743

Remarks

D. Acquisition Strategy
The CVN 80 is the third ship of the CVN 78 Class of aircraft carriers designed to replace USS ENTERPRISE and the ships of the NIMITZ Class Carriers. The CVN 80 is a modified repeat of the CVN 78, which features a new nuclear propulsion and electrical generation / distribution system, electromagnetic aircraft launching system, advanced arresting gear system, electric auxiliaries, warfare system improvements, survivability enhancements, improved weapons handling, and improved aircraft servicing. These design features will result in lower manpower and total ownership costs as compared to the NIMITZ Class. Additionally, the following war-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy Date: February 2016

Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
1319 / 5	PE 0604567N / Ship Contract Design/ Live Fire T&E	3108 / CVN 80 Total Ship Integration

fighting benefits will be realized: increased sortie generation rate, improved ship self defense capability, increased launch and recovery capability / flexibility, increased operational availability, and increased flexibility to support future upgrades.

CVN 80 will use late integration of Government-Furnished Equipment to provide the latest combat system and C4I suite applications within the planned system baseline. CVN 80 will improve upon processes used on CVN 78 to gain efficiencies during the CVN 80 Construction Preparation and Construction periods.

E. Performance Metrics

Successfully initiate the following tasks: 1) Development of risk impact statements, 2) Radar specification and traceability to test documents and 3) Development and maintenance of new CVN Warfare System architecture database.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / Ship Contract Design/ Live Fire T&E	Project (Number/Name) 3108 / CVN 80 Total Ship Integration
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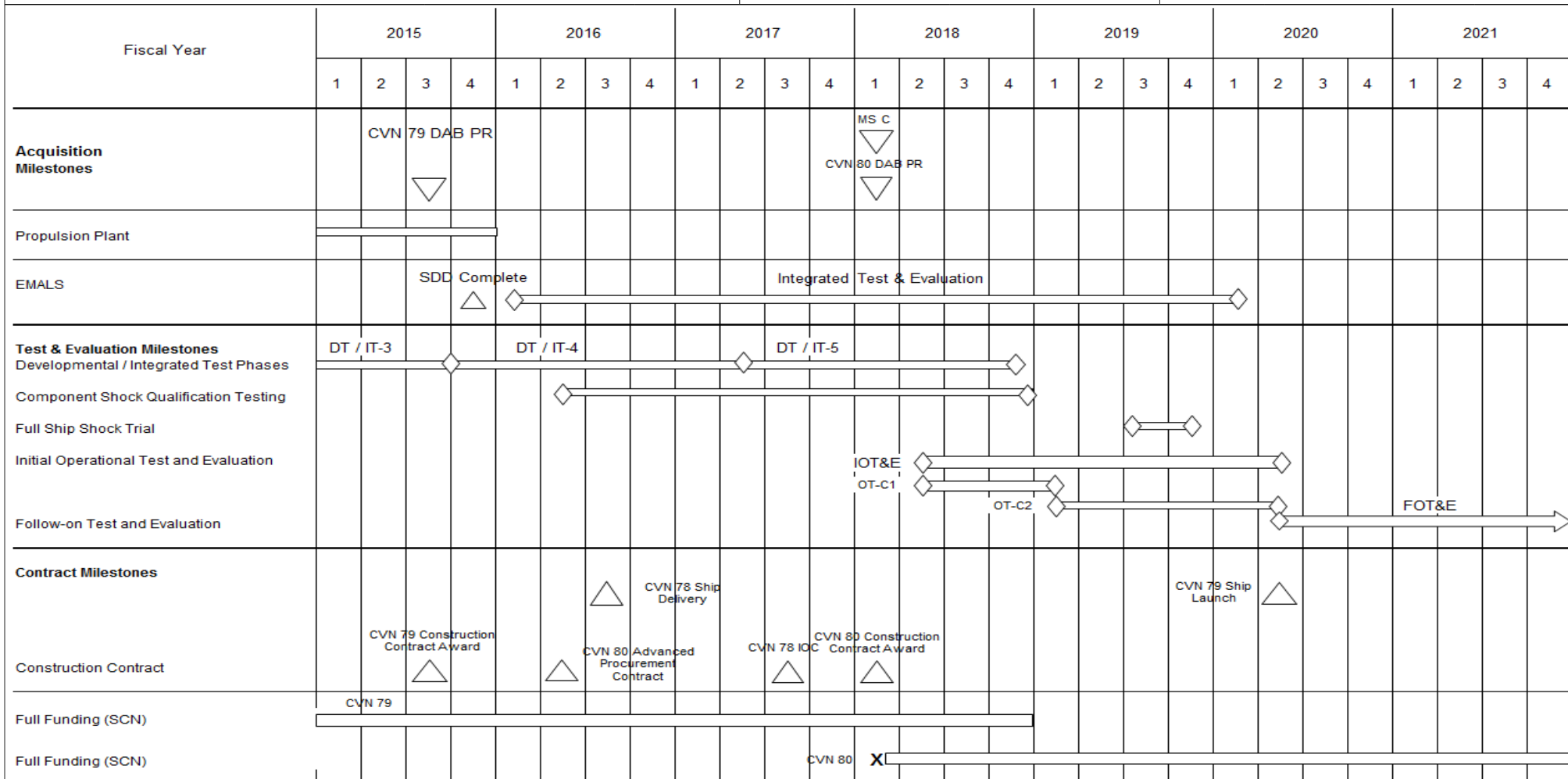
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Advanced Design & Development	C/CPAF	HII : VA	0.000	0.000		0.000		18.100	Nov 2016	-		18.100	Continuing	Continuing	Continuing
Advanced Design & Development	C/CPAF	RAYTHEON : VA	0.000	0.000		0.454	Feb 2016	3.910	Nov 2016	-		3.910	Continuing	Continuing	Continuing
Advanced Design & Development	WR	NSWC DAHLGREN : VA	0.000	0.000		0.301	Feb 2016	2.536	Nov 2016	-		2.536	Continuing	Continuing	Continuing
Advanced Design & Development	WR	NSWC CARDEROCK : MD	0.000	0.000		0.000		1.485	Nov 2016	-		1.485	0.000	1.485	-
Advanced Design & Development	C/CPFF	NAVSEA SEAPORT : DC	0.000	0.000		0.000		2.162	Nov 2016	-		2.162	0.000	2.162	-
Advanced Design & Development	C/BA	NAWCAD PAX RIVER : MD	0.000	0.000		0.000		0.806	Nov 2016	-		0.806	0.000	0.806	-
Advanced Design & Development	WR	SPAWAR : CA	0.000	0.000		0.245	Feb 2016	0.000		-		0.000	0.000	0.245	-
Advanced Design & Development	Various	MISCELLANEOUS : VARIOUS	0.000	0.000		0.000		1.104	Nov 2016	-		1.104	0.000	1.104	-
Subtotal			0.000	0.000		1.000		30.103		-		30.103	-	-	-
Project Cost Totals			0.000	0.000		1.000		30.103		-		30.103	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / Ship Contract Design/ Live Fire T&E	Project (Number/Name) 3108 / CVN 80 Total Ship Integration
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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / <i>Ship Contract Design/ Live Fire T&E</i>	Project (Number/Name) 3108 / <i>CVN 80 Total Ship Integration</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3108				
CVN 79 DAB PR	3	2015	3	2015
CVN 80 DAB PR	1	2018	1	2018
Milestone C	1	2018	1	2018
Propulsion Plant	1	2015	4	2015
EMALS SDD Complete	4	2015	4	2015
EMALS Integrated Test & Evaluation (IT&E)	1	2016	1	2020
DT/IT -3- Developmental Test / Integrated Test Phase 3	1	2015	3	2015
DT/IT -4- Developmental Test / Integrated Test Phase 4	4	2015	2	2017
DT/IT -5- Developmental Test / Integrated Test Phase 5	2	2017	4	2018
Component Shock Qualification Testing	2	2016	4	2018
Full Ship Shock Trial	3	2019	4	2019
Initial Operational Test & Evaluation	2	2018	2	2020
OT-C1 - Initial Operational Test & Evaluation - Phase C1	2	2018	1	2019
OT-C2 - Initial Operational Test & Evaluation - Phase C2	1	2019	2	2020
FOT&E - Follow-On Test & Evaluation	2	2020	4	2021
CVN 78 Ship Delivery	3	2016	3	2016
CVN 78 Initial Operational Capability (IOC)	3	2017	3	2017
CVN 79 Construction Contract Award	3	2015	3	2015
CVN 80 Advanced Procurement Contract Award	2	2016	2	2016
CVN 80 Construction Contract Award	1	2018	1	2018
CVN 79 SCN Full Funding	1	2015	4	2018

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / <i>Ship Contract Design/ Live Fire T&E</i>	Project (Number/Name) 3108 / <i>CVN 80 Total Ship Integration</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
CVN 79 Ship Launch	2	2020	2	2020
CVN 80 SCN Full Funding	1	2018	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604567N / Ship Contract Design/ Live Fire T&E				Project (Number/Name) 3179 / CVN-79 Total Ship Integration			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3179: CVN-79 Total Ship Integration	153.772	18.499	13.387	17.081	-	17.081	16.810	14.729	15.069	15.392	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 223

A. Mission Description and Budget Item Justification

Development and related testing of CVN 78 Class aircraft carrier specific technologies, the infusion of the ship technology base into existing and future aircraft carriers, and the potential realization of subsystem design capabilities not currently feasible. This project also funds the Contract Design efforts for the CVN 79. This project transitions the minimum sustaining technologies required to address obsolescence, critical survivability shortfalls as identified in CVN 78 Class testing, future requirements, and technologies which did not mature in time to support the CVN 78. All systems developed in this project have the potential to support emerging requirements and other promising systems technologies for insertion into new aircraft carrier designs. The emphasis is directed toward developing ship hull, mechanical, propulsion, electrical, aviation, warfare systems, and combat support systems, sub-systems and components to maintain aircraft carrier affordability, manpower requirements, survivability, and operational capabilities and to meet the requirements of existing and pending regulations and statutes critical to the operation of future aircraft carriers. This project also encompasses those tasks required to develop the contract data package necessary to support CVN 79 procurement, including, but not limited to, engineering support, programmatic and program support, logistics support, modeling and simulation, manpower and program related studies, and design support systems, such as the Integrated Digital Environment. In addition, this project focuses on significant procurement and life cycle cost reduction compared to the first ship of the class. Cost reductions are sought, developed and implemented in the areas of design, labor and material.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: CVN-79 Total Ship Integration	18.499	13.387	17.081	0.000	17.081
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Continued to identify and develop cost reduction measures, including Design for Affordability (DFA) efforts that enhance affordability via technology initiatives, producibility improvements and production efficiencies. Integrated the unique maintenance, storage and handling requirements to deploy with the F-35C. Assessed design, equipment and system changes between CVN 78 and CVN 79 to identify candidate equipment and / or systems that may require Follow-on Test and Evaluation. Completed the CVN 78 Class shock and vibration testing. Addressed design and construction issues based on the results of CVN 78 testing. Continued to manage fact-of-life and obsolescence changes on government furnished equipment systems.					
FY 2016 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / <i>Ship Contract Design/ Live Fire T&E</i>	Project (Number/Name) 3179 / <i>CVN-79 Total Ship Integration</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Continue to develop cost reduction measures in support of CVN 79 and follow-on ship affordability. Assess design and process changes to further address JP-5 CRES piping system integrity. Continue to integrate the unique maintenance, storage and handling requirements to deploy with the F-35C. Continue to address design, equipment, and system changes between CVN 78 and CVN 79 to identify candidate equipment and / or systems that may require Follow-on Test and Evaluation (FOT&E). Continue to address design and construction issues based on the results of CVN 78 testing. Continue to manage fact-of-life and obsolescence changes on government furnished equipment systems. FY 2017 Base Plans: Continue to address design, equipment, and system changes between CVN 78 and CVN 79 to identify candidate equipment and / or systems that may require FOT&E. Continue to address design and construction issues based on the results of CVN 78 testing. Continue to manage fact-of-life and obsolescence changes on government furnished equipment systems. Initiate CVN 79 Phase II study to develop a strategy to efficiently transition from Phase I construction to Phase II and final delivery of CVN 79. FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	18.499	13.387	17.081	0.000	17.081

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• RDTEN / 0603570N: <i>Propulsion Plant Development (PU 2692)</i>	60.459	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1,526.813
• SCN / 2001: <i>Carrier Replacement Program</i>	1,219.425	2,431.929	2,662.567	-	2,662.567	4,361.180	1,650.189	1,734.546	3,095.202	Continuing	Continuing
• SCN / 5300: <i>Completion of Prior Year Shipbuilding Programs</i>	663.000	123.760	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1,374.860
• RDTEN / 0604112N: <i>Project Units 2208, 4004</i>	46.308	98.105	70.528	-	70.528	96.339	83.499	43.653	26.693	Continuing	Continuing
• OMN / 1B2B: <i>CVN 78 Ford Class Training (12BJ0)</i>	4.788	38.389	14.111	-	14.111	4.844	3.844	3.918	4.001	Continuing	Continuing
• OPN / 5664: <i>Surface Training Equipment</i>	0.000	0.000	4.733	-	4.733	4.010	0.000	0.000	0.000	0.000	8.743

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / <i>Ship Contract Design/ Live Fire T&E</i>	Project (Number/Name) 3179 / <i>CVN-79 Total Ship Integration</i>

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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 class 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 system development efforts for designated new and modified shipboard system, including developmental test and evaluation documents. Successfully complete design related activities associated with integration of new and modified shipboard systems into the ship, including developmental test and evaluation documentation. Successfully perform system design and analysis studies. Successfully support design integration and analysis. Successfully complete or support feasibility and tradeoff studies on new and modified shipboard systems, technologies, and proposed modifications. Studies shall include requirements and engineering analysis; identification of subsystem, integration, and logistics impacts; cost estimates; analysis of construction schedule impacts; and conduct / support of shipchecks. Successfully provide Manpower Workload Analysis associated with design and policy activities, and with integration of new and modified system/equipment. Successfully complete the development of multiple Business Case Analyses (BCAs) that demonstrate technology, process, requirements and / or infrastructure improvements that will reduce the man hours (or equivalent material costs) for CVN 79 Construction.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / Ship Contract Design/ Live Fire T&E	Project (Number/Name) 3179 / CVN-79 Total Ship Integration
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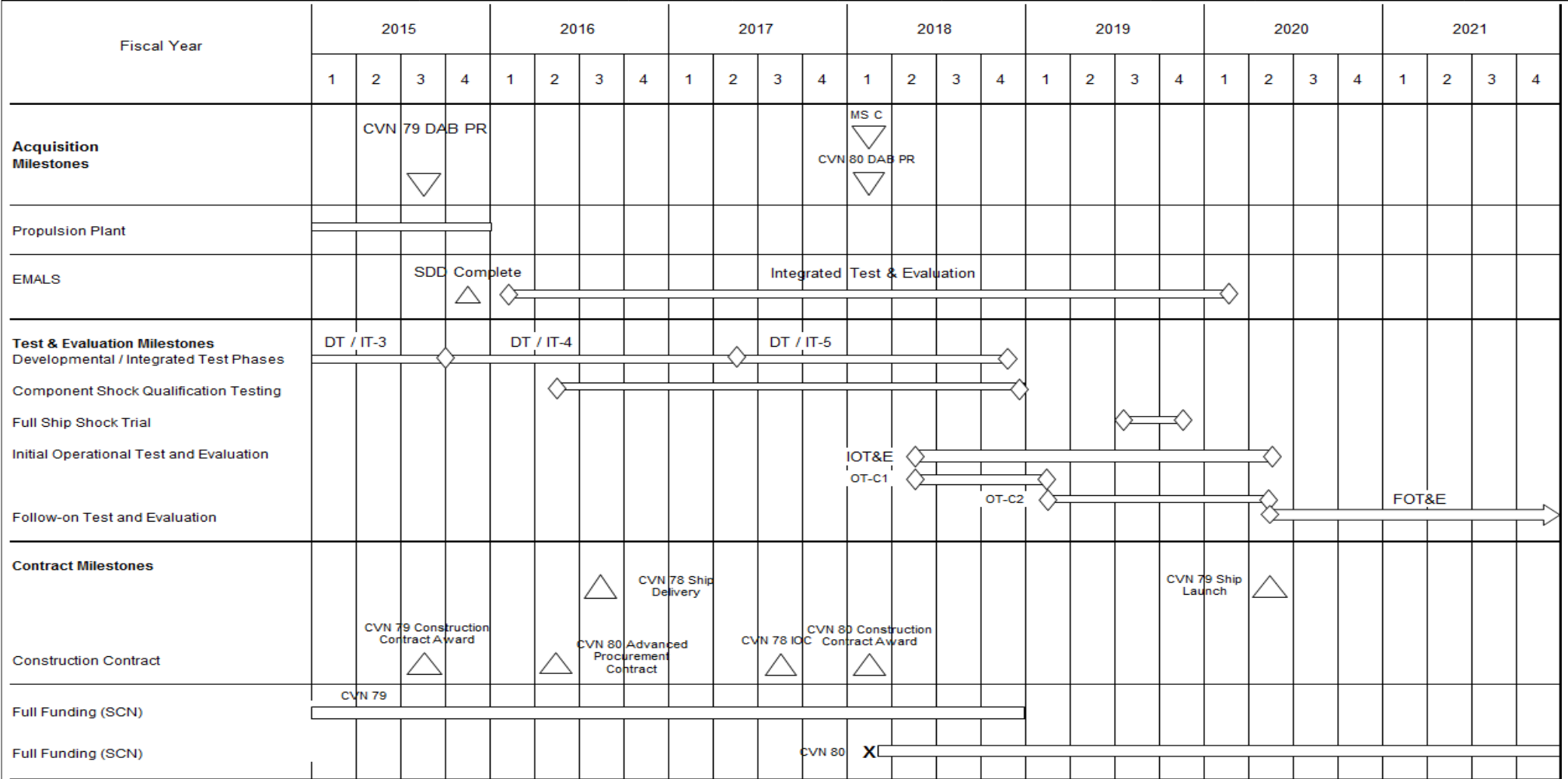
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Total Ship Integration	C/CPAF	HII : VA	77.802	9.367	Oct 2014	4.365	Nov 2015	6.633	Nov 2016	-		6.633	Continuing	Continuing	Continuing
Total Ship Integration	WR	NSWC CARDEROCK : MD	12.330	1.012	Jan 2015	0.198	Nov 2015	0.200	Nov 2016	-		0.200	Continuing	Continuing	Continuing
Total Ship Integration	WR	NSWC DAHLGREN : VA	9.058	1.608	Oct 2014	1.614	Oct 2015	1.700	Oct 2016	-		1.700	Continuing	Continuing	Continuing
Total Ship Integration	WR	NAWCAD PAX RIVER : MD	4.518	0.519	Oct 2014	1.885	Oct 2015	1.268	Oct 2016	-		1.268	Continuing	Continuing	Continuing
Total Ship Integration	WR	SPAWAR : SD	3.827	0.338	Nov 2014	0.269	Nov 2015	0.300	Nov 2016	-		0.300	Continuing	Continuing	Continuing
Total Ship Integration	C/CPFF	NAVSEA SEAPORT : DC	21.014	2.045	Dec 2014	2.000	Dec 2015	1.950	Dec 2016	-		1.950	Continuing	Continuing	Continuing
Total Ship Integration	C/CPAF	RAYTHEON : MA	7.320	1.625	Jan 2015	1.556	Dec 2015	1.815	Dec 2016	-		1.815	Continuing	Continuing	Continuing
Total Ship Integration	WR	SSC CHARLESTON : SC	0.671	0.127	Oct 2014	0.000		0.000		-		0.000	0.000	0.798	-
Total Ship Integration	C/CPFF	SAIC : VA	1.445	0.000		0.000		0.000		-		0.000	0.000	1.445	-
Total Ship Integration	Various	NSRP : Various	10.586	1.670	Mar 2015	0.000		1.670	Dec 2016	-		1.670	Continuing	Continuing	Continuing
Subtotal			148.571	18.311		11.887		15.536		-		15.536	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	C/CPAF	HII : VA	0.000	0.000		0.220	Nov 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	NSWC CARDEROCK : MD	4.721	0.000		0.000		0.000		-		0.000	0.000	4.721	-
Developmental Test & Evaluation	WR	NUWC NEWPORT : RI	0.123	0.000		0.018	Nov 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	NSWC DAHLGREN : VA	0.000	0.188	Oct 2014	0.934	Nov 2015	1.188	Nov 2016	-		1.188	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	NAVFAC LANT : VA	0.000	0.000		0.105	Nov 2015	0.000		-		0.000	Continuing	Continuing	Continuing

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / Ship Contract Design/ Live Fire T&E	Project (Number/Name) 3179 / CVN-79 Total Ship Integration
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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / <i>Ship Contract Design/ Live Fire T&E</i>	Project (Number/Name) 3179 / <i>CVN-79 Total Ship Integration</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3179				
CVN 79 DAB PR	3	2015	3	2015
CVN 80 DAB PR	1	2018	1	2018
Milestone C	1	2018	1	2018
Propulsion Plant	1	2015	4	2015
EMALS SDD Complete	4	2015	4	2015
EMALS Integrated Test & Evaluation (IT&E)	1	2016	1	2020
DT/IT -3- Developmental Test / Integrated Test Phase 3	1	2015	3	2015
DT/IT -4- Developmental Test / Integrated Test Phase 4	4	2015	2	2017
DT/IT -5- Developmental Test / Integrated Test Phase 5	2	2017	4	2018
Component Shock Qualification Testing	2	2016	4	2018
Full Ship Shock Trial	3	2019	4	2019
Initial Operational Test & Evaluation	2	2018	2	2020
OT-C1 - Initial Operational Test & Evaluation - Phase C1	2	2018	1	2019
OT-C2 - Initial Operational Test & Evaluation - Phase C2	1	2019	2	2020
FOT&E - Follow-On Test & Evaluation	2	2020	4	2021
CVN 78 Ship Delivery	3	2016	3	2016
CVN 78 Initial Operational Capability (IOC)	3	2017	3	2017
CVN 79 Construction Contract Award	3	2015	3	2015
CVN 80 Advanced Procurement Contract Award	2	2016	2	2016
CVN 80 Construction Contract Award	1	2018	1	2018
CVN 79 SCN Full Funding	1	2015	4	2018

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / <i>Ship Contract Design/ Live Fire T&E</i>	Project (Number/Name) 3179 / <i>CVN-79 Total Ship Integration</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
CVN 79 Ship Launch	2	2020	2	2020
CVN 80 SCN Full Funding	1	2018	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / Ship Contract Design/ Live Fire T&E	Project (Number/Name) 3369 / Hybrid Electric Drive
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3369: Hybrid Electric Drive	0.000	7.814	3.773	1.691	-	1.691	1.503	1.439	1.374	1.412	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project includes the DON Energy Initiative related to the DDG 51 Hybrid Electric Drive to reduce DDG 51 Class ship energy consumption and increase mission effectiveness through longer time on station. This project supports propulsion at low ship speeds without the need for LM 2500 main engines. Fuel savings from the Hybrid Electric Drive system will be achieved by utilizing fewer gas turbines for propulsion and ship service power generation while also loading gas turbines generators at a more efficient operating load. Provides critical foundation for SECNAV and CNO objectives to achieve greater Navy-wide energy security.

Note: FY 2014 and prior year funding is resourced under project 1803 in this program element.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: DON Energy Initiative	7.814	3.773	1.691	0.000	1.691
Articles:	-	-	-	-	-
Description: This project is a DON Energy Initiative related to the DDG 51 Hybrid Electric Drive (HED) to reduce DDG 51 Class ship energy consumption and increase mission effectiveness through longer time on station.					
FY 2015 Accomplishments: Complete Machinery Control System (MCS) integration development and environmental qualification testing. Continued training, integrated logistics support (ILS), and ship integration design development (efforts continued from those resourced under project 1803). Begin Land Based Engineering Sites (LBES) Installation and Checkout of the pre-production unit.					
FY 2016 Plans: Complete MCS software development. Complete Land Based Engineering Sites (LBES) Installation and Checkout of the pre-production unit. Commence initial LBES integration testing. Complete Integrated Logistics Support (ILS) certifications and ship design development.					
FY 2017 Base Plans: Validate the HED system performance during at-sea testing. Develop and test additional MCS software baselines.					
FY 2017 OCO Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / <i>Ship Contract Design/ Live Fire T&E</i>	Project (Number/Name) 3369 / <i>Hybrid Electric Drive</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
Accomplishments/Planned Programs Subtotals	7.814	3.773	1.691	0.000	1.691

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• OPN 0140: <i>Hybrid Electric Drive (HED)</i>	12.638	29.106	40.132	-	40.132	41.008	41.954	42.824	43.678	104.916	356.256

Remarks

D. Acquisition Strategy

A full and open competition with a Fixed Price Incentive Fee Contract awarded for the development, qualification, and delivery of the Engineering Development Models (EDM) Hybrid Electric Drive (HED) and the initial HED production shipsets for the DDG 51 Fleet Modernization Program.

E. Performance Metrics

Completion of Engineering Development Model (EDM) and complete fielding of First Article (FA) including contract award, design, manufacturing, and delivery. Completion of Factory Acceptance Test (FAT) and performance testing in Land Based Engineering Site (LBES). Commencement, completion, delivery and installation of Low Rate Initial Production (LRIP) units. Achieve fuel efficiency and increase on-station time.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity 1319 / 5				R-1 Program Element (Number/Name) PE 0604567N / Ship Contract Design/ Live Fire T&E					Project (Number/Name) 3369 / Hybrid Electric Drive						
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
DON Energy Initiative - OEM	C/FPIF	L-3 Maritime Systems : Leesburg, VA	0.000	2.337	Jan 2015	0.750	Jan 2016	0.400	Jan 2017	-		0.400	Continuing	Continuing	Continuing
Subtotal			0.000	2.337		0.750		0.400		-		0.400	-	-	-
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
HED - DON Energy Initiative -OEM	WR	NSWC/SSES : Philadelphia, PA	0.000	5.152	Dec 2014	2.923	Dec 2015	1.291	Dec 2016	-		1.291	Continuing	Continuing	Continuing
HED - DON Energy Initiative -OEM	Various	SUPSHIP BATH : Bath, ME	0.000	0.325	Jan 2015	0.100	Jan 2016	0.000		-		0.000	0.000	0.425	-
Subtotal			0.000	5.477		3.023		1.291		-		1.291	-	-	-
Project Cost Totals			0.000	7.814		3.773		1.691		-		1.691	-	-	-
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / <i>Ship Contract Design/ Live Fire T&E</i>	Project (Number/Name) 3369 / <i>Hybrid Electric Drive</i>
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Fiscal Year	2015				2016				2017				2018				2019				2020				2021			
Acquisition Milestones - Project 3369	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Hybrid Electric Drive Contract Design & Production																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / <i>Ship Contract Design/ Live Fire T&E</i>	Project (Number/Name) 3369 / <i>Hybrid Electric Drive</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3369				
Hybrid Electric Drive Contract Design and Production	1	2015	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / Ship Contract Design/ Live Fire T&E	Project (Number/Name) 3374 / MPF(F)
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3374: MPF(F)	0.000	0.000	0.000	0.694	-	0.694	0.463	0.000	0.000	0.000	0.000	1.157
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project 3374 - Maritime Prepositioning Force (Future) - MPF(F) - Concept studies, preliminary, contract designs and technology development and testing leading to detail design, and construction award of ship systems for the initial operational capability milestone achievement that will provide a highly flexible, operational and logistics support capability to enable Expeditionary Maneuver Warfare concepts and to meet required operational capabilities with respect to Force Closure, Amphibious Task Force Integration, Sustainment and Reconstitution/Redeployment.

FY 2016 and prior year efforts were financed under the National Sealift Defense Fund (NDSF) BA 04, Project 3110 (Maritime Prepositioning Force (Future)). FY 2015 NDSF BA 04 Project 3110 amount: \$8.454M. FY 2016 NDSF BA 04 Project 3110 amount: \$1.768M. This project is not a new start

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Engineering and Acquisition Support	0.000	0.000	0.694	0.000	0.694
Articles:	-	-	-	-	-
FY 2015 Accomplishments: N/A					
FY 2016 Plans: N/A					
FY 2017 Base Plans: FY17 - Continue tracking execution of Test and Evaluation schedule to Test and Evaluation Master Plan (TEMP) - Complete Initial Operational Test and Evaluation (IOT&E) Phase 2 for Expeditionary Mobile Base (ESB) - Complete Total Ship Survivability Trial (TSST) and Final Survivability Assessment Report (FSAR) for Expeditionary Transfer Dock (ESD) Live Fire Test and Evaluation (LFT&E) - Perform ESB Final Operational Test and Evaluation (FOT&E)					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.000	0.000	0.694	0.000	0.694

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / Ship Contract Design/ Live Fire T&E	Project (Number/Name) 3374 / MPF(F)
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• NDSF/0401: <i>MPF MLP Acquisition</i>	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1,551.684
• SCN/3039: <i>Afloat Forward Staging Base</i>	0.000	635.000	0.000	-	0.000	27.000	0.000	0.000	0.000	0.000	1,241.300

Remarks

D. Acquisition Strategy

To supplement the current maritime prepositioning force, and to provide in theater capability to support resupplying a Maritime Expeditionary Brigade, the Department is procuring 2 Expeditionary Transfer Dock (ESD, formerly MLP) in FY11, and three (one each in FY12, FY14 and FY16) Expeditionary Mobile Base (ESB, formerly MLP AFSB Variant configuration).

E. Performance Metrics

Annual Program Review

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / Ship Contract Design/ Live Fire T&E	Project (Number/Name) 3374 / MPF(F)
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Operational Test & Evaluation	WR	COTF : Norfolk, Virginia	0.000	0.000		0.000		0.290	Jan 2017	-		0.290	0.482	0.772	-
Live Fire Test & Evaluation	WR	CSC : Washington DC	0.000	0.000		0.000		0.100	Jan 2017	-		0.100	0.000	0.100	-
Developmental Test & Evaluation	WR	CSC : Washington DC	0.000	0.000		0.000		0.304	Jan 2017	-		0.304	0.000	0.304	-
Subtotal			0.000	0.000		0.000		0.694		-		0.694	0.482	1.176	-

Remarks
Award dates reflect initial award of incremental execution.

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000	0.000	0.694	-	0.694	0.482	1.176	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / Ship Contract Design/ Live Fire T&E	Project (Number/Name) 3374 / MPF(F)
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Proj 3374	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021											
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q								
TESTING																																				
									ESB DT&E																											
									ESB IT&E																											
									ESB OT&E																											
									ESB LFT&E																											

2017PB - 0604567N - 3374 NOTE: FY 17 and out are continuation of testing events which were previously funded in NDSF PE 0408042N Project 3110.

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / <i>Ship Contract Design/ Live Fire T&E</i>	Project (Number/Name) 3374 / MPF(F)

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3374				
TESTING: ESB DT&E	1	2017	1	2017
TESTING: ESB IT&E	1	2017	1	2017
TESTING: ESB OT&E	1	2017	1	2018
TESTING: ESB LFT&E	1	2017	2	2017

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604567N / Ship Contract Design/ Live Fire T&E				Project (Number/Name) 4007 / CVN 21 LFT&E			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
4007: CVN 21 LFT&E	58.291	3.391	4.208	3.736	-	3.736	3.940	4.041	4.131	4.221	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
Project MDAP/MAIS Code: 223												

A. Mission Description and Budget Item Justification

This project encompasses Live Fire Test and Evaluation (LFT&E) efforts for the CVN 78 Class. Title 10, US Code, Section 2366, CVN 21 Operational Requirements Document (ORD) and the CVN 78 Class Test and Evaluation Master Plan (TEMP) 1610 prescribe requirements for LFT&E. The purpose of LFT&E is to evaluate covered systems in a realistic combat environment before proceeding beyond low-rate initial production. Since the application of the survivability testing required by 10 USC 2366 to a CVN 78 Class ship would be unreasonably expensive and impractical, the Secretary of Defense waived the live fire testing requirement in 2004 and submitted a certification of that determination to Congress. The CVN 78 Class LFT&E Management Plan details the testing, modeling and simulation, and engineering analyses that are being used to determine whether CVN 78 Class ships will be able to survive and carry out their missions against the threat weapons identified in the Surface Ship Capstone System Threat Assessment Report (CSTAR) that are likely to be encountered in combat. The results of these tests and analyses are documented in periodic Vulnerability Assessment Reports (VARs).

The CVN 78 Class VAR 3 was completed in the summer of 2007 and the CVN 78 Class VAR 4 is scheduled to be completed in FY 16.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: CVN 21 LFT&E	3.391	4.208	3.736	0.000	3.736
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Completed the SVM analyses and documented the findings and results of the AIREX threats described in Critical LFT&E Issues IA 1-8 in the draft VAR 4. Using the enhanced CVN 78 full-ship structural Finite Element Model (FEM), commenced the Modeling & Simulation (M&S) Analytical Bridge studies of the CVN 78's response to Underwater Explosive (UNDEX) events. These studies were used to establish a bridge from the results of the surrogate live fire tests of scaled models of selected ship sections to the analytical results of the full-ship CVN 78 to similar UNDEX events. These studies were also used for Verification and Validation of the M&S tools, leading to increased confidence in the M&S results. Began planning for the CVN 78 Total Ship Survivability Trial (TSST), which is a full-ship, full-crew validation of previous Damage Scenario Based Engineering Analysis (DSBEA) assessments of the capabilities of the ship design to facilitate the crew's ability to contain the damage and restore mission capability after a weapon hit.					
FY 2016 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / <i>Ship Contract Design/ Live Fire T&E</i>	Project (Number/Name) 4007 / CVN 21 LFT&E

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Continue using the enhanced CVN 78 full-ship structural FEM to support the accomplishment of the M&S Analytical Bridge studies of the CVN 78's response to UNDEX events. Continue planning for the CVN 78 TSST, which includes continuing to update the DSBEAs selected as TSST scenarios and beginning the development of the TSST drill guides. FY 2017 Base Plans: Continue using the enhanced CVN 78 full-ship structural FEM to support the accomplishment of the M&S Analytical Bridge studies of the CVN 78's response to UNDEX events. Finalize DSBEAs utilized for TSST Scenarios #3 and #4. Continue developing TSST procedures and implementation guides in support of an FY 18 TSST execution. Purchase majority of equipment that will be required for TSST in FY 18. FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	3.391	4.208	3.736	0.000	3.736

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• RDTEN / 0603570N: <i>Propulsion Plant Development (PU 2692)</i>	60.459	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1,526.813
• SCN / 2001: <i>Carrier Replacement Program</i>	1,219.425	2,431.929	2,662.567	-	2,662.567	4,361.180	1,650.189	1,734.546	3,095.202	Continuing	Continuing
• SCN / 5300: <i>Completion of Prior Year Shipbuilding Programs</i>	663.000	123.760	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1,374.860
• RDTEN / 0604112N: <i>Project Units 2208, 4004</i>	46.308	98.105	70.528	-	70.528	96.339	83.499	43.653	26.693	Continuing	Continuing
• OMN / 1B2B: <i>CVN 78 Ford Class Training (12BJ0)</i>	4.788	38.389	14.111	-	14.111	4.844	3.844	3.918	4.001	Continuing	Continuing
• OPN /5664: <i>Surface Training Equipment</i>	0.000	0.000	4.733	-	4.733	4.010	0.000	0.000	0.000	0.000	8.743

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / <i>Ship Contract Design/ Live Fire T&E</i>	Project (Number/Name) 4007 / <i>CVN 21 LFT&E</i>

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.

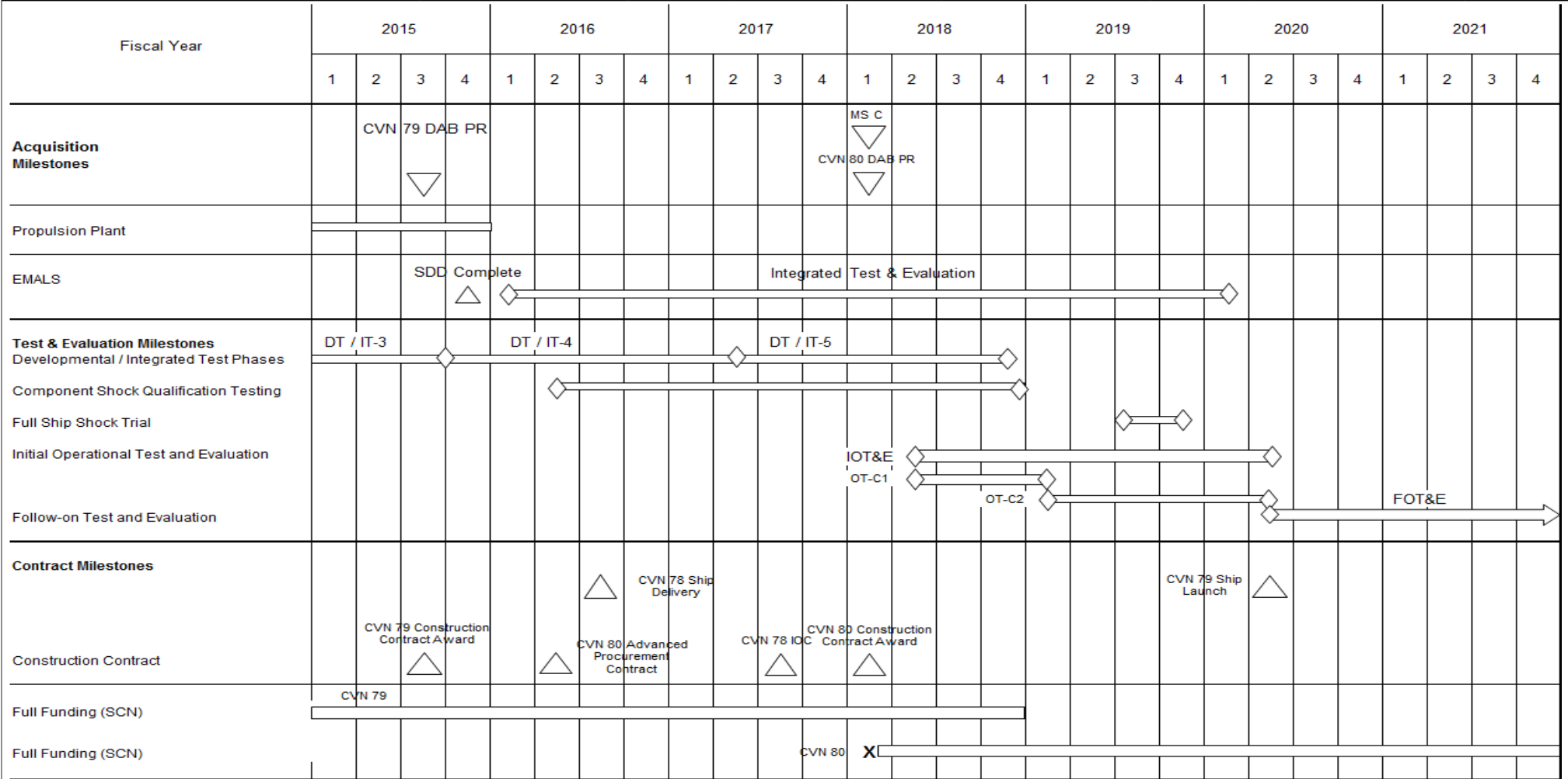
E. Performance Metrics

Complete: (1) the adjudication of final comments and updates to the CVN 78 Class LFT&E Management Plan, Revision B and route for signature; (2) the refinement of the CVN 78 structural FEM, in support of the Analytical Bridge analyses; and (3) the analyses and documentation for VAR 4 and route for signature.

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / Ship Contract Design/ Live Fire T&E	Project (Number/Name) 4007 / CVN 21 LFT&E
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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / <i>Ship Contract Design/ Live Fire T&E</i>	Project (Number/Name) 4007 / CVN 21 LFT&E

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 4007				
CVN 79 DAB PR	3	2015	3	2015
CVN 80 DAB PR	1	2018	1	2018
Milestone C	1	2018	1	2018
Propulsion Plant	1	2015	4	2015
EMALS SDD Complete	4	2015	4	2015
EMALS Integrated Test & Evaluation (IT&E)	1	2016	1	2020
DT/IT -3- Developmental Test / Integrated Test Phase 3	1	2015	3	2015
DT/IT -4- Developmental Test / Integrated Test Phase 4	4	2015	2	2017
DT/IT -5- Developmental Test / Integrated Test Phase 5	2	2017	4	2018
Component Shock Qualification Testing	2	2016	4	2018
Full Ship Shock Trial	3	2019	4	2019
Initial Operational Test & Evaluation	2	2018	2	2020
OT-C1 - Initial Operational Test & Evaluation - Phase C1	2	2018	1	2019
OT-C2 - Initial Operational Test & Evaluation - Phase C2	1	2019	2	2020
FOT&E - Follow-On Test & Evaluation	2	2020	4	2021
CVN 78 Ship Delivery	3	2016	3	2016
CVN 78 Initial Operational Capability (IOC)	3	2017	3	2017
CVN 79 Construction Contract Award	3	2015	3	2015
CVN 80 Advanced Procurement Contract Award	2	2016	2	2016
CVN 80 Construction Contract Award	1	2018	1	2018
CVN 79 SCN Full Funding	1	2015	4	2018

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604567N / <i>Ship Contract Design/ Live Fire T&E</i>	Project (Number/Name) 4007 / CVN 21 LFT&E
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
CVN 79 Ship Launch	2	2020	2	2020
CVN 80 SCN Full Funding	1	2018	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604574N / <i>Navy Tactical Computer Resources</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	0.000	3.884	4.096	3.098	-	3.098	4.839	4.730	4.097	4.062	Continuing	Continuing
3360: <i>Common Processing System (CPS)</i>	0.000	1.297	1.368	0.892	-	0.892	1.698	1.633	1.477	1.508	Continuing	Continuing
3361: <i>Common Display System (CDS)</i>	0.000	2.587	2.728	2.206	-	2.206	3.141	3.097	2.620	2.554	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Common Processing System (CPS) and Common Display System (CDS) programs support developing open architecture hardware and technology in a competitively sourced environment. CPS & CDS provide technical replacements for obsolete display and processing equipment (such as AN/UYQ-70) for multiple warfare systems aboard CVN, LHA, LPD, LHD, CG-47, DDG-1000, and DDG-51 class ships. CPS provides the computer processing and memory, data storage and extraction, and Input/Output (I/O) interface to support hosting Navy combat system software applications and computing resources in AEGIS Modernization, AEGIS new construction, Surface Electronic Warfare Improvement Program (SEWIP), CVN-TSC, and other Navy programs. CDS provides operator display consoles with a common human machine interface for AEGIS modernization, AEGIS new construction, DDG-1000, CVN, Gun Weapon System (GWS), Ship Self Defense System (SSDS) MK 2, SEWIP, and Unmanned Carrier Launched Airborne Surveillance and Strike (UCLASS). Funding provides for technical management and Engineering Change Proposals (ECP) development for the common baseline. Procurement and development funds provided by user programs to support program unique requirements.

B. Program Change Summary (\$ in Millions)

	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>
Previous President's Budget	3.935	4.096	4.205	-	4.205
Current President's Budget	3.884	4.096	3.098	-	3.098
Total Adjustments	-0.051	0.000	-1.107	-	-1.107
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.051	0.000			
• Rate/Misc Adjustments	0.000	0.000	-1.107	-	-1.107

Change Summary Explanation

Decrease in Navy Tactical Computer Resources by \$0.13M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604574N / Navy Tactical Computer Resources				Project (Number/Name) 3360 / Common Processing System (CPS)			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3360: Common Processing System (CPS)	0.000	1.297	1.368	0.892	-	0.892	1.698	1.633	1.477	1.508	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Common Processing System (CPS) program supports developing open architecture computer processing hardware and storage technology in a competitively sourced environment. CPS provides technical replacements for obsolete processing equipment (such as AN/UYQ-70) for multiple warfare systems aboard CVN, LHA, LHD, LSD, CG-47, and DDG-51 class ships. CPS serves as the computer processing and memory, data storage and extraction, and Input/Output (I/O) interface to support hosting Navy combat system software applications and computing resources in AEGIS Modernization, AEGIS new construction, SSDS, SEWIP, CVN, UCLASS and other Navy programs. Funding provides for technical management and ECP development for the common product baseline. Procurement and development funds are provided by user programs to support program unique requirements.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Common Processing System (CPS)	1.297	1.368	0.892	0.000	0.892
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Supported system engineering support of CPS TI-12 on installed platforms including AEGIS Destroyers and Cruisers undergoing modernization, DDG new construction, AEGIS Ashore, CVN, and CVN/Amphib, SEWIP, UCLASS and SSDS Mk 2 ships. Supported build to print requirements development in support of contract award efforts for TI-16 CPS equipment.					
FY 2016 Plans: Continue system engineering support of CPS TI-12 / TI-16 on installed platforms including AEGIS Destroyers and Cruisers undergoing modernization, DDG new construction, AEGIS Ashore, CVN, and CVN/Amphib, SEWIP, UCLASS and SSDS Mk 2 ships. Support System Engineering efforts required to achieve Production Readiness Review					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604574N / Navy Tactical Computer Resources	Project (Number/Name) 3360 / Common Processing System (CPS)

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
(PRR) milestone required to support AEGIS Modernization, AEGIS New Construction, CVN, CVN/Amphib, SEWIP, UCLASS and SSDS Mk 2 Ships. FY 2017 Base Plans: Continue system engineering support of CPS TI-12 / TI-16 on installed platforms including AEGIS Destroyers and Cruisers undergoing modernization, DDG new construction, AEGIS Ashore, CVN, and CVN/Amphib, SEWIP, UCLASS and SSDS Mk 2 ships. Support System Engineering efforts required to achieve In-Progress Review for TI-Next milestone required to support AEGIS Modernization, AEGIS New Construction, CVN, CVN/Amphib, SEWIP, UCLASS and SSDS Mk 2 Ships. FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	1.297	1.368	0.892	0.000	0.892

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

CPS TI-16: Award build to Print IDIQ production contract for FY16-FY21.

E. Performance Metrics

Major Milestones:

- CPS TI-12 Build-To-Print Contract Award
- CPS TI-12 Production Readiness Review
- CPS TI-16 Production Contract Award
- CPS TI-16 Preliminary Design Review
- CPS TI-16 Critical Design Review
- CPS TI-16 Test Readiness Review
- CPS TI-16 Production Readiness Review
- CPS TI-20 In Process Review No. 1
- CPS TI-20 In Process Review No. 2
- CDP TI-20 Preliminary Design Review

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604574N / <i>Navy Tactical Computer Resources</i>	Project (Number/Name) 3360 / <i>Common Processing System (CPS)</i>
CPS TI-20 Production Readiness Review		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604574N / Navy Tactical Computer Resources	Project (Number/Name) 3360 / Common Processing System (CPS)
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Systems Engineering	WR	NSWC : PHD	0.000	0.010	Oct 2014	0.000	Oct 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC : Dahlgren	0.000	0.619	Oct 2014	0.765	Nov 2015	0.775	Nov 2016	-		0.775	Continuing	Continuing	Continuing
Systems Engineering	C/CPIF	TBD : TBD	0.000	0.626	Oct 2014	0.561	Jan 2016	0.063	Nov 2016	-		0.063	0.000	1.250	-
Subtotal			0.000	1.255		1.326		0.838		-		0.838	-	-	-

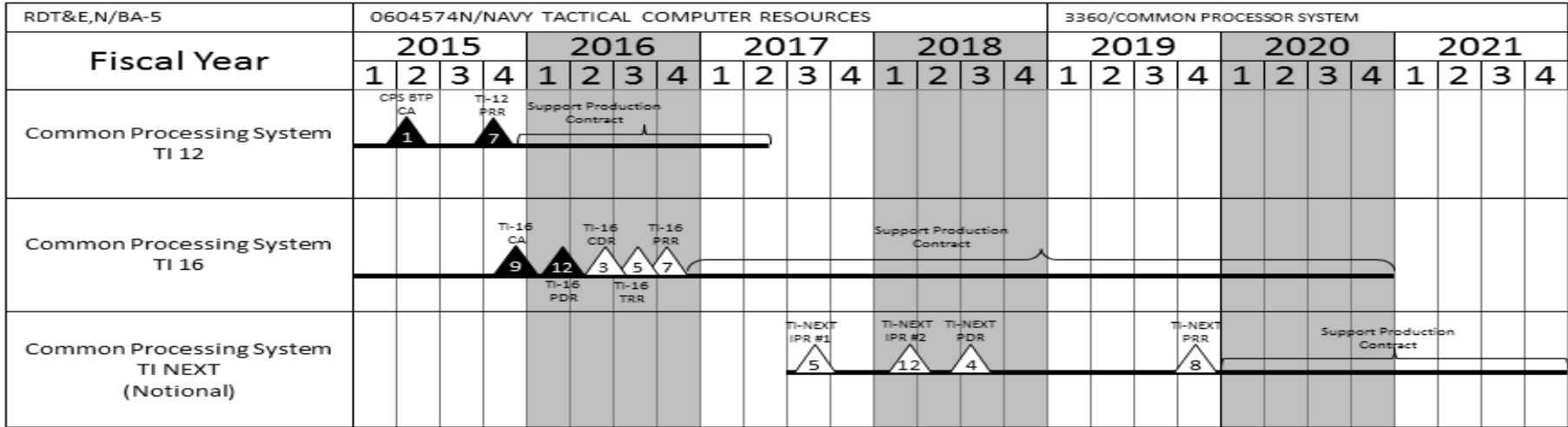
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Services	Various	Various : Various	0.000	0.042	Oct 2014	0.042	Oct 2015	0.054	Oct 2016	-		0.054	Continuing	Continuing	Continuing
Subtotal			0.000	0.042		0.042		0.054		-		0.054	-	-	-

			Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	1.297		1.368		0.892		-		0.892	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604574N / Navy Tactical Computer Resources	Project (Number/Name) 3360 / Common Processing System (CPS)



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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604574N / Navy Tactical Computer Resources	Project (Number/Name) 3360 / Common Processing System (CPS)

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3360				
CPS TI 12 Built-To-Print Contract Award	2	2015	2	2015
CPS TI 12 Production Readiness Review	4	2015	4	2015
CPS TI 16 Production Contract Award	4	2015	4	2015
CPS TI 16 Preliminary Design Review	1	2016	1	2016
CPS TI 16 Critical Design Review	2	2016	2	2016
CPS TI 16 Test Readiness Review	3	2016	3	2016
CPS TI 16 Production Readiness Review	4	2016	4	2016
CPS TI 20 In Progress Review (IPR) No. 1	3	2017	3	2017
CPS TI 20 In Progress Review (IPR) No. 2	1	2018	1	2018
CPS TI Next PDR	3	2018	3	2018
CPS TI Next PRR	4	2019	1	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604574N / Navy Tactical Computer Resources				Project (Number/Name) 3361 / Common Display System (CDS)			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3361: Common Display System (CDS)	0.000	2.587	2.728	2.206	-	2.206	3.141	3.097	2.620	2.554	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Common Display System (CDS) program supports developing open architecture hardware and technology in a competitively sourced environment. CDS provides technical replacements for obsolete display equipment (such as AN/UYQ-70) for multiple warfare systems aboard CVN, LHA, LHD, LSD, CG-47, DDG-1000, and DDG-51 class ships. CDS provides operator display consoles with a common human machine interface for AEGIS Modernization, AEGIS new construction, SSDS, DDG-1000, CVN, GWS, SSDS MK 2, SEWIP, and UCLASS. Funding provides for technical management and ECP development for the common baseline. Procurement and development funds provided by user programs for program unique requirements.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Common Display System (CDS)	2.587	2.728	2.206	0.000	2.206
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					
Supported system engineering support of CDS TI-12 on multiple platforms including AEGIS Destroyers and Cruisers undergoing modernization, DDG new construction, AEGIS Ashore, CVN, DDG 1000, CVN/Amphib SSDS and other ships. Awarded CDS TI-16 Common Display System contract. Supported Engineering efforts required to complete Preliminary Design Review (PDR) and Critical Design Review (CDR) as planned to support AEGIS Modernization, DDG new construction, AEGIS Ashore, CVN, DDG 1000, CVN/Amphib SSDS and other ships.					
FY 2016 Plans:					
Continue system engineering support of CDS TI-12 / TI-16 on multiple platforms including AEGIS Destroyers and Cruisers undergoing modernization, DDG new construction, AEGIS Ashore, CVN, DDG 1000, CVN/Amphib SSDS and other ships. Support Engineering efforts required to complete Test Readiness Review (TRR) and Production Readiness Review (PRR)					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604574N / Navy Tactical Computer Resources	Project (Number/Name) 3361 / Common Display System (CDS)

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
as planned to support AEGIS Modernization, DDG new construction, AEGIS Ashore, CVN, DDG 1000, CVN/ Amphib SSDS and other ships. FY 2017 Base Plans: Continue system engineering support of CDS TI-12 / TI-16 on multiple platforms including AEGIS Destroyers and Cruisers undergoing modernization, DDG new construction, AEGIS Ashore, CVN, DDG 1000, CVN/Amphib SSDS and other ships. Support System Engineering efforts required to achieve In-Progress Review and System Requirements Review (SRR) milestone required to support for TI-Next AEGIS Modernization, AEGIS New Construction, CVN, CVN/Amphib, SEWIP, UCLASS and SSDS Mk 2 Ships. FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	2.587	2.728	2.206	0.000	2.206

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

Contracts:
CDS Indefinite Delivery Indefinite Quantity (IDIQ) Production continues FY15-FY16.

E. Performance Metrics

- CDS TI-12 Contract Award
- CDS TI-12 Production Readiness Review
- CDS TI-16 Contract Award
- CDS TI-16 Preliminary Design Review
- CDS TI-16 Critical Design Review
- CDS TI-16 Test Readiness Review
- CDS TI-16 Production Readiness Review
- CDS TI 20 In Process Review No. 1
- CDS TI 20 System Requirements Review

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604574N / <i>Navy Tactical Computer Resources</i>	Project (Number/Name) 3361 / <i>Common Display System (CDS)</i>
CDS TI 20 In Process Review No. 2 CDS TI 20 Preliminary Design Review CDS TI 20 Critical Design Review CDS TI 20 In Process Review No. 3 CDS TI 20 Test Readiness Review CDS TI 20 Production Readiness Review		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604574N / Navy Tactical Computer Resources	Project (Number/Name) 3361 / Common Display System (CDS)
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Systems Engineering	WR	NSWC : PHD	0.000	0.114	Oct 2014	0.098	Dec 2015	0.106	Dec 2016	-		0.106	Continuing	Continuing	Continuing
Systems Engineering	WR	NSWC : Dahlgren	0.000	1.698	Oct 2014	1.519	Oct 2015	1.600	Oct 2016	-		1.600	Continuing	Continuing	Continuing
Systems Engineering	C/CPFF	General Dynamics : Fairfax, VA	0.000	0.311	Oct 2014	0.150	Oct 2015	0.154	Oct 2016	-		0.154	0.000	0.615	-
Systems Engineering	C/CPIF	DRS Technologies : Gaithersburg, MD	0.000	0.373	Oct 2014	0.150	Oct 2015	0.152	Oct 2016	-		0.152	0.000	0.675	-
Systems Engineering	C/CPIF	TBD : TBD	0.000	0.000		0.719	Dec 2015	0.100	Dec 2016	-		0.100	0.000	0.819	-
Subtotal			0.000	2.496		2.636		2.112		-		2.112	-	-	-

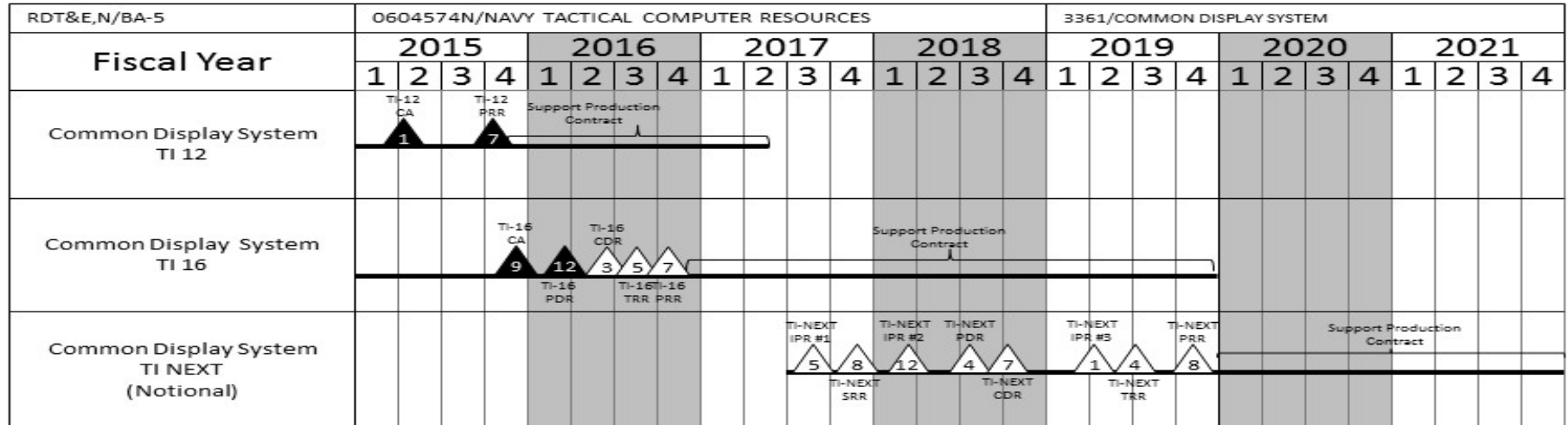
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Services	Various	Various : Various	0.000	0.091	Oct 2014	0.092	Oct 2015	0.094	Dec 2016	-		0.094	Continuing	Continuing	Continuing
Subtotal			0.000	0.091		0.092		0.094		-		0.094	-	-	-

Project Cost Totals	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
	0.000	2.587	2.728	2.206	-	2.206	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604574N / Navy Tactical Computer Resources	Project (Number/Name) 3361 / Common Display System (CDS)



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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604574N / Navy Tactical Computer Resources	Project (Number/Name) 3361 / Common Display System (CDS)

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3361				
CDS TI 12 Contract Award	2	2015	2	2015
CDS TI12 Production Readiness Review	4	2015	4	2015
CDS TI16 Production Contract Award	4	2015	4	2015
CDS TI16 Preliminary Design Review	1	2016	1	2016
CDS TI16 Critical Design Review	2	2016	2	2016
CDS TI16 Test Readiness Review	3	2016	3	2016
CDS TI16 Production Readiness Review	4	2016	4	2016
CDS TI Next IPR No. 1	3	2017	3	2017
CDS TI Next System Requirements Review	4	2017	4	2017
CDS TI Next IPR No. 2	1	2018	1	2018
CDS TI Next Preliminary Design Review	3	2018	3	2018
CDS TI Next Critical Design Review	4	2018	4	2018
CDS TI Next IPR No. 3	2	2019	2	2019
CDS TI Next Test Readiness Review	3	2019	3	2019
CDS TI Next Production Readiness Review	4	2019	4	2019

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy I BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604580N I (U) <i>Virginia Payload Module (VPM)</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	57.282	106.223	167.719	97.920	-	97.920	72.165	0.000	0.000	0.000	0.000	501.309
4500: <i>VIRGINIA Payload Module</i>	57.282	106.223	167.719	97.920	-	97.920	72.165	0.000	0.000	0.000	0.000	501.309

Program MDAP/MAIS Code: 516

Note

1. Detailed design funding for this project transitions to SCN (BLI: 2013) beginning in FY17 to support VPM production beginning in FY19.

A. Mission Description and Budget Item Justification

The U.S. Navy must maintain a submarine fleet that is of sufficient capability and numbers to defend American interests. The VIRGINIA Class Submarine, formerly the New Attack Submarine (New SSN), is designed to fulfill this need. It will counter the potential threats of the next century in a multi-mission capable submarine that has the ability to provide covert, sustained combat presence in denied waters. The primary goal of the program is to develop an affordable yet capable submarine by evaluating a broad range of system and technology alternatives, and pursuing cost reduction, producibility improvement, and technical risk management. This Program Element (PE) provides the technology, prototype components, and systems engineering needed to design and construct the VIRGINIA Payload Module (VPM). VPM mitigates and will recapitalize the conventional TOMAHAWK Land Attack Missile (TLAM) gap created by the retirement of SSGNs in the late 2020s while maintaining current platform requirements. This PE directly supports the following VIRGINIA Class Submarine missions: (1) covert strike warfare; (2) anti-submarine warfare; (3) covert intelligence collection/surveillance, indication and warning, and electronic warfare; (4) anti-surface ship warfare; (5) special warfare; (6) mine warfare; and (7) battle group support.

B. Program Change Summary (\$ in Millions)

	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>
Previous President's Budget	120.602	167.719	100.234	-	100.234
Current President's Budget	106.223	167.719	97.920	-	97.920
Total Adjustments	-14.379	0.000	-2.314	-	-2.314
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-9.999	0.000			
• SBIR/STTR Transfer	-4.380	0.000			
• Program Adjustments	0.000	0.000	4.891	-	4.891
• Rate/Misc Adjustments	0.000	0.000	-7.205	-	-7.205

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy Date: February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604580N / (U) <i>Virginia Payload Module (VPM)</i>
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Change Summary Explanation

The FY 2015 congressional reduction was for SBIR.

FY 2015 Reprogramming was an adjustment to the program due to under-execution.

FY 2017 program adjustments include a reduction of \$2.109M for under-execution and a \$7M increase to account for rephasing of FY 2015 reprogramming.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604580N / (U)Virginia Payload Module (VPM)	Project (Number/Name) 4500 / VIRGINIA Payload Module
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
4500: VIRGINIA Payload Module	57.282	106.223	167.719	97.920	-	97.920	72.165	0.000	0.000	0.000	0.000	501.309
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project encompasses Navy RDT&E efforts required to incorporate a modular design for future VIRGINIA Class Submarines (VCS) which integrates additional strike payload capacity for Tomahawk Land Attack and follow on missiles. The design is targeted for VCS Block V (FY19-23 ships).

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Non-Propulsion Electronics System (NPES) Engineering	18.978	25.200	15.123	0.000	15.123
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					
Continue development of VPM system launch control and integration with existing VIRGINIA Class combat systems. Integrate and automate launch processes to enable efficient launch of payloads. Assess launcher electronics and software design to support rapid, low cost integration and testing of payloads. Reduce overall launch electronics weight and footprint, and provide increased unit space for future payload electronics. Products include specifications, systems diagrams, arrangements, implementation of Advanced Message Queuing Protocol (AMQP) to VPM network (CORBA technology replacement), next generation tomahawk (replaces TLAM BLK IV), implementation of new Tomahawk Control System (PMA280 software), implementation of TTWCS 5.6 supporting tomahawk cell tasking vice tube tasking.					
FY 2016 Plans:					
Continue development of VPM system launch control and integration with existing VIRGINIA Class combat systems. Integrate and automate launch processes to enable efficient launch of payloads. Assess launcher electronics and software design to support rapid, low cost integration and testing of payloads. Reduce overall launch electronics weight and footprint, and provide increased unit space for future payload electronics. Products include specifications, systems diagrams, arrangements, implementation of Advanced Message Queuing Protocol (AMQP) to VPM network (CORBA technology replacement), next generation tomahawk (replaces TLAM BLK IV), implementation of new Tomahawk Control System (PMA280 software), implementation of TTWCS 5.6 supporting tomahawk cell tasking vice tube tasking. EB will be assembling Functional Qualification Testing (FQT) and Software Qualification Testing (SQT) for Engineering Development Model (EDM). All EDM's will be delivered by FY2017. All PARMS (NUWC NPT, PMA280, 281, PMS425, EB) will be doing software					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604580N / (U)Virginia Payload Module (VPM)	Project (Number/Name) 4500 / VIRGINIA Payload Module

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>prototypes drops with fleet operators quarterly through FY16 and 17, in addition to an OPEX (operational exercise of the prototype) being completed every six month.</p> <p>FY 2017 Base Plans: Continue development of VPM system launch control and integration with existing VIRGINIA Class combat systems. Integrate and automate launch processes to enable efficient launch of payloads. Assess launcher electronics and software design to support rapid, low cost integration and testing of payloads. Reduce overall launch electronics weight and footprint, and provide increased unit space for future payload electronics. Products include specifications, systems diagrams, arrangements, implementation of Advanced Message Queuing Protocol (AMQP) to VPM network (CORBA technology replacement), next generation tomahawk (replaces TLAM BLK IV), implementation of new Tomahawk Control System (PMA280 software), implementation of TTWCS 5.6 supporting tomahawk cell tasking vice tube tasking. EB will be assembling Functional Qualification Testing (FQT) and Software Qualification Testing (SQT) for Engineering Development Model (EDM). All EDM's will be delivered by FY2017. All PARMS (NUWC NPT, PMA280, 281, PMS425, EB) will be doing software prototypes drops with fleet operators quarterly through FY16 and 17, in addition to an OPEX (operational exercise of the prototype) being completed every six month.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Hull, Mechanical, and Electrical (HM&E) Systems Engineering</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: Continue design efforts for the VPM including integration to existing hull structure, hydrodynamic assessments, hydraulic system design, tube control interface, and internal arrangements to accommodate hardware, electronics and personnel. Update Integrated Master Schedule (IMS) and Manufacturing Plans. Design studies to assess all ship characteristics including maneuvering, signature levels, shock survivability, operational impacts, recoverability and life cycle support. Products include specifications, system diagrams, arrangements, technical trade studies, prototype plan, system description documents, develop long lead time components and update requirements matrix.</p> <p>FY 2016 Plans: Continue design efforts for the VPM including integration to existing hull structure, hydrodynamic assessments, hydraulic system design, tube control interface, and internal arrangements to accommodate hardware, electronics and personnel. Executing Integrated Master Schedule (IMS) and Manufacturing Plans. Design</p>	87.245	142.519	82.797	0.000	82.797
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604580N / (U)Virginia Payload Module (VPM)	Project (Number/Name) 4500 / VIRGINIA Payload Module

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Verification and validation Integrated Tube and Hull (ITH) pattern. Pour and destructively test ITH Castings. Develop final ITH pattern. Start payload tube proto-tactical construction. Complete ship specifications and diagrams. Begin development of plug design arrangements and base ship arrangements. Products include specifications, system diagrams, arrangements, system description documents, long lead time components.</p> <p>FY 2017 Base Plans: Continue design efforts for the VPM including integration to existing hull structure, hydrodynamic assessments, hydraulic system design, tube control interface, and internal arrangements to accommodate hardware, electronics and personnel. Executing Integrated Master Schedule (IMS) and Manufacturing Plans. Continue payload tube proto-tactical construction. Continue development of plug design arrangements and base ship arrangements. Products include specifications, system diagrams, arrangements, system description documents, long lead time components and payload tube prototype.</p> <p>FY 2017 OCO Plans: N/A</p>					
Accomplishments/Planned Programs Subtotals	106.223	167.719	97.920	0.000	97.920

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• SCN//2013: VIRGINIA Class Submarine	5,832.079	5,340.110	4,999.774	-	4,999.774	4,942.085	6,482.887	6,645.646	4,328.526	0.000	93,770.560
• OPN/0942: VA CL Support Equipment	70.094	35.747	79.412	-	79.412	46.283	71.231	44.390	45.279	Continuing	Continuing
• O&MN/0204283N: Sub Ops & Safety	33.938	31.355	23.828	-	23.828	25.738	27.175	27.731	29.305	Continuing	Continuing
• RDT&E/0604558N: New Design SSN*	85.786	122.556	137.126	-	137.126	149.218	84.132	79.429	89.178	Continuing	Continuing

Remarks
*Note: RDT&E PE 0604558N contains project 3062: Submarine Multi-Mission Team Trainer which is not funding directly related to the VIRGINIA Class Program.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604580N / (U)Virginia Payload Module (VPM)	Project (Number/Name) 4500 / VIRGINIA Payload Module

D. Acquisition Strategy

The VIRGINIA Class Submarine Program has implemented Integrated Product and Process Development (IPPD). The traditional distinct phasing of the design process has been replaced with the continuous concurrent engineering IPPD process. The IPPD approach has facilitated a smoother transition from design to manufacturing and has reduced the number of changes typically encountered during construction of the lead and early follow-on ships. In September 1997, Congress passed a law allowing Electric Boat (EB) and Northrop Grumman Newport News (NGNN), now Huntington Ingalls Industries (HII), to team for production of the first four VIRGINIA Class Submarines. Under the teaming agreement, EB remained the design yard for the VIRGINIA Class Submarine and HII became a part of the IPPD process. The Program Office is managing three Multi-Year Procurement (MYP) contracts. The first and second contracts are for the Block II (FY04-08) and Block III (FY09-13) ships. The third contract is for Block IV (FY14-18) ships awarded April 2014. All Block I & II ships (SSNs 774-783) have been delivered. The first two Block III ships, SSN 784 and SSN 785, delivered in August 2014 and June 2015 respectively, with the remaining 6 ships awarded and under construction. Developmental efforts began in FY13 and will be executed via current Lead Design Yard Agent contract with Electric Boat.

E. Performance Metrics

Preliminary Design Review
Critical Design Review

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604580N / (U)Virginia Payload Module (VPM)	Project (Number/Name) 4500 / VIRGINIA Payload Module
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Component Development	WR	NSWC : Carderock, MD	12.500	10.392	Jan 2015	15.674	Nov 2015	11.200	Nov 2016	-		11.200	15.815	65.581	-
Component Development	WR	NUWC : Newport, RI	11.250	3.384	Jan 2015	7.647	Nov 2015	7.500	Nov 2016	-		7.500	20.538	50.319	-
Component Development	C/CPFF	Electric Boat : Groton, CT	33.282	85.197	Nov 2014	137.148	Nov 2015	70.720	Nov 2016	-		70.720	132.370	458.717	-
Component Development	C/CPFF	GD-AIS : Pittsfield, MA	0.000	7.000	Feb 2015	7.000	Nov 2015	5.600	Jan 2017	-		5.600	0.000	19.600	-
Component Development	WR	PMA 280/281 : Pax River, MD	0.000	0.000		0.000		2.700	Jan 2017	-		2.700	0.000	2.700	-
Component Development	SS/CPFF	ARL/PSU : UNIVERSITY PARK, PA	0.000	0.000		0.000		0.200	Jan 2017	-		0.200	0.000	0.200	-
Subtotal			57.032	105.973		167.469		97.920		-		97.920	168.723	597.117	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Contractor Engineering Support	C/CPAF	URS : Rockville, MD	0.250	0.250	Feb 2015	0.250	Nov 2015	0.000		-		0.000	0.500	1.250	-
Subtotal			0.250	0.250		0.250		0.000		-		0.000	0.500	1.250	-

Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	57.282	106.223	167.719	97.920	97.920	169.223	598.367	-

Remarks

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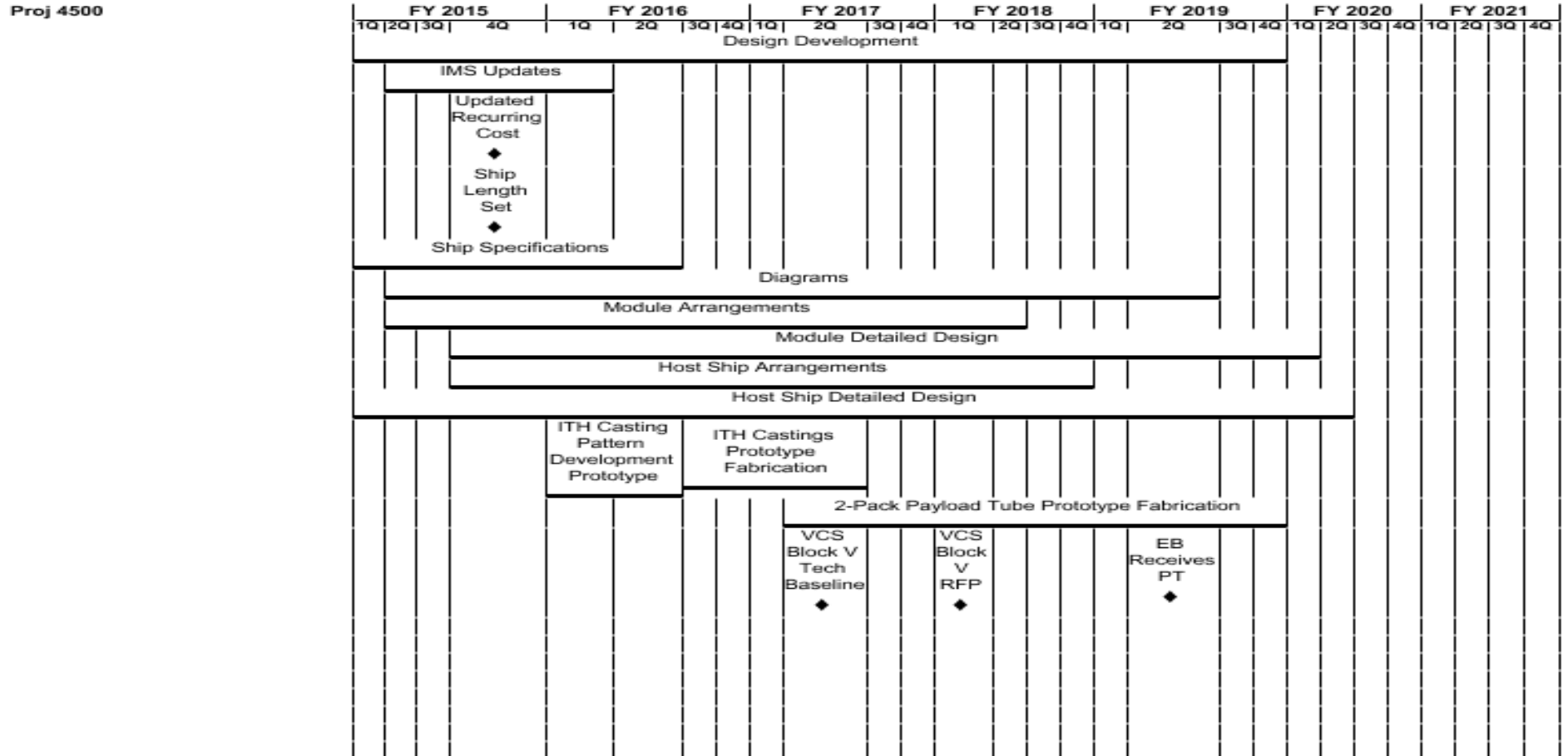
Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy

Date: February 2016

Appropriation/Budget Activity
1319 / 5

R-1 Program Element (Number/Name)
PE 0604580N / (U)Virginia Payload Module
(VPM

Project (Number/Name)
4500 / VIRGINIA Payload Module



2017DON - 0604580N - 4500

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604580N / (U)Virginia Payload Module (VPM)	Project (Number/Name) 4500 / VIRGINIA Payload Module

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 4500				
Design Development	1	2015	4	2019
IMS Updates	2	2015	1	2016
Updated Recurring Cost	4	2015	4	2015
Ship Length Set	4	2015	4	2015
Ship Specifications	1	2015	2	2016
Diagrams	2	2015	2	2019
Module Arrangements	2	2015	2	2018
Module Design Development	4	2015	1	2020
Host Ship Arrangements	4	2015	4	2018
Host Ship Design Development	1	2015	2	2020
ITH Casting Pattern Development Prototype	1	2016	2	2016
ITH Castings Prototype Fabrication	3	2016	2	2017
2-Pack Payload Tube Prototype Fabrication	2	2017	4	2019
VCS Block V Tech Baseline	2	2017	2	2017
VCS Block V RFP	1	2018	1	2018
EB Receives PT	2	2019	2	2019

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604601N / <i>Mine Development</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	211.306	10.962	15.122	10.490	-	10.490	17.640	11.024	8.775	8.968	Continuing	Continuing
0267: <i>Mine Improvements</i>	211.306	10.962	15.122	10.490	-	10.490	17.640	11.024	8.775	8.968	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project is the only R&D program for mine systems, and is the sole support for the capability to maintain the effectiveness of mines facing new threat targets and increasing emphasis on major regional conflicts and littoral warfare in shallow water. Project tasks are grouped into several areas: (1) Threat Modeling/Analysis, which collects, analyzes, and develops digital models of data on current priority threat target characteristics to support computer simulations; (2) Target Detection and Response, which uses target models to develop optimal mine designs, settings, and firing algorithms; (3) Developing and upgrading Tactical Decision Aids (TDAs) to assist the warfighter in planning and placing more effective minefields; (4) Test and Evaluation (T&E) to support aircraft certification; (5) Redesigning test sets for Submarine Launched Mobile Mine (SLMM) to address obsolescence; (6) Developing a conversion kit to convert SLMM warheads into Unmanned Underwater Vehicle (UUV) delivered mines. The first increment (FY15-FY16) focuses on rapid development using existing SLMM components including the Target Detection TDD Mk-57. The second increment (FY16-FY20) will improve upon the first increment by integrating the TDD Mk 71 and adding a remote command and control capability. (7) Design, develop and test the Clandestine Delivered Mine (CDM) capability.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	14.067	15.122	14.478	-	14.478
Current President's Budget	10.962	15.122	10.490	-	10.490
Total Adjustments	-3.105	0.000	-3.988	-	-3.988
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-2.730	0.000			
• SBIR/STTR Transfer	-0.375	0.000			
• Rate/Misc Adjustments	0.000	0.000	-3.988	-	-3.988

Change Summary Explanation

The FY 2017 funding request was reduced by \$3.4 million to account for the availability of prior year execution balances. Additional decrease by \$460 thousand to Mine Development as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

Total Adjustments: FY15 -\$2.730 BTR to ONR, and -\$375K: SBIR/Misc adjustments.

Total Adjustments: FY16

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity
1319: *Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)*

R-1 Program Element (Number/Name)
PE 0604601N / *Mine Development*

Total Adjustments: FY17 -\$3.988 Rate/Other adjustments.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604601N / <i>Mine Development</i>				Project (Number/Name) 0267 / <i>Mine Improvements</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
0267: <i>Mine Improvements</i>	211.306	10.962	15.122	10.490	-	10.490	17.640	11.024	8.775	8.968	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project is the only R&D program for mine systems, and is the sole support for the capability to maintain the effectiveness of mines facing new threat targets and increasing emphasis on major regional conflicts and littoral warfare in shallow water. Project tasks are grouped into several areas: (1) Threat Modeling/Analysis, which collects, analyzes, and develops digital models of data on current priority threat target characteristics to support computer simulations; (2) Target Detection and Response, which uses target models to develop optimal mine designs, settings, and firing algorithms;(3) Developing and upgrading Tactical Decision Aids (TDAs) to assist the warfighter in planning and placing more effective minefields; (4)Test and Evaluation (T&E) to support aircraft certification; (5)Redesigning Submarine Launched Mobile Mine (SLMM) components to address obsolescence; and (6) Developing conversion kits to enable clandestine UUV delivery of SLMM warheads. (7) Design, develop and test the Clandestine Delivered Mine (CDM) capability.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Product Development	8.313	12.346	7.840	0.000	7.840
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					
Software Development: Modified algorithms based on testing results. Continued generating OPDATA for the Fast Patrol Boat, Air Cushioned Vehicle, and large ship algorithms. Began development of a replacement test set to address SLMM obsolescence issues. Completed preliminary design of a Clandestine Delivered Mine (CDM) that uses existing SLMM components and legacy TDD Mk 57 to allow for delivery of mines by UUV. Design includes modifications to fuse components, batteries, weapon casing, and mine rails which attach the mines to the UUV. Initial prototyping and testing was conducted successfully.					
FY 2016 Plans:					
Modify algorithms based on testing results. Continue generating OPDATA for the Air Cushioned Vehicle. Deliver to the fleet new algorithms for the TDD Mk 71 for Fast Patrol Boat and large ships. Continue development of replacement test set for SLMM. Complete design of CDM and build prototypes for testing. Begin development of remote command and control capability for CDM and integration of the programmable TDD Mk 71. Conduct WSESRB testing and obtain concurrence for CDM phase 1.					
FY 2017 Base Plans:					
Deliver Air Cushioned Vehicle algorithm to the fleet for use within the TDD Mk 71. Support and assess results of end-to-end testing of CDM phase 1 during an in-water event that demonstrates weapon build-up, loading,					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604601N / Mine Development	Project (Number/Name) 0267 / Mine Improvements
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
transit, delivery, arming sequence, target detection, and simulated fire. Continue development of CDM phase 2 by integrating the programmable TDD Mk 71 and a remote command and control capability. FY 2017 OCO Plans: N/A					
Title: Support Articles:	0.050 -	0.050 -	0.060 -	0.000 -	0.060 -
FY 2015 Accomplishments: Information Assurance (IA) and technical support of Mine Warfare development lab for Quickstrike Mines. FY 2016 Plans: Information Assurance (IA) and technical support of Mine Warfare development lab for Quickstrike Mines. FY 2017 Base Plans: Information Assurance (IA) and technical support of Mine Warfare development lab for Quickstrike Mines. FY 2017 OCO Plans: N/A					
Title: Management: Articles:	0.050 -	0.050 -	0.050 -	0.000 -	0.050 -
FY 2015 Accomplishments: Program Management Support, contract support and Travel FY 2016 Plans: Program Management Support, contract support and Travel FY 2017 Base Plans: Program Management Support, contract support and Travel FY 2017 OCO Plans: N/A					
Title: Test and Evaluation Articles:	2.549 -	2.676 -	2.540 -	0.000 -	2.540 -
FY 2015 Accomplishments:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604601N / <i>Mine Development</i>	Project (Number/Name) 0267 / <i>Mine Improvements</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Continued aircraft certification (B-52 and F/A-18). Conducted flight testing of mines standoff (wing kit) prototype. Performed in-water testing of initial CDM prototype shapes. FY 2016 Plans: Continue aircraft certification (to include F/A-18). Conduct in-water testing for planned algorithms for TDD Mk 71. Conduct system and subsystem level testing on CDM in preparation for an end-to-end demonstration in FY17. Begin safety qualification testing of fuse and battery components of CDM. Conduct in-water test of CDM to evaluate interfaces with delivery vehicle, proper deployment and safe arming sequence. FY 2017 Base Plans: Finish aircraft certification of F/A-18. Conduct end-to-end testing of CDM phase 1 during an in-water event that demonstrates weapon build-up, loading, transit, delivery, arming sequence, target detection, and simulated fire. FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	10.962	15.122	10.490	0.000	10.490

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	<u>Cost To Complete</u>	<u>Total Cost</u>
• WPN 3231: <i>Quickstrike Mine</i>	6.966	10.754	1.236	-	1.236	10.276	7.313	5.224	5.334	0.000	91.030

Remarks

D. Acquisition Strategy
Procurement of Target Detecting Device (TDD) Mk 71, MK 62/63 kits, MK 65, Clandestine Delivered Mine (CDM) kits and associated components.

E. Performance Metrics
N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604601N / Mine Development	Project (Number/Name) 0267 / Mine Improvements
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary Hardware Development	WR	NSWC PC : WX	117.357	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Ancillary Hardware Development	C/CPAF	Various : Various	3.612	0.400	Dec 2014	0.050	Nov 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Ship Suitability	WR	NSWC PC : WX	2.467	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
GFE	C/CPAF	Various : Various	4.790	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Software Development	WR	NSWC, PC : WX	18.822	1.193	Dec 2014	1.200	Nov 2015	1.270	Nov 2016	-		1.270	0.000	22.485	-
Clandestine Mine	WR	NSWC, PC : WX	0.000	1.940	Nov 2014	3.603	Nov 2015	1.682	Nov 2016	-		1.682	0.000	7.225	-
Clandestine Mine	WR	NSWC, IH : WX	0.000	2.050	Nov 2014	3.963	Nov 2015	2.167	Nov 2016	-		2.167	0.000	8.180	-
Clandestine Mine	C/CPFF	JHU/APL : WX	0.000	2.730	Nov 2014	3.530	Nov 2015	2.721	Dec 2016	-		2.721	0.000	8.981	-
Subtotal			147.048	8.313		12.346		7.840		-		7.840	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
IA/ILS/Technical	WR	NSWC PC : WX	0.772	0.050	Nov 2014	0.050	Nov 2015	0.060	Nov 2016	-		0.060	Continuing	Continuing	Continuing
Subtotal			0.772	0.050		0.050		0.060		-		0.060	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Development Test & Evaluation	WR	NSWC PC : WX	26.522	2.549	Nov 2014	2.676	Nov 2015	2.540	Nov 2016	-		2.540	0.000	34.287	-
Subtotal			26.522	2.549		2.676		2.540		-		2.540	0.000	34.287	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy Date: February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604601N / <i>Mine Development</i>	Project (Number/Name) 0267 / <i>Mine Improvements</i>
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Government Engineering Support	C/CPAF	Various : Various	36.152	0.050	Dec 2014	0.050	Nov 2015	0.050	Dec 2016	-		0.050	0.000	36.302	-
Program Management Support	C/CPAF	Various : Various	0.728	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Travel	Various	NAVSEA : PD	0.074	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
DAWDF	Various	Various : Various	0.010	0.000		0.000		0.000		-		0.000	0.000	0.010	-
Subtotal			36.964	0.050		0.050		0.050		-		0.050	-	-	-
Project Cost Totals			211.306	10.962		15.122		10.490		-		10.490	-	-	-

Remarks

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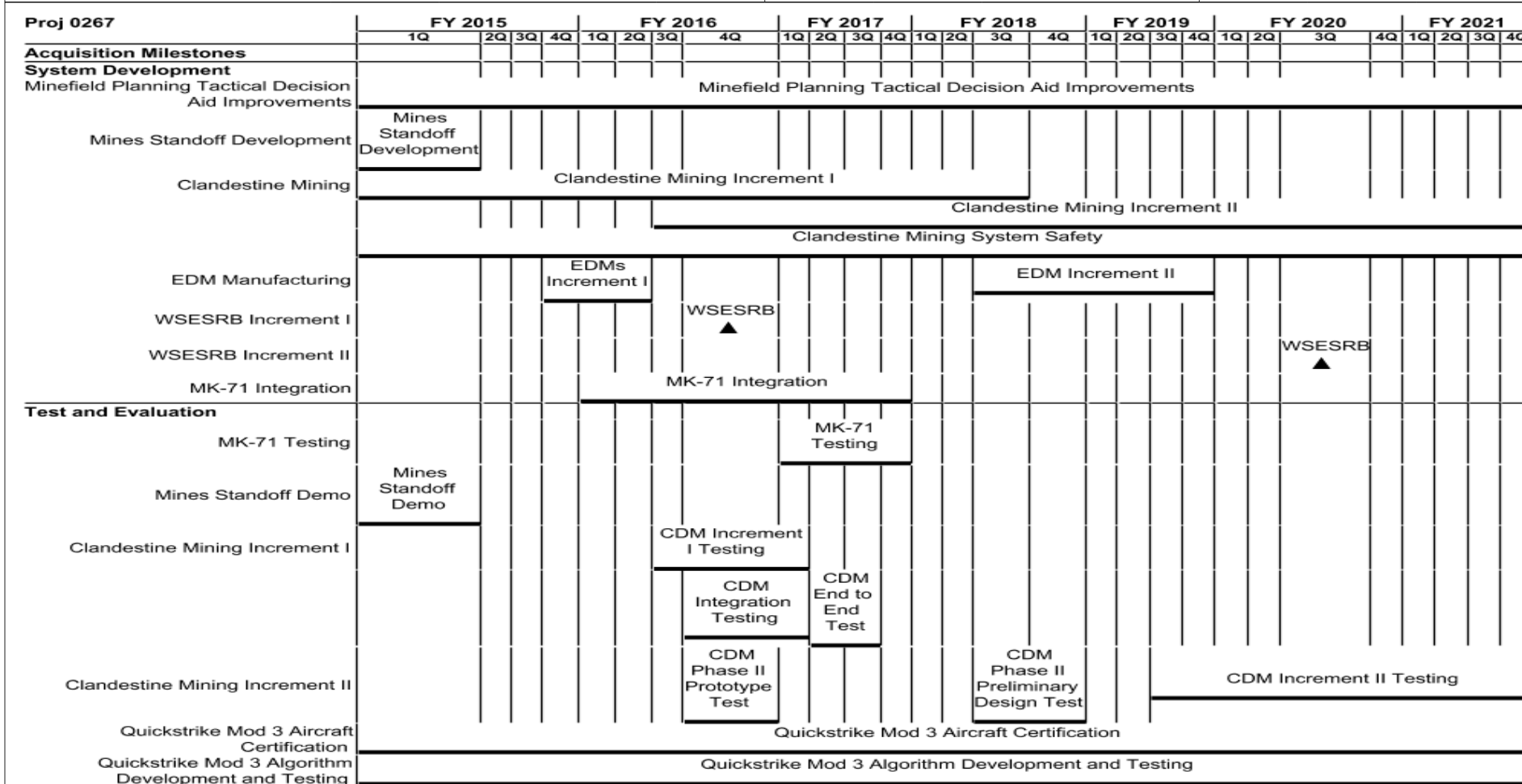
Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy

Date: February 2016

Appropriation/Budget Activity
1319 / 5

R-1 Program Element (Number/Name)
PE 0604601N / Mine Development

Project (Number/Name)
0267 / Mine Improvements



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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy Date: February 2016

Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
1319 / 5	PE 0604601N / <i>Mine Development</i>	0267 / <i>Mine Improvements</i>

2017PB - 0604601N - 0267

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604601N / <i>Mine Development</i>	Project (Number/Name) 0267 / <i>Mine Improvements</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 0267				
System Development: Minefield Planning Tactical Decision Aid Improvements:	1	2015	4	2021
System Development: Mines Standoff Development:	1	2015	1	2015
System Development: Clandestine Mining: Increment I	1	2015	3	2018
System Development: Clandestine Mining: Increment II	3	2016	4	2021
System Development: Clandestine Mining: System Safety	1	2015	4	2021
System Development: EDM Manufacturing: EDM Manufacturing Increment I	4	2015	2	2016
System Development: EDM Manufacturing: EDM Manufacturing Increment II	3	2018	4	2019
System Development: WSESRB Increment I: Increment I	4	2016	4	2016
System Development: WSESRB Increment II: Increment II	3	2020	3	2020
System Development: MK-71 Integration: MK-71 Integration	1	2016	4	2017
Test and Evaluation: MK-71 Testing: MK-71 Testing	1	2017	4	2017
Test and Evaluation: Mines Standoff Demo:	1	2015	1	2015
Test and Evaluation: Clandestine Mining Increment I: Increment I Testing	3	2016	1	2017
Test and Evaluation: Clandestine Mining Increment I: CDM Integration Testing	4	2016	1	2017
Test and Evaluation: Clandestine Mining Increment I: End to End Test	2	2017	3	2017
Test and Evaluation: Clandestine Mining Increment II: Testing	3	2019	4	2021
Test and Evaluation: Clandestine Mining Increment II: CDM Phase II Prototype Test	4	2016	4	2016
Test and Evaluation: Clandestine Mining Increment II: CDM Phase II Preliminary Design Test	3	2018	4	2018
Test and Evaluation: Quickstrike Mod 3 Aircraft Certification:	1	2015	4	2021
Test and Evaluation: Quickstrike Mod 3 Algorithm Development and Testing:	1	2015	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604610N / <i>Lightweight Torpedo Development</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	263.996	39.664	43.738	20.178	-	20.178	19.497	48.719	76.045	95.363	Continuing	Continuing
2234: <i>Lightweight Hybrid Torpedo</i>	263.996	29.994	33.738	20.178	-	20.178	14.497	13.719	14.045	14.363	Continuing	Continuing
3418: <i>Advanced Anti-Submarine Lightweight Torpedo</i>	0.000	0.000	0.000	0.000	-	0.000	5.000	35.000	62.000	81.000	Continuing	Continuing
9999: <i>Congressional Adds</i>	0.000	9.670	10.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	19.670

A. Mission Description and Budget Item Justification

The Lightweight Torpedo (LWT) program designs, integrates and tests the LWT MK 54. The LWT development program provides performance improvements in shallow water and counter-measure environments. The Engineering Development Model (EDM) contract has delivered 21 MK 54 MOD 1 EDM units to support the in-water test program. The EDM contract for the MK 54 MOD 1 was awarded to Progeny Systems Corporation in September 2008. The High Altitude Anti-Submarine Warfare Weapon Capability (HAAWC) development and Low Rate Initial Production (LRIP) contract was awarded to Boeing on April 2013. Initial Operating Capability (IOC) of the MK 54 MOD 0 was achieved in 2004. IOC of the MK 54 equipped VLA was achieved in 2010.

Budget supports Pre-Planned Product Improvement (P3I) program using an incremental developmental acquisition approach combining hardware and Advanced Processor Build (APB) software upgrades to enable rapid fielding of improvements to the fleet. The P3I program will focus on common LWT and Heavyweight Torpedo (HWT) hardware and software architecture enhancements that will provide re-architecture, broadband array improvements, and APB software improvements. Future APB software builds will utilize the common torpedo software to deliver software and tactics to both the MK 54 LWT, and MK 48 Advanced Capability (ADCAP). The P3I program will also support development of enhanced weapon delivery methods, including the high altitude launch of the MK 54 from the P-8A Maritime Patrol Reconnaissance Aircraft (MPRA) with the HAAWC.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604610N / <i>Lightweight Torpedo Development</i>
--	--

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	35.280	33.738	16.701	-	16.701
Current President's Budget	39.664	43.738	20.178	-	20.178
Total Adjustments	4.384	10.000	3.477	-	3.477
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	10.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	5.100	0.000			
• SBIR/STTR Transfer	-0.716	0.000			
• Program Adjustments	0.000	0.000	-1.840	-	-1.840
• Rate/Misc Adjustments	0.000	0.000	5.317	-	5.317

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 9999: *Congressional Adds*

Congressional Add: *LWT SBIR (Cong)*

	FY 2015	FY 2016
Congressional Add Subtotals for Project: 9999	9.670	10.000
Congressional Add Totals for all Projects	9.670	10.000

Change Summary Explanation

Decrease in Lightweight Torpedo Development by \$0.856M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

Funding: FY 17 program adjustments are due to a reduction for underexecution, increase in funding to continue to develop HAAWC, and for rate and inflation adjustments.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604610N / <i>Lightweight Torpedo Development</i>				Project (Number/Name) 2234 / <i>Lightweight Hybrid Torpedo</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2234: <i>Lightweight Hybrid Torpedo</i>	263.996	29.994	33.738	20.178	-	20.178	14.497	13.719	14.045	14.363	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The program designs, integrates and tests the LWT MK54. The LWT provides performance improvements in shallow water, counter-measure environments. The EDM contract was awarded to Raytheon Systems Company in June 1996. IOC of the MK 54 MOD 0 achieved in 2004. IOC of MK 54 equipped VLA achieved in 2010.

- FY 2014 achievement of Block Upgrade (BUG) IOC
- FY 2016 HAAWC Contract delivery of 6 engineering units
- FY 2016 HAAWC Contract delivery of 14 EDM units
- FY 2020 achievement of HAAWC IOC
- FY 2021 achievement of MK 54 MOD 1 IOC

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: MK54 Pre-Planned Product Improvement	29.994	33.738	20.178	0.000	20.178
Articles:	20	-	-	-	-
Description: MK54 P3I includes the MK54 VLA integration and HAAWC programs.					
FY 2015 Accomplishments:					
Conducted MK 54 MOD 1 Production Readiness Review (PRR).					
Continued development of hardware/software improvements for P3I program.					
Continued development of MK 54 high altitude launch capability from MPA (HAAWC).					
FY 2016 Plans:					
Conduct MK 54 MOD 1 DT					
Continue development of hardware/software improvements for P3I program.					
Continue development of MK 54 high altitude launch capability from MPA (HAAWC).					
Conduct first HAAWC flight tests.					
FY 2017 Base Plans:					
Continue MK 54 MOD 1 DT					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604610N / <i>Lightweight Torpedo Development</i>	Project (Number/Name) 2234 / <i>Lightweight Hybrid Torpedo</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Continue HAAWC development. FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	29.994	33.738	20.178	0.000	20.178

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• WPN/3215: <i>MK54 Torpedo Mods</i>	64.155	113.219	98.092	-	98.092	116.048	127.219	141.046	143.945	0.000	1,620.426

Remarks

D. Acquisition Strategy

The EDM contract held by Raytheon Systems Company supports an incremental upgrade strategy to counter evolving threats. The award of EDM contracts among qualified producers includes both hardware and software upgrades. The contract was awarded as a cost-plus-award fee in June 1996, and was converted to cost-plus-incentive fee in December 1998. Sole source production contract awarded in FY 2004 for MK 48 ADCAPS MODS/CBASS and MK 54 LWT. The MK 54 LWT kit fixed-price-incentive (firm target) procurement contract was awarded in September 2011 to Raytheon Systems Company. The MK 54 MOD 1 cost-plus-fixed-fee development contract was awarded to Progeny in September 2008.

E. Performance Metrics

Milestone reviews.
System engineering technical review.
Earned value management reviews.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
1319 / 5				PE 0604610N / <i>Lightweight Torpedo Development</i>				2234 / <i>Lightweight Hybrid Torpedo</i>							
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware Development - PRIOR YEAR	WR	NUWC : Newport/ Keyport	46.056	1.584	Oct 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Hardware Development - MK 54 MOD 1	WR	NUWC : Newport	0.000	0.000		1.025	Nov 2015	0.360	Oct 2016	-		0.360	0.000	1.385	-
Hardware Development - MK 54 MOD 1	SS/FP	Progeny Systems : Not Specified	24.394	0.000		0.000		0.000		-		0.000	0.000	24.394	-
Hardware Development - HAAWC	WR	NSWCCD : Carderock, MD	0.050	0.000		0.000		0.000		-		0.000	0.000	0.050	-
Hardware Development - HAAWC	C/CPAF	Boeing : St. Louis, MO	59.812	11.469	Apr 2015	21.267	Dec 2015	6.518	Oct 2016	-		6.518	Continuing	Continuing	Continuing
Hardware Development - HAAWC	WR	NSWCDD : Dahlgren, VA	0.000	0.400	Oct 2014	0.000		0.000		-		0.000	0.000	0.400	-
Hardware Development - INSENSITIVE MUNITIONS	C/BA	NUWC : Newport	0.000	0.000		0.210	Dec 2015	0.210	Oct 2016	-		0.210	0.000	0.420	-
Hardware Development - INSENSITIVE MUNITIONS	WR	NSWC : Indian Head, MD	0.000	0.000		0.240	Dec 2015	0.240	Oct 2016	-		0.240	0.000	0.480	-
Hardware Development - PRIOR YEAR	WR	NSWC : Indian Head, MD	4.130	0.900	Oct 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Software Development - PRIOR YEAR	WR	NUWC : Newport/ Keyport	19.730	0.059	Oct 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Software Development - MK 54 MOD 1	WR	NUWC : Newport	0.000	0.000		0.010	Oct 2015	0.000		-		0.000	0.000	0.010	-
Software Development - MK 54 MOD 1	C/CPFF	MIT : Boston, MA	0.345	0.328	Oct 2014	0.337	Jan 2016	0.348	Jan 2017	-		0.348	0.000	1.358	-
Software Development - MK 54 MOD 1	C/BA	ARL/PSU : Philadelphia, PA	0.000	0.201	Oct 2014	0.207	Jan 2016	0.213	Jan 2017	-		0.213	0.000	0.621	-
Systems Engineering - VLA	SS/FP	Lockheed Martin: VLA : Akron, OH	7.606	0.000		0.000		0.000		-		0.000	0.000	7.606	-
Systems Engineering - HAAWC	WR	NSWC PMA 290 : Paxtuxent, MD	7.332	0.750	Oct 2014	0.500	Oct 2015	1.000	Oct 2016	-		1.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
1319 / 5				PE 0604610N / <i>Lightweight Torpedo Development</i>				2234 / <i>Lightweight Hybrid Torpedo</i>							
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering - HAAWC	WR	NAWCWD : China Lake	5.106	0.000	Oct 2014	0.500	Oct 2015	1.000	Oct 2016	-		1.000	0.000	6.606	-
Systems Engineering - HAAWC	C/CPFF	John Hopkins University : Baltimore, MD	0.050	0.000		0.000		0.000		-		0.000	0.000	0.050	-
Systems Engineering	SS/FP	SPA Inc. : Not Specified	0.640	0.000		0.000		0.000		-		0.000	0.000	0.640	-
Systems Engineering	WR	Naval Operational Logistics Support Center (NOLSC) : Not Specified	0.025	0.000		0.000		0.000		-		0.000	0.000	0.025	-
System Test & Evaluation - HAAWC	WR	NUWC : Newport/ Keyport	20.881	0.350	Oct 2014	0.350	Nov 2015	0.350	Oct 2016	-		0.350	Continuing	Continuing	Continuing
Subtotal			196.157	16.041		24.646		10.239		-		10.239	-	-	-
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware Development	WR	NUWC : Newport/ Keyport	2.722	1.167	Oct 2014	0.458	Oct 2015	1.000	Oct 2016	-		1.000	0.000	5.347	-
Program Management Support	WR	NUWC : Newport/ Keyport	4.857	1.362	Oct 2014	1.362	Oct 2015	1.362	Oct 2016	-		1.362	0.000	8.943	-
Program Management Support	C/BA	ARL/PSU : Philadelphia, PA	0.441	0.000		0.000		0.000		-		0.000	0.000	0.441	-
Program Management Support	Various	NAVSEA : Not Specified	0.168	0.000		0.000		0.000		-		0.000	0.000	0.168	-
Systems Engineering	WR	NUWC : Newport/ Keyport	0.120	0.000		0.000		0.000		-		0.000	0.000	0.120	-
System Test and Evaluation	WR	NUWC : Newport/ Keyport	25.482	1.614	Oct 2014	1.444	Oct 2015	1.753	Oct 2016	-		1.753	Continuing	Continuing	Continuing
Subtotal			33.790	4.143		3.264		4.115		-		4.115	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity 1319 / 5						R-1 Program Element (Number/Name) PE 0604610N / <i>Lightweight Torpedo Development</i>						Project (Number/Name) 2234 / <i>Lightweight Hybrid Torpedo</i>			

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Systems Engineering - MK 54 MOD 1	WR	NSWC : Carderock	0.090	0.694	Oct 2014	0.475	Oct 2015	0.000		-		0.000	0.000	1.259	-
System Test and Evaluation - PRIOR YEAR	WR	NUWC : Newport/ Keyport	25.140	7.051	Oct 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
System Test and Evaluation - MK 54 MOD 1	WR	NUWC : Keyport	0.000	0.000		1.097	Oct 2015	1.357	Oct 2016	-		1.357	0.000	2.454	-
System Test and Evaluation - MK 54 MOD 1	WR	NUWC : Newport	0.000	0.000		1.561	Oct 2015	2.501	Oct 2016	-		2.501	0.000	4.062	-
System Test and Evaluation - MK 54 MOD 1	WR	NSWC : Indian Head, MD	0.015	0.758	Oct 2014	0.570	Oct 2015	0.233	Oct 2016	-		0.233	0.000	1.576	-
System Test and Evaluation - MK 54 MOD 1	C/CPIF	ARL/PSU : Philadelphia, PA	0.068	0.000		0.000		0.000		-		0.000	0.000	0.068	-
System Test and Evaluation - MK 54 MOD 1	TBD	Aberdeen Test Center : Aberdeen, MD	0.000	0.318	Oct 2014	0.413	Oct 2015	0.000		-		0.000	0.000	0.731	-
System Test and Evaluation - MK 54 MOD 1	WR	OPTEVFOR : Not Specified	0.000	0.000		0.750	Oct 2015	0.250	Oct 2016	-		0.250	0.000	1.000	-
System Test and Evaluation - PRIOR YEAR	WR	OPTEVFOR : Not Specified	3.140	0.350	Oct 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
System Test and Evaluation - HAAWC	WR	OPTEVFOR : Not Specified	0.000	0.000		0.250	Nov 2015	0.500	Oct 2016	-		0.500	0.000	0.750	-
System Test and Evaluation - HAAWC	WR	NSWC : Dalgren, VA	0.000	0.000		0.091	Oct 2015	0.000		-		0.000	0.000	0.091	-
System Test and Evaluation - HAAWC	WR	NUWC : Keyport	0.000	0.000		0.152	Oct 2015	0.466	Oct 2016	-		0.466	0.000	0.618	-
System Test and Evaluation - WEAPON TRANSPORT	WR	NUWC : Keyport	0.000	0.000		0.026	Oct 2015	0.027	Oct 2016	-		0.027	0.000	0.053	-
System Test and Evaluation	TBD	NAVSEA : Not Specified	1.278	0.000		0.000		0.000		-		0.000	0.000	1.278	-
Subtotal			29.731	9.171		5.385		5.334		-		5.334	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604610N / <i>Lightweight Torpedo Development</i>	Project (Number/Name) 2234 / <i>Lightweight Hybrid Torpedo</i>
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Proj 2234	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021					
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q		
APB 5																														
Tech Insertion 1 (TI-1) / New Array Production Readiness Review (PRR) to MK54 MOD 1																														
Tech Insertion 1 (TI-1)/ New Array Developmental Testing (DT) to MK54 MOD 1																														
Tech Insertion 1 (TI-1) / New Array OT to MK54 MOD 1																														
Tech Insertion (TI-1)/ New Array IOC MK54 MOD 1																														
HAAWC Design/Development/Qualification																														
HAAWC Production Readiness Review (PRR)																														
HAAWC DT																														
HAAWC OT																														
HAAWC IOC																														

2017PB - 0604610N - 2234

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604610N / <i>Lightweight Torpedo Development</i>	Project (Number/Name) 2234 / <i>Lightweight Hybrid Torpedo</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2234				
APB 5:	1	2015	3	2021
Tech Insertion 1 (TI-1) / New Array Production Readiness Review (PRR) to MK54 MOD 1:	2	2015	2	2015
Tech Insertion 1 (TI-1)/ New Array Developmental Testing (DT) to MK54 MOD 1:	1	2016	1	2020
Tech Insertion 1 (TI-1) / New Array OT to MK54 MOD 1:	2	2020	2	2021
Tech Insertion (TI-1)/ New Array IOC MK54 MOD 1:	3	2021	3	2021
HAAWC Design/Development/Qualification:	1	2015	2	2019
HAAWC Production Readiness Review (PRR):	3	2019	3	2019
HAAWC DT:	1	2018	4	2019
HAAWC OT:	1	2020	2	2020
HAAWC IOC:	3	2020	3	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604610N / <i>Lightweight Torpedo Development</i>			Project (Number/Name) 3418 / <i>Advanced Anti-Submarine Lightweight Torpedo</i>				
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3418: <i>Advanced Anti-Submarine Lightweight Torpedo</i>	0.000	0.000	0.000	0.000	-	0.000	5.000	35.000	62.000	81.000	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Fund development of an advanced lightweight torpedo capable of prosecuting high-speed and high hull-strength adversary submarines.

B. Accomplishments/Planned Programs (\$ in Millions)

N/A

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

The Acquisition Strategy will likely be similar to the MK48 Mod 8, which is a full and open competition contract award for the development of a new advanced Lightweight Torpedo.

E. Performance Metrics

Milestone reviews.
System engineering technical review.
Earned value management reviews.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604610N / <i>Lightweight Torpedo Development</i>	Project (Number/Name) 3418 / <i>Advanced Anti-Submarine Lightweight Torpedo</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Product Development	TBD	TBD : TBD	0.000	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		0.000		-		0.000	-	-	-
			Prior Years	FY 2015	FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals			0.000	0.000	0.000		0.000		-		0.000	-	-	-	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604610N / <i>Lightweight Torpedo Development</i>	Project (Number/Name) 3418 / <i>Advanced Anti-Submarine Lightweight Torpedo</i>
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Proj 3418	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
2017PB - 0604610N - 3418																																

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604610N / <i>Lightweight Torpedo Development</i>	Project (Number/Name) 3418 / <i>Advanced Anti-Submarine Lightweight Torpedo</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Proj 3418</i>				
Test Planning and Documentation (DT/OT/ALFT&E/FOT&E)	1	2017	4	2017
Follow on Development and Testing	1	2018	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604610N / <i>Lightweight Torpedo Development</i>	Project (Number/Name) 9999 / <i>Congressional Adds</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
9999: <i>Congressional Adds</i>	0.000	9.670	10.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	19.670
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Congressional add for Small Business Technology Insertion.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016
<i>Congressional Add:</i> LWT SBIR (Cong)	9.670	10.000
<i>FY 2015 Accomplishments:</i> Developed producability improvements, COTS modernization, and test equipment upgrades.		
<i>FY 2016 Plans:</i> Develop producability improvements, COTS modernization, and test equipment upgrades.		
Congressional Adds Subtotals	9.670	10.000

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Milestone reviews.
System engineering technical review.
Earned value management reviews.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016				
Appropriation/Budget Activity 1319 / 5						R-1 Program Element (Number/Name) PE 0604610N / <i>Lightweight Torpedo Development</i>						Project (Number/Name) 9999 / <i>Congressional Adds</i>				
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total		Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Hardware Development	WR	NUWC : Newport	0.000	2.300	Apr 2015	6.700	Jun 2016	0.000		-		0.000	0.000	9.000	-	
Hardware Development	TBD	Progeny : Not Specified	0.000	7.370	Jul 2016	3.300	Feb 2016	0.000		-		0.000	0.000	10.670	-	
Subtotal			0.000	9.670		10.000		0.000		-		0.000	0.000	19.670	-	
Project Cost Totals			0.000	9.670		10.000		0.000		-		0.000	0.000	19.670	-	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604610N / <i>Lightweight Torpedo Development</i>	Project (Number/Name) 9999 / <i>Congressional Adds</i>

FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Proj 9999	
Producability Improvement, COTS Modernization, Test Equipment Upgrade	[REDACTED]

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604610N / <i>Lightweight Torpedo Development</i>	Project (Number/Name) 9999 / <i>Congressional Adds</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 9999				
Producability Improvement, COTS Modernization, Test Equipment Upgrade	3	2015	4	2016

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604654N / JT Service EOD
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	282.702	8.978	8.123	7.369	-	7.369	7.579	7.192	7.496	7.602	Continuing	Continuing
1829: <i>Expl Ord Disp Proc</i>	282.702	8.978	8.123	7.369	-	7.369	7.579	7.192	7.496	7.602	Continuing	Continuing

A. Mission Description and Budget Item Justification

DOD Directive 5160.62 assigned to the Secretary of the Navy (SECNAV) the responsibility of Single Manager for Explosive Ordnance Disposal (EOD) Technology and Training (T&T). It also assigns to the Executive Manager for EODT&T the responsibility to provide for technical development, validation, preparation, Joint Service approval, and distribution of all EOD procedures texts, graphic aids, manuals, and bulletins. This program provides for the development of validated EOD render-safe procedures (RSPs), key identification features, and safety information used by EOD personnel in all four military services when performing their mission of rendering safe and disposing of both domestic and foreign explosive ordnance and Improvised Explosive Devices (IEDs) that pose a threat to military operations, installations, personnel, and materials. In addition, EOD render-safe procedures for foreign ordnance must be developed as soon as possible after gaining knowledge of its existence. This effort requires exploitation and analysis of the foreign ordnance prior to development of the procedures. The program also provides for the development and evaluation of prototypical EOD Tier Two solutions sets for threats Identified in the National Response Framework. This effort also provides resources necessary for the Foreign Threat Mine Acquisition/Exploitation (FTMA/E) program. This effort includes acquisition, inert certification, intelligence and operational exploitation, analysis, procedure development, and disposition of the highest priority foreign threat naval mines.

This program is a non-acquisition program (without traditional acquisition milestones) with on-going, continuous delivery of urgent and periodic documented procedures and identification guides.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	8.985	8.123	9.962	-	9.962
Current President's Budget	8.978	8.123	7.369	-	7.369
Total Adjustments	-0.007	0.000	-2.593	-	-2.593
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.007	0.000			
• Program Adjustments	0.000	0.000	-4.700	-	-4.700
• Rate/Misc Adjustments	0.000	0.000	2.107	-	2.107

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy Date: February 2016

Appropriation/Budget Activity
1319: *Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)*

R-1 Program Element (Number/Name)
PE 0604654N / *JT Service EOD*

Change Summary Explanation

Decrease in Joint Service EOD by \$305 thousand as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

Program Adjustments: Total Adjustments \$2.593M to Joint Service EOD.

Technical: Not applicable.

Schedule: Not applicable.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604654N / JT Service EOD				Project (Number/Name) 1829 / Expl Ord Disp Proc			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
1829: Expl Ord Disp Proc	282.702	8.978	8.123	7.369	-	7.369	7.579	7.192	7.496	7.602	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

DOD Directive 5160.62 assigned to the Secretary of the Navy (SECNAV) the responsibility of Single Manager for Explosive Ordnance Disposal (EOD) Technology and Training (T&T). It also assigns to the Executive Manager for EODT&T the responsibility to provide for technical development, validation, preparation, Joint Service approval, and distribution of all EOD procedures texts, graphic aids, manuals, and bulletins. This program provides for the development of validated EOD render-safe procedures (RSPs), key identification features, and safety information used by EOD personnel in all four military services when performing their mission of rendering safe and disposing of both domestic and foreign explosive ordnance and Improvised Explosive Devices (IEDs) that pose a threat to military operations, installations, personnel, and materials. In addition, EOD render-safe procedures for foreign ordnance must be developed as soon as possible after gaining knowledge of its existence. This effort requires exploitation and analysis of the foreign ordnance prior to development of the procedures. The program also provides for the development and evaluation of prototypical EOD Tier Two solutions sets for threats Identified in the National Response Framework. This effort also provides resources necessary for the Foreign Threat Mine Acquisition/Exploitation (FTMA/E) program. This effort includes acquisition, inert certification, intelligence and operational exploitation, analysis, procedure development, and disposition of the highest priority foreign threat naval mines.

This program is a non-acquisition program (without traditional acquisition milestones) with on-going, continuous delivery of urgent and periodic documented procedures and identification guides.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Render-Safe Procedures (RSP) Development	3.837	3.420	2.988	0.000	2.988
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Exploited and analyze high priority foreign threat ordnance items, and develop render-safe procedures for new domestic and foreign ordnance for the EOD community.					
FY 2016 Plans: Identify, reverse engineer, analyze and exploit ordnance items for the purpose of developing and or updating EOD render-safe procedures.					
FY 2017 Base Plans: Identify, reverse engineer, analyze, and exploit prioritized ordnance items for the purpose of developing EOD render safe procedures.					
FY 2017 OCO Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604654N / JT Service EOD	Project (Number/Name) 1829 / Expl Ord Disp Proc
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
<p>Title: Improved Nuclear Device (IND) Countermeasures</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: Developed specialized procedures for EOD response elements to stay ahead of the response to IND and WMD threats.</p> <p>FY 2016 Plans: Analyze and exploit IND and WMD threats. Develop new or updated specialized procedures for EOD response elements and maintain technologies to stay ahead of the evolving IND and WMD threats.</p> <p>FY 2017 Base Plans: Develop and prioritize specialize procedures for EOD response tactics and techniques to stay ahead of the evolving IND and WMD threats.</p> <p>FY 2017 OCO Plans: N/A</p>	2.738	2.510	1.805	0.000	1.805
	-	-	-	-	-
<p>Title: Foreign Mine Acquisition</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: Acquired high priority foreign threat naval mines for the purpose of the exploitation and the development of procedures to counter these foreign mines.</p> <p>FY 2016 Plans: Acquire acquisition high priority foreign threat naval mines for analysis and exploitation to support development of countermeasure procedures.</p> <p>FY 2017 Base Plans: Acquire high priority foreign threat naval mines for analysis and exploitation in support of development of EOD countermeasure procedures.</p> <p>FY 2017 OCO Plans: N/A</p>	2.403	2.193	2.576	0.000	2.576
	-	-	-	-	-
Accomplishments/Planned Programs Subtotals	8.978	8.123	7.369	0.000	7.369

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy Date: February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604654N / JT Service EOD	Project (Number/Name) 1829 / Expl Ord Disp Proc
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C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

This is a non-acquisition program.

E. Performance Metrics

Analyzed and exploited foreign and domestic ordnance resulting in the development of 105 validated render-safe and disassembly procedures and the development of 2,500 procedures providing ordnance key identification features, safety information and other technical details for the Joint Service EOD community. Also developed and validated 250 IED / WMD countermeasures procedures.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604654N / JT Service EOD	Project (Number/Name) 1829 / Expl Ord Disp Proc
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Foreign Mine Acquisition	WR	NSWCPC : PANAMA CITY, FL	5.610	2.413	Oct 2014	2.178	Oct 2015	2.556	Oct 2016	-		2.556	Continuing	Continuing	Continuing
Special Mission OCO	WR	EODTD : Indian Head, MD	3.500	0.000		0.000		0.000		-		0.000	0.000	3.500	-
RSP Development	WR	EODTD : Indian Head, MD	182.584	3.575	Oct 2014	3.315	Oct 2015	2.738	Oct 2016	-		2.738	Continuing	Continuing	Continuing
IND Countermeasures	WR	EODTD : Indian Head, MD	47.054	2.475	Oct 2014	2.140	Oct 2015	1.555	Oct 2016	-		1.555	Continuing	Continuing	Continuing
Foreign Mine Acquisition	WR	ONI : Suitland, MD	23.400	0.015	Oct 2014	0.015	Oct 2015	0.020	Oct 2016	-		0.020	Continuing	Continuing	Continuing
Program Management Personnel	WR	EODTD : Indian Head, MD	4.190	0.250	Oct 2014	0.250	Oct 2015	0.250	Oct 2016	-		0.250	Continuing	Continuing	Continuing
Miscellaneous	WR	EODTD : Indian Head, MD	16.364	0.250	Oct 2014	0.225	Oct 2015	0.250	Oct 2016	-		0.250	Continuing	Continuing	Continuing
Subtotal			282.702	8.978		8.123		7.369		-		7.369	-	-	-

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	282.702	8.978	8.123	7.369	-	7.369	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604654N / JT Service EOD	Project (Number/Name) 1829 / Expl Ord Disp Proc
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FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

JT Service EOD	
System Development: Render Safe Procedures	
System Development: IND Countermeasures	

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604654N / <i>JT Service EOD</i>	Project (Number/Name) 1829 / <i>Expl Ord Disp Proc</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>JT Service EOD</i>				
System Development: Render Safe Procedures	1	2015	4	2021
System Development: IND Countermeasures	1	2015	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>					R-1 Program Element (Number/Name) PE 0604703N / <i>Personnel, Trng, Sim, & Human Factors</i>							
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	17.457	5.925	7.686	4.995	-	4.995	6.719	7.012	8.326	8.493	Continuing	Continuing
1822: <i>Manpower Pers & Human Fact System</i>	17.457	5.925	7.686	4.995	-	4.995	6.719	7.012	8.326	8.493	Continuing	Continuing

A. Mission Description and Budget Item Justification

This non-acquisition category program provides funds for continued (but less risky) R&D for broader application of advanced technologies to transition successful research proof-of-concept demonstrations into operational use. Development of prototype systems to support and/or improve operational requirements of manpower and personnel sponsors is the primary goal of this Engineering Development Program. The R&D Program features the use of a broad range of technologies from cognitive science, human systems integration, learning management, content management & delivery, learning and ability testing techniques, mathematical modeling and optimization, statistical and econometric forecasting, intelligent systems, data visualization, data mining, simulation, decision support systems, and new services oriented architectures to include applications, databases and communications configuration. This non-acquisition category program provides funds for continued R&D for broader application of advanced training technologies and the science of learning to transition successful research proof of concept demonstrations and rapid prototyping of Commercial off the Shelf/Government off the Shelf (COTS/GOTS) technologies into operational use.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	7.669	7.686	15.415	-	15.415
Current President's Budget	5.925	7.686	4.995	-	4.995
Total Adjustments	-1.744	0.000	-10.420	-	-10.420
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-1.479	0.000			
• SBIR/STTR Transfer	-0.265	0.000			
• Program Adjustments	0.000	0.000	-9.300	-	-9.300
• Rate/Misc Adjustments	0.000	0.000	-1.120	-	-1.120

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604703N / <i>Personnel, Trng, Sim, & Human Factors</i>
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FY 2017 decrease in Personnel, Trng, Sim, & Human Factors RDTEN by \$0.215M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

The FY 2017 funding request was also reduced by \$0.905 million to account for the availability of prior year execution balances.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604703N / <i>Personnel, Trng, Sim, & Human Factors</i>				Project (Number/Name) 1822 / <i>Manpower Pers & Human Fact System</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
1822: <i>Manpower Pers & Human Fact System</i>	17.457	5.925	7.686	4.995	-	4.995	6.719	7.012	8.326	8.493	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This non-acquisition category program provides funds for continued (but less risky) R&D for broader application of advanced technologies to transition successful 6.3 research proof-of-concept demonstrations into operational use. Development of prototype systems to support and/or improve operational requirements of manpower and personnel sponsors is the primary goal of this Engineering Development Program. The 6.5 R&D Program features the use of a broad range of technologies from cognitive science and ability testing techniques, mathematical modeling and optimization, statistical and econometric forecasting, intelligent systems, data visualization, data mining, simulation, decision support systems and new database and communications configuration.

The program also provides continued R&D for broader application of advanced technologies to transition successful research proof-of-concept demonstrations into operational use. This PE provides funding to support the transition of models and decision support tools from RDT&E funded to production and into the hands of analysts and program managers throughout the Manpower, Personnel, Training and Education enterprise. The PE also supports the application of proven industry models, tools and methodologies to Navy MPTE problems where GOTS solutions are non-existent. The second goal of the PE is to successfully implement 90% of the industry-standard tools that are attempted to be used in Navy applications. In this case the Naval War College procuring and modifying an integrated, state-of-the-art information management / knowledge-management (IM / KM) system that environment that supports the College's unique educational and research activities. Informed by IM/KM best practices, elements of this environment will enhance the NWC's ability to achieve objectives in its mission areas of education, research, cooperative / international engagement, and combat readiness. This effort will allow NWC to support the CJCS' vision for education as a career/lifelong learning endeavors, Navy's education strategy and CNO's Sailor 2025 initiative by dramatically increasing NWC communication of research, gaming and education results to the broader military and Navy communities.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Manpower Pers & Human Fact System	5.925	7.686	4.995	0.000	4.995
Articles:	8	9	-	-	-
Description: This program is funded under RDT&E operational systems development because it encompasses engineering and development of new end-items prior to production approval decision and the upgrading and enhancement of existing MPTE decision support systems, tools and models.					
This non-acquisition category program provides funds for continued R&D for broader application of advanced technologies to transition successful research proof-of-concept demonstrations into operational use. This					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604703N / <i>Personnel, Trng, Sim, & Human Factors</i>	Project (Number/Name) 1822 / <i>Manpower Pers & Human Fact System</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>PE provides funding to support the transition of models and decision support tools from RDT&E funded to production and into the hands of analysts and program managers throughout the Manpower, Personnel, Training and Education enterprise. The PE also supports the application of proven industry models, tools and methodologies to Navy MPTE problems where GOTS solutions are non-existent. The second goal of the PE is to successfully implement 90% of the industry-standard tools that are attempted to be used in Navy applications. In this case the Naval War College procuring and modifying an integrated, state-of-the-art information management / knowledge-management (IM / KM) system that environment that supports the College's unique educational and research activities. Informed by IM/KM best practices, elements of this environment will enhance the NWC's ability to achieve objectives in its mission areas of education, research, cooperative / international engagement, and combat readiness. This effort will allow NWC to support the CJCS' vision for education as a career/lifelong learning endeavors, Navy's education strategy and CNO's Sailor 2025 initiative by dramatically increasing NWC communication of research, gaming and education results to the broader military and Navy communities.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Continued Training and Supply Chain Management Decision Support Systems integration and transition. - Complete transition of Future Naval Warfighter Capabilities (FNWC) Capable Manpower (CM) Refresh of early prototypes. - Continued development of Training Capacity Tradeoff Model. - Continued enhancement of products delivered via World Class Modeling. - Complete CNRC Applicant Relationship Management (ARM) under this PE. Continued funding under PE 0605013N 2905. - Completed NWC Web/KM. - Small Business Innovative Research (SBIR). - Moved the NWC IM/KM concept to an executable contract to modify existing education/research cots software programs into Naval War College requirements. - Finalization stage of the contract Statement of Work, Independent Cost Estimate for submission to FLC Philadelphia. - FLC Philadelphia contract legal review, solicitation, pre-award technical review and award. - Contractor site visit to NWC to determine specific requirements for IM/KM software modifications. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Continue Training and Supply Chain Management Decision Support Systems integration and transition. 					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604703N / <i>Personnel, Trng, Sim, & Human Factors</i>	Project (Number/Name) 1822 / <i>Manpower Pers & Human Fact System</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<ul style="list-style-type: none"> - Start Community Management and Strength Planning Model Enhancements and Integration - Continue development of Training Capacity Tradeoff Model. - Continue enhancement of products delivered via World Class Modeling. - Start/Complete Enlisted Advancement Worksheet - Start Transition of STAMPS Manpower Planning Optimization Tool (MPOT) - Start NMRS Modernization under this PE. - Continue Funding of NMRS Modernization under PE 0605013N Proj 2905 - Small Business Innovative Research (SBIR). <p><i>FY 2017 Base Plans:</i></p> <ul style="list-style-type: none"> - Continue Training and Supply Chain Management Decision Support Systems integration and transition. - Continue Community Management and Strength Planning Model Enhancements and Integration - Continue Development of Training Capacity Tradeoff Model - Continue Enhancements of Products delivered via World Class Modeling - Continue Transition of STAMPS Manpower Planning Optimization Tool (MPOT) - Start development of Model Integration - Small Business Innovative Research (SBIR). <p><i>FY 2017 OCO Plans:</i> N/A</p>					
Accomplishments/Planned Programs Subtotals	5.925	7.686	4.995	0.000	4.995

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

This PE provides funding to support the transition of models and decision support tools from RDT&E funded research, Science and Technology (6.2-6.3), to production and into the hands of analysts and program managers throughout the Manpower, Personnel, Training and Education enterprise. The PE also supports the application of proven industry models, tools and methodologies to Navy MPTE problems where GOTS solutions are non-existent. One goal of this PE is to transition 90% of successful S&T products to production while distributing 80% of successful educational and research products from the Naval War College to a broader Navy audience

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604703N / <i>Personnel, Trng, Sim, & Human Factors</i>	Project (Number/Name) 1822 / <i>Manpower Pers & Human Fact System</i>

to be used by USN Sailors and civilians. The second goal of the PE is to successfully implement 90% of the industry-standard tools that are attempted to be used in Navy applications and the existing NWC web based applications and products into the new IM/KM system for broader dissemination.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604703N / Personnel, Trng, Sim, & Human Factors	Project (Number/Name) 1822 / Manpower Pers & Human Fact System
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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Development Support	Allot	NPRST : Millington, TN	7.240	1.700	Dec 2014	1.391	Dec 2015	1.500	Sep 2017	-		1.500	Continuing	Continuing	Continuing
Development Support	Allot	CNP : Washington, DC	3.937	2.533	Dec 2014	2.267	Dec 2015	1.995	Sep 2017	-		1.995	Continuing	Continuing	Continuing
Development Support	Allot	NPC PMW-240 : Millington, TN	1.330	0.000		0.000		0.000		-		0.000	0.000	1.330	-
Development Support	Allot	NAWC-TSD : Orlando, FL	0.800	0.500	Dec 2014	0.000		0.000		-		0.000	7.300	8.600	-
Development Support	Allot	SPAWAR : New Orleans, LA	0.000	0.000	Dec 2014	1.345	Dec 2015	0.000		-		0.000	0.000	1.345	-
Development Support	Allot	NPC, HP Texas : Millington, TN	1.450	0.000		0.000		0.000		-		0.000	0.000	1.450	-
Development Support	Allot	CNRC PMW 240 : Millington, TN	2.700	0.500	Mar 2015	0.000		0.000		-		0.000	0.000	3.200	-
Development Support	Allot	NAVMAC PMW 240 : Millington, TN	0.000	0.000		2.683	Mar 2016	1.500	Sep 2017	-		1.500	10.700	14.883	-
Development Support	Allot	NWC : Newport, RI	0.000	0.692	Apr 2015	0.000		0.000		-		0.000	0.000	0.692	-
Subtotal			17.457	5.925		7.686		4.995		-		4.995	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Need Item Text	C/BA	Not Specified : Not Specified	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Subtotal			0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-

Project Cost Totals	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
	17.457	5.925	7.686	4.995	-	4.995	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604703N / <i>Personnel, Trng, Sim, & Human Factors</i>	Project (Number/Name) 1822 / <i>Manpower Pers & Human Fact System</i>
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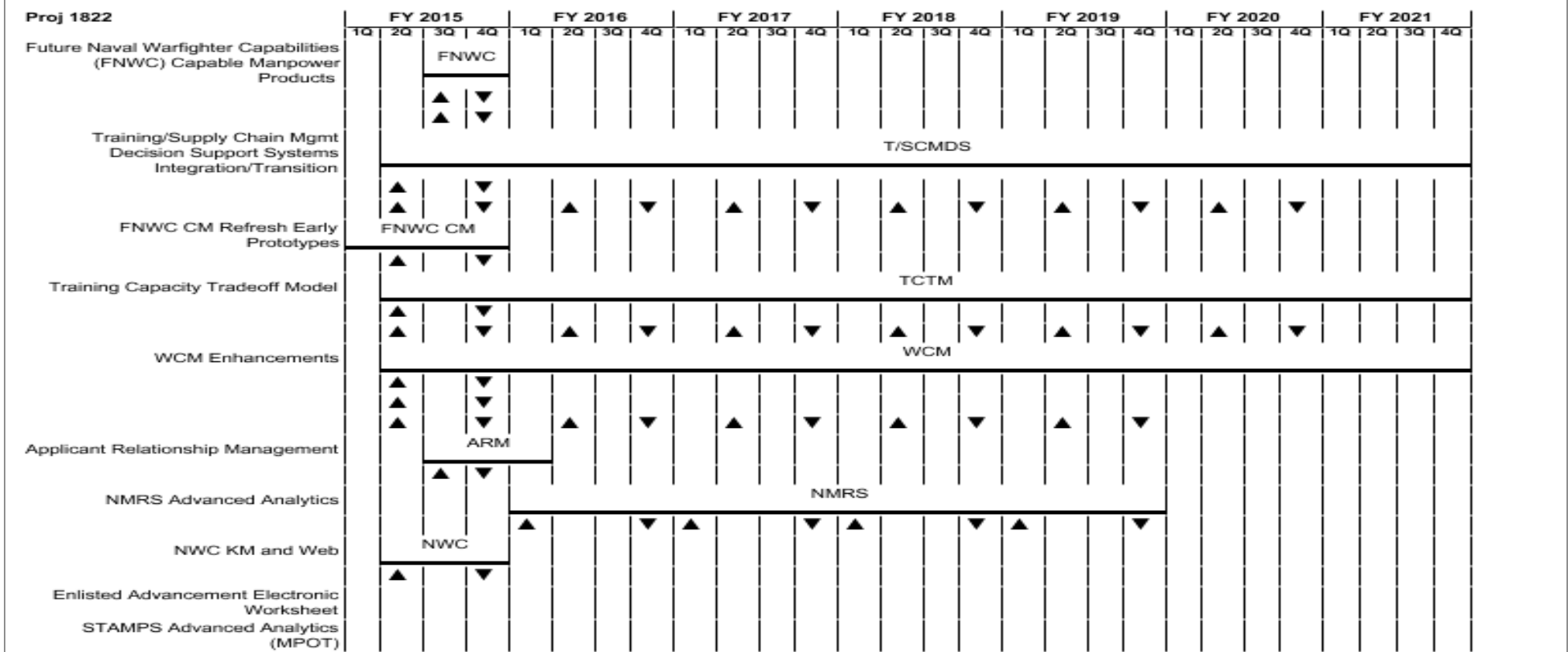
	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
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<u>Remarks</u>	
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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604703N / <i>Personnel, Trng, Sim, & Human Factors</i>	Project (Number/Name) 1822 / <i>Manpower Pers & Human Fact System</i>
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2017OSD - 0604703N - 1822 Up=Demonstration; Down=Prototype & Documentation

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604703N / <i>Personnel, Trng, Sim, & Human Factors</i>	Project (Number/Name) 1822 / <i>Manpower Pers & Human Fact System</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 1822				
Future Naval Warfighter Capabilities (FNWC) Capable Manpower Products: Future Naval Warfighter Capabilities (FNWC) Capable Manpower Products	3	2015	4	2015
Future Naval Warfighter Capabilities (FNWC) Capable Manpower Products: FNWC 1	3	2015	3	2015
Future Naval Warfighter Capabilities (FNWC) Capable Manpower Products: FNWC 2	4	2015	4	2015
Future Naval Warfighter Capabilities (FNWC) Capable Manpower Products: FNWC 3	3	2015	3	2015
Future Naval Warfighter Capabilities (FNWC) Capable Manpower Products: Schedule Detail	4	2015	4	2015
Training/Supply Chain Mgmt Decision Support Systems Integration/Transition: Training/Supply Chain Mgmt Decision Support Systems Integration/Transition	2	2015	4	2021
Training/Supply Chain Mgmt Decision Support Systems Integration/Transition: T/SCMDS 1	2	2015	2	2015
Training/Supply Chain Mgmt Decision Support Systems Integration/Transition: T/SCMDS 2	4	2015	4	2015
Training/Supply Chain Mgmt Decision Support Systems Integration/Transition: T/SCMDS 3	2	2015	2	2015
Training/Supply Chain Mgmt Decision Support Systems Integration/Transition: T/SCMDS 4	4	2015	4	2015
Training/Supply Chain Mgmt Decision Support Systems Integration/Transition: T/SCMDS 5	2	2016	2	2016
Training/Supply Chain Mgmt Decision Support Systems Integration/Transition: T/SCMDS 6	4	2016	4	2016
Training/Supply Chain Mgmt Decision Support Systems Integration/Transition: T/SCMDS 7	2	2017	2	2017

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604703N / <i>Personnel, Trng, Sim, & Human Factors</i>	Project (Number/Name) 1822 / <i>Manpower Pers & Human Fact System</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Training/Supply Chain Mgmt Decision Support Systems Integration/Transition: T/SCMDS 8	4	2017	4	2017
Training/Supply Chain Mgmt Decision Support Systems Integration/Transition: T/SCMDS 9	2	2018	2	2018
Training/Supply Chain Mgmt Decision Support Systems Integration/Transition: T/SCMDS I0	4	2018	4	2018
Training/Supply Chain Mgmt Decision Support Systems Integration/Transition: T/SCMDS I1	2	2019	2	2019
Training/Supply Chain Mgmt Decision Support Systems Integration/Transition: T/SCMDS I2	4	2019	4	2019
Training/Supply Chain Mgmt Decision Support Systems Integration/Transition: T/SCMDS I3	2	2020	2	2020
Training/Supply Chain Mgmt Decision Support Systems Integration/Transition: T/SCMDS I4	4	2020	4	2020
FNWC CM Refresh Early Prototypes: FNWC CM Refresh Early Prototypes	1	2015	4	2015
FNWC CM Refresh Early Prototypes: FNWC CM 5	2	2015	2	2015
FNWC CM Refresh Early Prototypes: FNWC CM 6	4	2015	4	2015
Training Capacity Tradeoff Model: Training Capacity Tradeoff Model	2	2015	4	2021
Training Capacity Tradeoff Model: TCTM 1	2	2015	2	2015
Training Capacity Tradeoff Model: TCTM 2	4	2015	4	2015
Training Capacity Tradeoff Model: TCTM 3	2	2015	2	2015
Training Capacity Tradeoff Model: TCTM 4	4	2015	4	2015
Training Capacity Tradeoff Model: TCTM 5	2	2016	2	2016
Training Capacity Tradeoff Model: TCTM 6	4	2016	4	2016
Training Capacity Tradeoff Model: TCTM 7	2	2017	2	2017
Training Capacity Tradeoff Model: TCTM 8	4	2017	4	2017
Training Capacity Tradeoff Model: TCTM 9	2	2018	2	2018

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604703N / <i>Personnel, Trng, Sim, & Human Factors</i>	Project (Number/Name) 1822 / <i>Manpower Pers & Human Fact System</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Training Capacity Tradeoff Model: TCTM 10	4	2018	4	2018
Training Capacity Tradeoff Model: TCTM 11	2	2019	2	2019
Training Capacity Tradeoff Model: TCTM 12	4	2019	4	2019
Training Capacity Tradeoff Model: TCTM 13	2	2020	2	2020
Training Capacity Tradeoff Model: TCTM 14	4	2020	4	2020
WCM Enhancements: WCM Enhancements	2	2015	4	2021
WCM Enhancements: WCM 1	2	2015	2	2015
WCM Enhancements: WCM 2	4	2015	4	2015
WCM Enhancements: WCM 3	2	2015	2	2015
WCM Enhancements: WCM 4	4	2015	4	2015
WCM Enhancements: WCM 5	2	2015	2	2015
WCM Enhancements: WCM 6	4	2015	4	2015
WCM Enhancements: WCM 7	2	2016	2	2016
WCM Enhancements: WCM 8	4	2016	4	2016
WCM Enhancements: WCM 9	2	2017	2	2017
WCM Enhancements: WCM 10	4	2017	4	2017
WCM Enhancements: WCM 11	2	2018	2	2018
WCM Enhancements: WCM 12	4	2018	4	2018
WCM Enhancements: WCM 13	2	2019	2	2019
WCM Enhancements: WCM 14	4	2019	4	2019
Applicant Relationship Management: Applicant Relationship Management	3	2015	1	2016
Applicant Relationship Management: ARM 1	3	2015	3	2015
Applicant Relationship Management: ARM 2	4	2015	4	2015
NMRS Advanced Analytics: NMRS Advanced Analytics	1	2016	4	2019
NMRS Advanced Analytics: NMRS 3	1	2016	1	2016

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604703N / <i>Personnel, Trng, Sim, & Human Factors</i>	Project (Number/Name) 1822 / <i>Manpower Pers & Human Fact System</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
NMRS Advanced Analytics: NMRS 4	4	2016	4	2016
NMRS Advanced Analytics: NMRS 5	1	2017	1	2017
NMRS Advanced Analytics: NMRS 6	4	2017	4	2017
NMRS Advanced Analytics: NMRS 7	1	2018	1	2018
NMRS Advanced Analytics: NMRS 8	4	2018	4	2018
NMRS Advanced Analytics: NMRS 9	1	2019	1	2019
NMRS Advanced Analytics: NMRS 10	4	2019	4	2019
NWC KM and Web: NWC KM and Web	2	2015	4	2015
NWC KM and Web: NWC 1	2	2015	2	2015
NWC KM and Web: NWC 2	4	2015	4	2015
Enlisted Advancement Electronic Worksheet: EAEW 1	1	2016	2	2016
STAMPS Advanced Analytics (MPOT): STAMPS	1	2016	3	2018

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604727N / <i>Joint Standoff Weapon Systems</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	892.691	4.389	0.405	0.412	-	0.412	0.433	0.442	0.451	0.460	3.474	903.157
2068: <i>Joint Standoff Weapon (JSOW)</i>	892.691	4.389	0.405	0.412	-	0.412	0.433	0.442	0.451	0.460	3.474	903.157

Program MDAP/MAIS Code: 766

A. Mission Description and Budget Item Justification

The Joint Standoff Weapon (JSOW) is an air-to-ground weapon designed to attack a variety of targets during day, night, and adverse weather conditions. JSOW will enhance aircraft survivability as compared to current interdiction weapon systems by providing the capability for launch aircraft to standoff outside the range of most target area surface-to-air threat systems. The JSOW launch-and-leave capability will allow several target kills per aircraft sortie. The JSOW program first developed a baseline weapon for use against fixed area targets. JSOW is a Navy led joint Navy/Air Force program. JSOW utilizes a "common truck" for both AGM-154A and AGM-154C variants. Through adherence to international standards for weapons interfaces, weight, and dimension considerations, JSOW is compatible with Air Force and North Atlantic Treaty Organization aircraft.

The JSOW Baseline (AGM-154A) variant includes a kinematically efficient airframe, an integrated Inertial/Global Positioning System navigation capability, and a BLU-97/B payload. This weapon was designed up front for pre-planned product improvements. The JSOW BLU-108 (AGM-154B) variant incorporates the sensor fuze weapon submunition (BLU-108) into the baseline vehicle. The JSOW Unitary (AGM-154C) variant has a terminal seeker, autonomous target acquisition capability, and a broach lethal package to enable the attack of blast/fragmentation and penetration type targets. The JSOW Unitary provides increased accuracy and lethality and the capability for aimpoint selection. Operational Testing of the JSOW-C was successfully completed in December 2004. Approval for Milestone-III/Full Rate Production was granted on 20 December 2004. JSOW-C Initial Operational Capability was achieved in February 2005.

FY 2015-2017 includes funding for development, integration, qualification, follow-on developmental and operational test and evaluation of a Network Enabled Weapon moving maritime target capability into the JSOW Unitary weapon (AGM-154C-1). The AGM-154C-1 capability will enable the weapon to be integrated with the network and attack sea moving maritime targets via real-time pre-and post-launch targeting updates. JSOW will continue to conduct analysis and development of solutions to system integration challenges, and continual enhancement of warfighter effectiveness in the employment of the JSOW weapon system. JSOW funding will provide enhancements to include the analysis of extended range and future improvements to the JSOW-C configuration to improve capability. In addition, FY 2015-2017 includes funding to integrate new functionality of the Common Unique Planning Component into the joint mission planning systems and precision guided munitions planning system. In FY 2016, the program will transition to software improvement/integration and interoperability following the completion of efforts associated with Operational Testing in 2nd Qtr FY 2016.

This program is funded under SYSTEM DEVELOPMENT AND DEMONSTRATION because it includes those projects that have passed Milestone B approval and are conducting engineering and manufacturing development tasks aimed at meeting validated requirement prior to full-rate production decision.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604727N / <i>Joint Standoff Weapon Systems</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	4.400	0.405	0.429	-	0.429
Current President's Budget	4.389	0.405	0.412	-	0.412
Total Adjustments	-0.011	0.000	-0.017	-	-0.017
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.011	0.000			
• Rate/Misc Adjustments	0.000	0.000	-0.017	-	-0.017

Change Summary Explanation

Decrease in Joint Standoff Weapons Systems by \$0.017M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

Schedule:

OT-IIIIB end date moved from 4QFY15 to 1QFY16 to reflect testing schedule delays.

OT Final Report moved from 1QFY16 to 2QFY16 to reflect testing schedule delays.

FRP11 award was changed from 2QFY15 to 4QFY15.

Production shutdown activities added starting in 2QFY16.

FRP-09 deliveries end date moved from 3QFY15 to 3QFY16 to reflect updated schedule due to LAT failure.

FRP-10 deliveries moved from 4QFY15-4QFY16 to 2QFY16-4QFY16 to reflect updated schedule due to FRP09 delay.

Technical: N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604727N / Joint Standoff Weapon Systems				Project (Number/Name) 2068 / Joint Standoff Weapon (JSOW)			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2068: Joint Standoff Weapon (JSOW)	892.691	4.389	0.405	0.412	-	0.412	0.433	0.442	0.451	0.460	3.474	903.157
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Provides funds for the development of a weapon to be employed by aircraft to attack targets during day, night, and adverse weather conditions. The JSOW design will capitalize on aircraft sensor capabilities and minimize individual weapon sophistication, reducing unit cost and provides a significant increase in strike warfare capability. Excludes civilian and military manpower and their related costs and military construction costs which are included in appropriate management and support elements in this program.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Network Enabled Weapon (NEW)	4.389	0.218	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: Develop and integrate the NEW moving maritime target capability into JSOW-C, termed AGM-154C-1.					
FY 2015 Accomplishments: Complete weapon qualification and follow-on OT efforts and continue support for software integration associated with future obsolescence, software improvements, and regression testing on NEW moving maritime target capability.					
FY 2016 Plans: Continue support for software integration associated with future obsolescence, software improvements, and regression testing on NEW moving maritime target capability.					
FY 2017 Base Plans: N/A					
FY 2017 OCO Plans: N/A					
Title: JSOW Common Unique Planning Component (CUPC)	0.000	0.187	0.412	0.000	0.412
Articles:	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604727N / Joint Standoff Weapon Systems	Project (Number/Name) 2068 / Joint Standoff Weapon (JSOW)

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Description: Incorporates mission planning into the JSOW maritime CUPC and develop new software releases. Address new mission planning functionality related to the incorporation of the NEW moving target capability into the JSOW-C-1 weapons.</p> <p>FY 2015 Accomplishments: Continue interoperability efforts for JSOW C-1.</p> <p>FY 2016 Plans: Continue interoperability efforts for JSOW C-1.</p> <p>FY 2017 Base Plans: Continue interoperability efforts for JSOW C-1.</p> <p>FY 2017 OCO Plans: N/A</p>					
Accomplishments/Planned Programs Subtotals	4.389	0.405	0.412	0.000	0.412

C. Other Program Funding Summary (\$ in Millions)										
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete Total Cost
• USN WP,N BLI 223000: JSOW	108.159	12.919	2.232	-	2.232	6.032	1.183	0.000	0.000	0.000 2,277.748

Remarks
PB16 terminated JSOW production following the FY15 FRP11 AUR procurement. FY16-19 funding is required for Captive Air Training Missile (CATM) software integration, production line shutdown, and Telemetry Instrumentation Kit (TIK) efforts.

D. Acquisition Strategy
The contracting strategy for JSOW is planned to be sole source for the life of the program. Cost type contracts are utilized for the Engineering and Manufacturing Development and follow-on modification program (i.e., Block II (AGM-154C), AGM-154C-1) efforts. Component breakout is used, when possible, to promote full and open competition.

Fixed price type contracts are utilized for production.

E. Performance Metrics
The JSOW C-1 program is meeting the cost, schedule, performance, funding and life cycle sustainment in accordance with the Acquisition Program Baseline.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604727N / Joint Standoff Weapon Systems	Project (Number/Name) 2068 / Joint Standoff Weapon (JSOW)
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
System Engineering	MIPR	National Security Agency : Fort Meade, MD	1.057	0.109	Jan 2015	0.119	Jan 2016	0.000		-		0.000	0.000	1.285	-
Prior year Prod Dev no longer funded in the FYDP	Various	Various : Various	802.617	0.000		0.000		0.000		-		0.000	0.000	802.617	-
Subtotal			803.674	0.109		0.119		0.000		-		0.000	0.000	803.902	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Software Development - JMPS	SS/CPFF	Lockheed Martin Systems Integration : King of Prussia, PA	5.718	0.000		0.187	Apr 2016	0.412	Dec 2016	-		0.412	5.260	11.577	11.594
Prior year Support no longer funded in the FYDP	Various	Various : Various	8.007	0.000		0.000		0.000		-		0.000	0.000	8.007	-
Subtotal			13.725	0.000		0.187		0.412		-		0.412	5.260	19.584	-

Remarks
 (1) Funding in previous years was sent to Raytheon Missile Systems. In FY13 a new contract was awarded with Lockheed Martin Systems Integration.
 (2) FY15 funding moved to fund higher priority Operational Testing requirements.
 (3) FY17 funding increased due to program transition to software improvement/integration and interoperability efforts following completion of OT in FY16.

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Oper Test and Evaluation	WR	COMOPTEVFOR : Norfolk, VA	15.754	4.280	Oct 2014	0.099	Feb 2016	0.000		-		0.000	0.000	20.133	-
Prior year T&E no longer funded in the FYDP	WR	NAWCWD : China Lake, CA	34.034	0.000		0.000		0.000		-		0.000	0.000	34.034	-
Subtotal			49.788	4.280		0.099		0.000		-		0.000	0.000	54.167	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604727N / Joint Standoff Weapon Systems	Project (Number/Name) 2068 / Joint Standoff Weapon (JSOW)
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks
(1) FY15 and FY16 increased due to Operational Testing requirements.

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Prior year Mgmt no longer funded in the FYDP	Various	Various : Various	25.504	0.000		0.000		0.000		-		0.000	0.000	25.504	-
Subtotal			25.504	0.000		0.000		0.000		-		0.000	0.000	25.504	-

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	892.691	4.389	0.405	0.412	-	0.412	5.260	903.157	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604727N / Joint Standoff Weapon Systems	Project (Number/Name) 2068 / Joint Standoff Weapon (JSOW)
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021															
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q												
Joint Standoff Weapon																																								
Acquisition Milestones																																								
Milestones					JSOW C-1 IOC ▲																																			
Systems Development																																								
Hardware Development																																								
Software Development																																								
Reviews	OTRR ■																																							
Test and Evaluation																																								
Development Test and Evaluation																																								
Integrated Test and Evaluation	IT-VI																																							
Operational Test and Evaluation	OT-III B				OT Final Report ▼																																			
Production Milestones																																								
Contract Awards	FRP-11 ●				Production Shutdown ●																																			
Deliveries																																								
FRP-9	FRP-9				FRP-10				FRP-11																															
Production Shutdown																																								
Production Shutdown																																								

2017PB - 0604727N - 2068 OT Final Report refers to AGM-154C-1 Operational Test Agency Follow On Evaluation OT-III B Final Report

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604727N / <i>Joint Standoff Weapon Systems</i>	Project (Number/Name) 2068 / <i>Joint Standoff Weapon (JSOW)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Joint Standoff Weapon</i>				
Acquisition Milestones: Milestones: Initial Operational Capability C-1	2	2016	2	2016
Systems Development: Software Development: Integration and Interoperability	1	2016	4	2021
Systems Development: Reviews: Operational Test Readiness Review	2	2015	2	2015
Test and Evaluation: Integrated Test and Evaluation: Network Enabled Weapon/ Moving Target/AGM-154C-1 Integrated Test (IT-VI)	1	2015	2	2015
Test and Evaluation: Operational Test and Evaluation: Network Enabled Weapon/ Moving Target/AGM-154C-1 Operational Test (OT-IIIB)	2	2015	1	2016
Test and Evaluation: Operational Test and Evaluation: AGM-154C-1 JSOW Operational Test Agency Follow-On Evaluation Report OT-IIIB Final Report	2	2016	2	2016
Production Milestones: Contract Awards: FRP-11 Award AGM-154C-1	4	2015	4	2015
Production Milestones: Contract Awards: Production Shutdown Awards	2	2016	2	2016
Deliveries: FRP-9 Deliveries- AGM-154C-1	1	2015	3	2016
Deliveries: FRP-10 Deliveries- AGM-154C-1	2	2016	4	2016
Deliveries: FRP-11 Deliveries- AGM-154C-1	4	2016	3	2017
Production Shutdown: Production Shutdown	2	2016	2	2018

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604755N / <i>Ship Self Def (Detect & Cntrl)</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	897.065	64.704	145.336	134.619	-	134.619	161.639	106.829	100.909	103.358	Continuing	Continuing
2178: <i>QRCC</i>	862.217	59.373	137.394	127.578	-	127.578	148.857	96.310	90.299	91.307	Continuing	Continuing
3172: <i>Joint Non-Lethal Weapons</i>	31.425	4.196	4.825	4.177	-	4.177	5.158	2.974	3.038	3.103	Continuing	Continuing
3306: <i>Integrated Swimmer Defense (ISD)</i>	2.669	0.035	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	2.704
3358: <i>SSDS Training Improvement Program</i>	0.754	1.100	3.117	2.864	-	2.864	7.624	7.545	7.572	8.948	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element consolidates efforts related to Detect & Control aspects of Ship Self Defense (SSD) to facilitate effective planning and management of these efforts and to exploit the synergistic relationship inherent in each. Analysis and demonstration have established that surface SSD based on single-sensor detection point-to-point control architecture is inadequate against current and projected Anti-Ship Cruise Missile (ASCM) threats. The supersonic seaskimming ASCM reduces the effective battle space to the horizon and the available reaction time-line to less than 30 seconds from first opportunity to detect until the ASCM impacts its target ship. Against such a threat, multi-sensor integration is required for effective detection, and parallel processing is essential to reduce reaction time to acceptable levels and to provide vital coordination/integration of hardkill and softkill assets. These SSD projects address and coordinate the detection and control functions necessary to meet the rigorous SSD requirements.

Quick Reaction Combat Capability (QRCC, PU2178): This project provides multi-sensor integration, parallel processing and the coordination of hard-kill / soft-kill capabilities in an automated, doctrine-based response to the ASCM threats and are the cornerstones of SSDS being developed through QRCC (PU 2178) efforts. In addition, this project provides for the central system engineering management for the integration of advanced sensor, weapon and C4I upgrades and the test and certification of the Integrated Combat System (ICS).

The Ship Self Defense System (SSDS) is the core combat system control element for the Quick Reaction Combat Capability (QRCC) in aircraft carriers and amphibious assault ships. SSDS integrates a diverse set of fire control loop sensors and weapons, and C4I systems for each ship class (CVN68/78, LHA6, LHD1, LPD17, and LSD41/49). SSDS MK2 provides the capabilities for integrated air and missile defense, multi-warfare situational awareness, combat direction, and joint interoperability via the Cooperative Engagement Capability (CEC) and Tactical Digital Information Link (TADIL)-J (Link 16). SSDS MK2 is being fielded with the new construction carriers (CVN78 class) and amphibious ships (LHA6, LPD17 classes). SSDS MK2 is replacing the Advanced Combat Direction System (ACDS) in the LHD1 class and SSDS MK1 in the LSD 41/49 class as fleet modernization initiatives. In addition, with the decision to replace the Dual Band Radar (DBR) for CVN 80 and L-Class Ships (LHA 8) with an Enterprise Surveillance Suite (ESS) consisting of a new radar (Enterprise Air Search Radar (EASR), and an X-Band Illuminator), SSDS will require development of system and software changes.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604755N / <i>Ship Self Def (Detect & Cntrl)</i>	
<p>SSDS MK2 integrates new combat system war-fighting capabilities and improvements on a phased basis via ACB, TI, the Fire Control Loop Improvement Project (FCLIP), Far-Term Interoperability Improvement Project (FTIIP), and the Task Force Cyber Awakening (TFCA) Boundary Defense Capability (BDC) project, and the development requirements imposed by integration of a DBR replacement radar onboard CVN 80 and L-Class (LHA 8). FCLIP is a phased corrective action plan for system of systems deficiencies in SSDS MK2 ships, identified during live-fire testing with anti-ship missile targets. FTIIP is the second phase of the corrective action plan for the resolution of the strike group interoperability issues, and TFCA BDC will provide Combat Systems-level and element-level cyber-security protection based on System of Systems (SoS) risk assessment. New hardware TI baselines are required every four years to refresh the Commercial-Off-The-Shelf (COTS) assemblies to sustain system production and to support the incorporation of new ACB capabilities. Each individual ship is planned for a TI upgrade on an eight to ten year interval to replace obsolescent COTS hardware and support the fielding of the war-fighting capabilities and improvements.</p> <p>In PB15, SSDS MK 2 Advance Capability Build (ACB)-16 was delayed 2 years due to the need to prioritize critical SSDS system improvements. ACB-16 was the designation for the next major SSDS baseline for the integration of new sensor, weapon, and C4I capabilities for anti-ship missile defense and strike group interoperability. As a result of the delay, ACB-16 has been re-designated to ACB-20. The SSDS MK 2 ACB-12 capability baseline development, test, and fielding will continue as planned. However, with the delay in development and fielding of ACB-16, an increased number of SSDS MK2 ships will receive the ACB-12 capability baseline and specific fire control loop, surveillance, interoperability and cyber-security improvements, in lieu of ACB-16.</p> <p>SSDS Training Improvement Program (PU 3358): The SSDS Training Improvement project will provide enhancements and upgrades to the Total Ship Training Capability (TSTC) training components within the combat system to address needs for increased training capability and functionality in conjunction with SSDS MK2 Advanced Capability Builds (ACB)/Fire Control Loop Improvement Project (FCLIP)/ Far-Term Interoperability Improvement Project (FTIIP)/Task Force Cyber Awakening (TFCA) Boundary Defense Capability (BDC) Project and Technical Insertion efforts under PU 2178 (QRCC). These enhancements will address current and future training requirements by implementing new functionality to enable the individual warfighter to engage in more complex training requirements and distributed battle group events to support fleet required training certification events. Capability development and integration are related to Integrated Air and Missile Defense, Underwater, Surface, and other warfare areas. Capability enhancements and upgrades include development of re-useable common components that can be leveraged by AEGIS combat systems, and/or integration of re-usable common components developed by the TSTC BFTT Program (PE 0204571/PU1427) and AEGIS TSTC Training Improvement program (PE 0604307/PU 3357), and integration with the SSDS MK2 TI-12/TI-16/TI-20 configurations, to meet SSDS integrated combat system training requirements.</p> <p>Integrated Swimmer Defense (ISD, PU3306) scope is to provide the Navy Expeditionary security forces with capabilities of a portable marine integrated swimmer defense system (ISDS) to engage combat swimmers/divers or unknown individuals underwater once they have been detected. There are no funds programmed for PU3306 in FY2016 and out; the program requirement has been cancelled.</p> <p>Non-Lethal Weapons (PU 3172) provides a long range laser warning and dazzle system, maritime vessel stopper system, and combined effects (light, laser, and sound) system for use in the maritime environment. Optical warning and distraction has been identified by the services as a possible technology solution to mitigate and/or address several known joint non-lethal capability gaps.</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604755N / <i>Ship Self Def (Detect & Cntrl)</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	56.884	153.836	136.882	-	136.882
Current President's Budget	64.704	145.336	134.619	-	134.619
Total Adjustments	7.820	-8.500	-2.263	-	-2.263
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-8.500			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	9.009	0.000			
• SBIR/STTR Transfer	-1.189	0.000			
• Program Adjustments	0.000	0.000	0.514	-	0.514
• Rate/Misc Adjustments	0.000	0.000	-2.777	-	-2.777

Change Summary Explanation

FY 2015 funding request reflects program changes to include a reduction of \$1.189 million for SBIR Transfer, an increase of \$9.999 million to PU 2178 in support of CVN 78 SSDS MK2 ACB-12 software development efforts for SEWIP Block 2 Integration, and a decrease of \$0.990 million in support of other Department high priority requirements.

FY 2016 funding request reflects a reduction of \$8.5 million as a result of Fire Control Loop Improvement Project (FCLIP) Phase 2 unjustified program scope expansion.

FY 2017 funding request reflects program increases of \$6.240 million to project 2178 for additional investment in SSDS Integrated Combat System (ICS) Cyber-Security (\$4 million) and Strike Group Interoperability Improvements (\$2.240 million). FY 2017 funding request also reflects decreases of \$5.726 million for the Department of the Navy to comply with the Bipartisan Budget Act of 2015 and \$2.777 million for rates/miscellaneous adjustments.

The FY17 plan includes the major SSDS MK2 product development efforts (identified below) to provide mission essential ICS capabilities and meet new ship construction and modernization schedules:

- Completion of SSDS MK2 ACB12/TI-12 development and integration for the CVN 78 OPEVAL and deployment;
- Completion of the development and integration of the SSDS MK2 TI-16 equipment and the migration of the SSDS ACB-12 software to the TI-16 configuration;
- Continuation of the full scale development for FCLIP Phase 2, FTIIP and TFCA BDC improvements to resolve priority fleet combat system deficiencies in anti-ship missile defense, strike group interoperability and cyber-security. The overall scope of the multi-year development effort will include systems engineering/analysis, M&S, Hardware and Software Development, Cyber-security implementation, Factory Systems Integration Test (FSIT) with Wrap Around Simulation, and Wallops Island System Integration Test for Fire Control Loop Elements.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy		Date: February 2016
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<ul style="list-style-type: none">- Continuation of the system engineering/analysis to support the development of system and software changes for the SSDS ICS in order to integrate the ESS (EASR and fire control loop capabilities) in CVN80 and L-Class ship ICS variants for tracking and missile illumination / uplink. The overall scope of the multi-year development will include systems engineering/analysis, M&S, Hardware and Software development, Cyber-security implementation, Factory System Integration Test (FSIT) and Wrap Around Simulation, and Wallops Island System Integration Test for Fire Control Loop Elements.- Continuation of the development of the combat system requirements, capability phasing plan, and concept of integration for ACB-20/TI-20 including EASR/ESS.- Accomplishment of SSDS MK2 ICS integration and certification testing for ship system installation and deployment;- Accomplishment of the SSDS MK2 ICS test and evaluation requirements for the CVN 78 SSDS MK2 MOD 6C baseline; <p>The FY17 Plan for PU 3358 is for the continuation of the software development for the incorporation of TSTC functional requirements into SSDS MK2 Integrated Combat System baseline for FCLIP Phase 2/FTIIP/TFCA BDC and the integration with the SSDS MK2 TI-16 configuration.</p> <p>The FY17 Plan for PU 3172 is to:</p> <ul style="list-style-type: none">- Complete the LROI program of record transition strategy and issue the RFP.- Continue performing HALLTS engineering updates identified during fleet user feedback and assessment; and conduct test and evaluation.- Issue RFP for HALLTS production contract to fully meet the fielding requirement of units to NECC.- Begin development effort of other emerging non-lethal technologies for maritime vessel stopping.		

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Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604755N / <i>Ship Self Def (Detect & Cntrl)</i>				Project (Number/Name) 2178 / QRCC			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2178: QRCC	862.217	59.373	137.394	127.578	-	127.578	148.857	96.310	90.299	91.307	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Ship Self Defense System (SSDS) is the core combat system control element for the Quick Reaction Combat Capability (QRCC) in aircraft carriers and amphibious assault ships. SSDS integrates a diverse set of fire control loop sensors and weapons, and C4I systems for each ship class (CVN68/78, LHA6, LHD1, LPD17, and LSD41/49). SSDS MK2 provides the capabilities for integrated air and missile defense, multi-warfare situational awareness, combat direction, and joint interoperability via the Cooperative Engagement Capability (CEC) and Tactical Digital Information Link (TADIL)-J (Link 16). SSDS MK2 is being fielded with the new construction carriers (CVN78 class) and amphibious ships (LHA6, LPD17 classes). SSDS MK2 is replacing the Advanced Combat Direction System (ACDS) in the LHD1 class and SSDS MK1 in the LSD 41/49 class as fleet modernization initiatives. In addition, with the decision to replace the Dual Band Radar (DBR) for CVN 80 and L-Class Ships (LHA 8) with an Enterprise Surveillance Suite (ESS) consisting of a new radar (Enterprise Air Search Radar (EASR), and an X-Band Illuminator, SSDS will require development of system and software changes.

SSDS MK2 integrates new combat system war-fighting capabilities and improvements on phased basis via ACB, TI, the Fire Control Loop Improvement Project (FCLIP), Far-Term Interoperability Improvement Project (FTIIP), and the Task Force Cyber Awakening (TFCA) Boundary Defense Capability (BDC) project, and as a result of the development requirements imposed by integration of a DBR replacement radar onboard CVN 80 and L-Class (LHA 8).

FCLIP is planned as a phased corrective action plan for system-of-systems deficiencies in SSDS MK2 ships, identified during live-fire testing with stressing anti-ship missile targets. FCLIP Phase 2 is a phased multi-year development effort (FY16-FY19) that includes:

CIWS integration with CEC/SSDS MK2, ESSM 2T Uplink, RAM Block2 Multi-Target processing in the missile, SoS integration of RAM Block 2 Multi-Target Processing, NSSMS MK9 Multi-Target Discrimination & Reporting, CEC / SSDS MK2 Engage on Remote, and modeling and analysis to ensure optimization and alignment of capabilities into the ICS end-to-end fire control loop.

FTIIP is the second phase of the corrective action plan for the resolution of the strike group interoperability issues. FTIIP includes implementation of Tactical Data Link (TDL) IFF Mode 5 identification capabilities, F/A-18 Digital Air Control Phase 1 in support of F/A-18 and F-35 Joint Strike Fighter initial deployment, re-host/integration of the Shipboard Gridlock System/Automatic Correlation (SGS/AC) system into the SSDS MK2 TI-16 configuration, and implementation of other high priority software changes for improved strike group interoperability.

TFCA BDC will provide Combat Systems-level and element-level cyber-security protection based on system of systems risk assessment. TFCA BDC is a phased multi-year development to define, develop, and integrate enterprise Combat System cyber-security solutions. These solutions will provide a set of boundary defense capabilities for the SSDS MK2 ICS, a set of centralized Combat Systems-level cyber-security capabilities, and a set of element-level cyber-security protections. The boundary defense capabilities will protect and detect threats entering and leaving the Combat System. The centralized Combat System-level cyber-security capabilities

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<p>will provide cyber situational awareness and management of various (e.g. malware detection, file integrity verification, etc.) cyber-security protection and detection capabilities. Element-level cyber-security protections will provide additional measures to ensure system integrity. Development of enterprise Combat System risk management processes will occur, to include a system of systems risk assessment methodology to support Combat System execution of the Risk Management Framework.</p> <p>New hardware TI baselines are required every four years to refresh the Commercial-Off-The-Shelf (COTS) assemblies to sustain system production and to support the incorporation of new ACB capabilities. Each individual ship is planned for a TI upgrade on an eight to ten year interval to replace obsolescent COTS hardware and support the fielding of the war-fighting capabilities and improvements. FY17 includes completion of the development and integration of the SSDS MK2 TI-16 equipment and migration of the SSDS ACB-12 software to the TI-16 configuration. FY17 also includes the initiation of the system engineering analysis for the TI-20 configuration, to define the architecture for the SSDS MK2 ICS ship class variants and the hardware requirements for common infrastructure for computing, display, network, cyber-security and software operating environment.</p> <p>The QRCC project implements an evolutionary acquisition of improved ship self-defense capabilities against Anti-Ship Cruise Missiles (ASCMs) for selected ships. The SSDS is the integrating element of QRCC. The design integrates several existing stand-alone Anti-Air Warfare (AAW) systems that do not individually provide the complete detection, control, and engagement capabilities needed against low flying, high speed ASCMs with low radar cross sections. The SSDS integration concept fulfills the need for an automated detection, quick reaction and multi-target engagement capability emphasizing performance in the littoral environment. SSDS replaces manual control of several self-defense systems with a single integrated capability under the computer-aided control of ship operators. System design emphasizes use of non-developmental items, commercial standards, commercial processors, computer program reuse and open system architecture. SSDS is a physically distributed, open system architecture computer network consisting of commercially available or previously developed hardware. It includes the Navy's standard computers (Common Processor System) and displays (AN/UYQ-70 and Common Display System) and command table for human-system interface, commercially based network switching and interface units, and commercially available fiber optic cabling.</p> <p>SSDS MK1 integrates the SPS-49A(V)1 radar, SPS-67(V)1 radar, AN/SLQ-32A/B electronic warfare system, Combat Identification Friend or Foe-Self Defense (CIFF-SD), Rolling Airframe Missile (RAM) and Phalanx Close-In Weapon System (CIWS) and is installed on LSD41/49 class ships. SSDS MK1 successfully completed Operational Evaluation in June 1997. SSDS received Milestone III Approval for Full Rate Production (Mar 98) and authority to integrate with ACDS and Cooperative Engagement Capability (CEC) on CVN, LPD-17, LHD and LHA ship classes.</p> <p>SSDS MK2 facilitates the incremental evolution and implementation of follow-on modifications. Development of SSDS MK2 leveraged critical experiments and re-use of technology and software from SSDS MK1. SSDS MK2 integrates other ship self-defense elements, such as AN/SPQ-9B radar, NATO Sea-sparrow system, CEC and Tactical Data Links for joint interoperability. SSDS MK2 provides enhanced capabilities for Self-Defense against air and surface threats using both ownship and remote data to address AAW Capstone requirements. SSDS MK2 becomes the integrated, coherent real time Command and Control System for Aircraft Carriers and Amphibious ships. It will increase operational capabilities; improve combat readiness and Strike Group/Expeditionary Strike Group Interoperability; and promote standardization. It introduces new shipboard tactical displays and support equipment via Technology Insertion and warfighting capability improvements via Advanced Capability Builds (ACB). ACB-12 integrates advanced systems such as Dual Band Radar (DBR), Evolved Sea-Sparrow Missile (ESSM) with Joint Universal Waveform</p>		

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<p>Link (JUWL) Up-link, RAM Block 2 missile, SLQ-32 SEWIP Block 2 and MH-60R Helicopter to implement the warfighting capability improvements and Total Ship Training Capability (TSTC) improvements for embedded onboard training.</p> <p>In order to meet the Navy's warfighting capabilities and modernization concepts described in SEA POWER 21, Navy Open Architecture (OA) is being introduced in conjunction with SSDS Commercial off the Shelf (COTS) Technology Refresh initiatives. This is the first step in unifying a set of war fighting functions into a common architecture shared among many ship classes. This principle of commonality is a major mechanism for cost control and avoidances in the Navy's future war fighting systems. Starting in 2008, SSDS MK 2 re-hosted existing tactical computer program applications into the Open Architecture Computing Environment (OACE) specifications with equipment suites concurrent with COTS Technology Insertion (TI) cycles, prior to migration and integration with other Navy OA applications for implementation on future new construction ships or during future ship modernization. TI cycles and equipment technology refreshes are driven by COTS obsolescence.</p> <p>In FY09, system development was initiated for SSDS MK1 technology refresh for the LSD 41/49 class ships. The effort will transition these ships to an SSDS MK OACE and SSDS MK 2 single source library. The new system designation is SSDS MK2 Mod 5C. The system development effort encompasses TI of new OA computing and display equipment (Common Processor System (CPS) and Common Display System (CDS)), modifications and additions to the SSDS MK 2 software for an upgraded interface with the Phalanx Closed-In-Weapon System (CIWS) Block 1B Baseline 2 and Battle Force Tactical Trainer (BFTT), and other unique LSD SSDS interfaces and functionality. The first LSD SSDS MK 2 Mod 5C was installed in LSD-50 in FY14 after land-based Combat System Integration and Certification Testing with an IOC in FY16.</p> <p>In FY10, SSDS MK 2 system development commenced for the first phase of migration to the Navy OA objective functional architecture designated as SSDS MK 2 ACB-12/TI-12. ACB-12/TI-12 encompasses: implementation of common product line software components for System Track Management; integration of the product line System Track Management components and associated data model with other SSDS software components and Combat System interfaces (e.g. CEC, DBR, ESSM with JUWL, RAM Block 2 and CV-TSC); integration of new interfaces with SEWIP Block 2 Electronic Support (ES), and MH-60R; integration of CPS and CDS; and expansion of SSDS MK 2 Local Area Network (LAN) to OA Combat System LAN, implementation of cyber-security boundary defense capabilities and Total Ship Training Capability (TSTC). ACB-12 is planned for IOC in the CVN 78, CVN 72 and LHD 2 in FY17.</p> <p>Funds were added in FY13 for the integration and test of SSDS MK2 Tactical Data Link (TDL) 16 interoperability improvements to address critical Strike Group interoperability issues under the AEGIS Wholeness Initiative, designated AMIIP. In FY13, software defect corrections were implemented as Phase 1 of the Fire Control Loop Improvement Project (FCLIP) to correct specific anti-ship missile defense deficiencies identified during live-fire testing. In FY16, FCLIP Phase 2 and FTIIP will be initiated as follow on efforts for fire control loop and strike group interoperability improvements.</p> <p>TI-16 will include common enterprise COTS hardware products for computing, storage, display, and network switching devices to support system and equipment modernization driven by COTS obsolescence.</p> <p>In PB15, SSDS MK 2 Advance Capability Build (ACB)-16 was delayed 2 years due to the need to prioritize critical SSDS system improvements. ACB-16 was the designation for the next major SSDS baseline for the integration of new sensor, weapon, and C4I capabilities for anti-ship missile defense and strike group interoperability. As a result of the delay, ACB-16 has been re-designated to ACB-20. The SSDS MK 2 ACB-12 capability baseline development, test, and fielding will</p>		

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continue as planned. However, with the delay in development and fielding of ACB-16, an increased number of SSDS MK2 ships will receive the ACB-12 capability baseline and specific fire control loop, surveillance, interoperability and cyber-security improvements, in lieu of ACB-16.

In addition to the integration of the Enterprise Surveillance Suite (EASR and X-Band TI), ICS cyber-security enhancements, and integration of TSTC enhancements for ACB-20, future warfighting improvement integration candidates include fire control loop improvements beyond FCLIP Phase 2 for tracking, weapon scheduling and engagement control with ESSM Block 2 missile; SEWIP Block 2 with soft kill coordinator; SEWIP Block 2 integration with SSDS MK2 TI-16; SEWIP Block 3 Electronic Attack.

SSDS MK 2 Product Development includes integration of government furnished hardware and software to provide Warfighting Capability Improvements via ACB and improvement projects, and OACE improvements and COTS obsolescence refresh via TI. Product development encompasses studies and analysis, modeling and simulation, system requirements engineering, critical experiments, hardware and software design, software code development, EDM units, hardware/software integration, factory system integration testing, factory qualification testing, and system pre and post certification support during Combat System Integration Testing, Combat System Certification testing, and DT&E (land-based and at-sea).

SSDS MK2 Development Test and Evaluation (DT&E) provides for comprehensive testing of SSDS MK2-based Combat System hardware/software upgrades for the CVN 68, CVN 78, LPD 17, LHD, LHA 6 and LSD ship classes. This includes Land Based testing at Wallops Island and At-Sea testing for the lead ships in each specific ship class Combat System configuration and Live Fire testing on the SDTS. The DT&E encompasses test preparation, integration, engineering and development tests, data collection and analysis, and resolution and verification of deficiency corrections. The SSDS MK 2 T&E supports Integrated Combat System certification, the SSDS Test and Evaluation Master Plan (TEMP) and the Air Warfare Ship Self Defense CAPSTONE Enterprise TEMP.

The initial DT&E and Follow on Operational Test and Evaluation (FOT&E) for SSDS MK 2 was conducted with the CVN 76 SSDS MK 2 Mod 1 configuration in FY05. In FY07, the SSDS MK 2 FOT&E requirements were linked with the Air Warfare Ship Self Defense Enterprise T&E initiative to combine At-Sea Combat System element DT&E and OT&E requirements to synergize the resources required for testing in the SSDS MK 2 ships and the SDTS. The LPD-17 class SSDS MK 2 Mod 2 FOT&E was conducted in FY07/FY08 as part of the Enterprise T&E initiative. Live fire, Combat System end-to-end testing was conducted against Anti-Ship Cruise Missile (ASCM) targets on the SDTS in FY07/08/09 with the CVN/LHD/LPD configurations. FOT&E of ESSM integration with SSDS MK 2 was initiated on the CVN 68 class in FY08 and will extend through FY15. FOT&E for the CVN class SSDS MK 2 Mod 1B OACE COTS TI was conducted in FY09. FY15 FOT&E includes the LHA 6 SSDS MK 2 Mod 4B configuration with the RAM Block 2 missile, ESSM, AMIIP and FCLIP. FY16 FOT&E includes the LSD SSDS MK 2 Mod 5C configuration with the Phalanx CIWS 1B Baseline 2 system and RAM Block 2. FY17/FY18 FOT&E includes CVN 78 SSDS MK 2 Mod 6C configuration with the DBR, SEWIP Block 2 ES, ESSM with JUWL up-link, and RAM Block 2.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: SSDS MK2 Development Test & Evaluation	17.127	26.265	26.940	0.000	26.940
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>For CVN/LPD24/LHA6 SSDS MK2 Mod 1B/2B/4B Configurations with RAM Blk 2 integration, Linux OACE, and AMIIP/FCLIP phase 1:</p> <ul style="list-style-type: none"> - Complete Live Fire At Sea Testing for LHA6 configuration in SDTS-Enterprise Test 05 Phase 2. - Conduct DT/OT (IIIH Phase2 / ET06) and CSSQT on LHA6. 					
<p>For LSD SSDS MK2 Mod 5C configuration with the Phalanx CIWS Block 1B Baseline 2, RAM Block 2 and CPS/ CDS equipment:</p> <ul style="list-style-type: none"> - Conduct CST at WI for LSD 50, LSD 52, and LSD 45 for authorization OQE. 					
<p>For CVN78 SSDS MK2 Mod 6C configuration with DBR, CEC, TPX-42, High Speed Guard (HSG), PL STM, UPX-29, ESSM, MK29 launcher, and RAM Block2.</p> <ul style="list-style-type: none"> - Conduct Land Based system integration and engineering tests for CVN78 SSDS MK2 Engineering Software Releases at WI for the fire control loop including DBR, CEC, UPX-29, ESSM, MK-29 launcher, and RAM Block 2. This will also include live DBR TRKEXs for the integrated Combat System and TPX-42 Air Traffic Control System, and missile integration testing of ESSM X-Band JUWL uplink/downlink with the SSDS MK2 MOD6C, and DBR / DBR Radar Equipment Simulator. The testing will also include integration test with TADIL with AMIIP, and Air Control. - Conduct Combat System Assessment (CSA) Test at WI to deliver an integrated Combat System software package for CVN78 Combat System Light-off during construction. 					
<p>FY 2016 Plans:</p> <p>The T&E and certification efforts include four new SSDS integrated combat system baselines, LSD SSDS MK2 Mod5C, CVN78 SSDS MK2 Mod 6C, LHD2 SSDS MK2 Mod 3C, and CVN72 SSDS MK2 Mod 1C.</p>					
<p>For LSD SSDS MK2 Mod 5C configuration with the Phalanx CIWS Block 1B Baseline 2, RAM Block 2 and CPS/ CDS equipment:</p> <ul style="list-style-type: none"> - Complete ET14(DT) and Combat System Ship Qualification Trials (CSSQT) on LSD50. - Complete Live Fire At Sea Testing for LSD MOD 5C on SDTS - Enterprise Test 12. - Complete DT/OT III(I) Phase 2 / ET14 and CSSQT on LSD 45. - Conduct CST at WI for LSD 49 and LSD 51 for certification OQE. 					
<p>For CVN78 SSDS MK2 Mod 6C configuration with DBR, CEC, TPX-42, HSG, PL STM, UPX-29, ESSM, MK29 launcher, RAM Block2, SEWIP Block 2 and CVTSC.</p>					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>- Continue Land Based system integration and engineering tests for CVN78 SSDS MK2 Engineering Software Releases at WI for the fire control loop including DBR, CEC, UPX-29, ESSM, MK-29 launcher, RAM Block 2, and new capabilities for SSDS MK2 / SEWIP Block 2 integration. This will include live DBR TRKEX for the integrated Combat System and the TPX-42 Air Traffic Control System, and missile integration testing of ESSM X-Band JUWL uplink/downlink with the SSDS MK2 MOD6C and DBR Radar Equipment Simulator. The testing will also include integration test with HSG, TADIL with AMIIP, Air Control and the new capabilities for CV TSC integration.</p> <p>- Initiate DT (DT-III J Phase 3 / ET10) on CVN78 during post-delivery period.</p> <p>- Conduct CST#1 at WI for authorization OQE for ICS software package for PSA/CSSQT.</p> <p>For CVN72 SSDS MK2 ACB-12/TI-12 configuration with SPS-48G, SPS-49A, SPQ-9B, CEC, PL STM, UPX-29, ESSM, NSSMS MK57 MOD13, RAM Block2, SLQ-32(v)4, NULKA, CV-TSC (with MH-60R link) and BFTT, conduct CSA at WI to deliver ICS software package for CSLO during RCOH, and CST at WI to provide certification OQE for ICS software package for CIA and deployment.</p> <p>For LHD2 SSDS MK2 ACB-12/TI-12 configuration with SPS-48G, SPS-49A, SPQ-9B, CEC, PL STM, UPX-29, ESSM, NSSMS MK57 MOD14 (Objective Configuration Phase 2), RAM Block2, SLQ-32(V)3, and BFTT, conduct CSA and CST at WI to provide certification OQE for ICS software package for CSLO.</p> <p>FY 2017 Base Plans: SSDS MK2 Development Test and Evaluation</p> <p>For CVN78 SSDS MK2 Mod6C</p> <p>- Continue Land-Based integration and engineering testing at WI for ICS software changes/corrections for CVN78 DT/OT/OPEVAL and deployment software deliveries, including testing of embedded training capabilities with DBR simulation software.</p> <p>- Continue DT(DT-III J Phase 3 / ET-10) on the CVN78 during post-delivery period.</p> <p>- Conduct Fire Control Loop risk reduction TRKEX/MSLEX on SDTS with DBR (MFR), CEC, SSDS MK2, SEWIP Block 2, ESSM and RAM Block2.</p> <p>- Conduct DT/OT III J Phase 3 / ET-09 MSLEX on SDTS.</p> <p>- Conduct CST #2 at WI to provide certification OQE for OPEVAL and deployment.</p> <p>For LPD19/CVN77 SSDS MK2 MOD 3E/2E/1E ACB-12/TI-16:</p>					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>- Conduct Land-Based integration and engineering testing at WI.</p> <p>For SSDS MK2 FCLIP Phase 2 / FTIIP / TFCA BDC:</p> <p>- Initiate Land-Based integration and engineering testing at WI.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: SSDS MK2 Product Development-Advanced Capability Builds (ACB)/Technology Insertion</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: For LSD SSDS MK2 MOD 5C Tech Insertion, accomplish pre and post certification support to Land Based engineering tests, and Combat System integration and certification tests. This includes test data analysis, and resolution of system software trouble reports.</p> <p>For CVN 78 SSDS MK 2 Mod 6C, complete SSDS MK2 software design, code, test, and integration for the CVN78 CSLO baseline including AMIIP and cyber-security boundary defense capabilities. Complete delta FSIT for boundary defense capabilities and provide support for Land Based integration and engineering tests including live DBR TRKEXs. Initiate SSDS MK2 software design, code, and test for integration of SEWIP Block 2 for PSA / CSSQT (with FY14 and FY15 reprogramming actions). Continue development of operator and maintenance training courses for SSDS MK 2 Mod 6C ACB-12/TI-12.</p> <p>For CVN72 SSDS MK2 ACB-12/TI-12 configuration with SPS-48G, SPS-49A, SPQ-9B, CEC, PL STM, UPX-29, ESSM, NSSMS MK57 MOD13, RAM Block2, SLQ-32(v)4, NULKA, and BFTT, accomplish FSIT/SIT and provide support for Land Based integration and engineering tests for RCOH CSLO baseline.</p> <p>For LHD 2 SSDS MK2 MOD 3C ACB12 / TI12, complete the SSDS MK2 software modifications for CAPSTONE modernization and integration of NSSMS MK57 MOD14 with Objective Configuration Phase 2.</p> <p>For SSDS MK2 ACB-20, continue Top Level Requirements development, and develop Capability Phasing Plan and Concept of Integration for the mission essential Combat System Capability improvements.</p>	42.246	111.129	100.638	0.000	100.638
	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

For SSDS MK2 TI-16, conduct In-process Technical Review (IPR) for full scale development of equipment and equipment software operating environment.

FY 2016 Plans:

The FY2016 plans include a major increase in scope for the SSDS MK2 product development efforts identified below to meet ship new construction and modernization schedules.

- For CVN78 SSDS MK2 Mod 6C, complete SSDS MK2 software design, code, test, and integration for the CVN78 PSA/CSSQT baseline including SEWIP Block 2 and CV-TSC interfaces. Conduct FSIT and FQT for this baseline and provide support for ICS Land-Based integration and engineering tests at WI, CST #1, and for system / software trouble report resolution. Continue development of operator and maintenance training courses for SSDS MK 2 Mod 6C ACB-12/TI-12.

- For CVN72 SSDS MK2 Mod 1C ACB-12/TI-12 configuration with SPS-48G, SPS-49A, SPQ-9B, CEC, PL STM, UPX-29, ESSM, NSSMS MK57 MOD13, RAM Block2, SLQ-32(v)4, NULKA, CV-TSC (with MH-60R link) and BFTT, provide support for ICS Land Based integration and engineering tests at WI, CSA for the RCOH CSLO software, and CST for the post-RCOH CIA deployment software. This includes test data analysis and system/ software trouble report resolution.

- For LHD 2 SSDS MK2 Mod 3C ACB12 / TI12, provide support for ICS Land Based integration and engineering test at WI, and for CSA and CST for the CSLO. This includes test data analysis and system / software trouble report resolution.

- For LPD19/CVN77 SSDS MK2 MOD 3E/2E/1E ACB-12/TI 16, complete the development of the SSDS MK2 TI-16 equipment to support FY16 equipment production, and initiate SSDS ACB-12 software re-host to the TI-16 configuration; This includes the conduct of Hardware Critical Design Reviews (CDR), environmental qualification testing, development of the equipment software operating environment, and the conduct of an SRR, SFR, and design reviews for the re-host of the SSDS MK2 ACB-12 software.

- For FCLIP Phase 2 / FTIIP / TFCA BDC baselines, define and allocate System of Systems Combat System functional requirements for FCLIP Phase 2 and initiate system and software requirements specifications for SSDS (and ICS elements) for capabilities for CIWS integration with CEC / SSDS MK2, ESSM 2T Uplink, and RAM Block 2 Multi-Target processing in the missile. Accomplish modeling and analysis to ensure optimization

FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>and alignment of capabilities into the ICS end-to-end fire control loop. Conduct studies and analysis to define capability phasing, concepts of integration and Combat System functional requirements / allocation for SoS integration of RAM Block2 Multi-Target processing, NSSMS MK9 Multi-Target Discrimination Reporting and CEC / SSDS MK2 Engage on Remote.</p> <p>- For FTIIP, define and allocate Combat System functional requirements and initiate system and software requirements specifications for SSDS (and ICS elements) for TDL capabilities for IFF Mode 5 and F/A-18 Digital Air Control Phase 1 in support of F/A-18 and F-35 initial deployment, and for the integration / re-host of SGS/AC into the SSDS MK2 TI-16 configuration.</p> <p>- For TFCA BDC, define and allocate Combat System functional requirements and initiate system and software requirements specifications for SSDS (and ICS elements) for cyber-security protections. The boundary defense capabilities will protect and detect threats entering and leaving the Combat System. The centralized Combat System-level cyber-security capabilities will provide cyber situational awareness and management of various (e.g. malware detection, file integrity verification, etc.) cyber-security protection and detection capabilities. Element-level cyber-security protections will provide additional measures to ensure system integrity.</p> <p>- For EASR/ESS, start the systems engineering / analysis to determine the Concept of Integration and initiate the definition and functional allocation of the Combat System requirements to support the full scale development of system and software changes to the Ship Self Defense System (SSDS) ICS for CVN 80 and L-Class ships ICS variants in order to integrate the EASR and fire control capabilities for tracking and missile illumination/uplink. The overall scope of the multi-year development will include Systems Engineering/Analysis, M&S, Hardware and Software development, Cyber-Security Capabilities, Factory System Integration Test (FSIT) and Wrap Around Simulation, and Wallops Island System Integration Test for Fire Control Loop elements.</p> <p>- For SSDS MK2 ACB-20, define the Combat System architecture and initiate the definition and functional allocation of the Combat System requirements for the ACB-20 capabilities, including the integration of ESS (EASR and X-Band TI), to support the full scale development of the ACB-20 / EASR / ESS ICS baseline.</p> <p>- Initiate the RFP for the competitive CSEA contract for the SSDS MK2 ICS development including the SSDS MK2 ACB-20 baseline development and the integration of EASR/ESS/TI-20.</p> <p>FY 2017 Base Plans:</p>					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>SSDS MK2 Product Development - ACB/TI</p> <p>For CVN78 SSDS MK2 MOD 6C</p> <ul style="list-style-type: none"> - Complete software changes/corrections for the CVN 78 OPEVAL and deployment baselines including the integration of DBR simulation software for embedded on-board training capability.. - Conduct FSIT and FQT for these baselines. - Provide Support for ICS Land-Based integration and engineering tests at WI, and for CST #2 for OQE for the OPEVAL and deployment software. This includes test data analysis and system / software trouble report resolution. <p>For LPD19 / CVN77 SSDS MK2 MOD 3E/2E/1E ACB-12/TI-16</p> <ul style="list-style-type: none"> - Complete the ACB-12 software migration to TI-16 and conduct FSIT and FQT for these ship baselines. - Provide support for ICS Land-Based integration and engineering test at WI. This includes test data analysis and system / software trouble report resolution. <p>For FCLIP Phase 2 / FTIIP / TFCA BDC baselines</p> <ul style="list-style-type: none"> - Complete the design and software development for CIWS integration with CEC/SSDS MK2 and conduct FSIT and FQT. - Complete the design for the ESSM 2T Up-Link, and RAM Block2 Multi-Target processing in the missile. - Complete the preliminary design for SoS integration of RAM Block 2 multi-Target processing, NSSMS MK9 Multi-Target Discrimination & Reporting, and CEC / SSDS MK2 Engage on Remote. - Conduct SSDS MK2/CS element design reviews for the FY17 initiatives identified above. <p>For SSDS MK2 ACB-20/EASR/ESS/TI-20</p> <ul style="list-style-type: none"> - Complete the Combat System and Interface Requirement Documentation for the ACB-20 Warfighting Capability Improvements including EASR and ESS. This includes the Concept of Integration for each capability, capability phasing, the functional allocation of Combat System requirements, and the Interface Requirement Specifications for the integrated Capability baseline(s). - Initiate the system engineering analysis for the TI-20 configuration to define the architecture for the SSDS MK2 ICS ship class variants and the hardware requirements for common infrastructure for computing, display, network, cyber-security and software operating environment. 					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Complete the RFP for the competitive CSEA contract for the SSDS MK2 ICS development including the SSDS MK2 ACB-20 baseline development and the integration of EASR/ESS/TI-20.					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	59.373	137.394	127.578	0.000	127.578

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• OPN/ BLI 5231 (SSDS): <i>SSDS</i>	19.766	61.409	54.919	-	54.919	60.238	61.287	62.152	63.429	Continuing	Continuing
• RDTEN/0603658N:	41.158	73.786	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	601.250
<i>Cooperative Engagement</i>											
• RDTEN/0607658N: <i>Cooperative Engagement Capability</i>	0.000	0.000	84.501	-	84.501	88.945	96.246	92.749	94.273	Continuing	Continuing

Remarks

Cooperative Engagement Capability (CEC) budget will realign from PE 0603658N to 0607658N starting in FY17.

D. Acquisition Strategy

The first SSDS MK 2 system procurements took place under a Cost Plus Award Fee (CPAF) contract in FY99 for the CVN 76, LPD 17, LPD 18 and CVN 69. Follow-on equipment procurements for additional ships of the CVN, LPD and LHD classes were awarded on Firm Fixed Price (FFP) contracts. For those ships that will be receive P3I OACE COTS tech Refresh hardware suites, the initial system Tech Refresh Development occurred under a CPAF type contract, with ship COTS conversion equipment/kits procured on FFP contracts.

A system engineering/design agent and Life Cycle Maintenance Cost Plus Fixed Fee (CPFF) contract was awarded in FY05 and a follow-on CPFF/CPAF contract, N00024-08-C-5122, was awarded on 30 Sept 2008, to support SSDS MK 2 system/software maintenance and system upgrades through FY13 including the TI-12 COTS Tech Insertion.

A follow on CPIF LOE contract, N00024-14-C-5128, was awarded 18 December, 2013 on a sole source basis for FY14-FY17 for the completion of the development, test, certification of SSDS MK2 (ACB12/TI12) for CVN78, CVN72, LHD2, and the software migration of ACB12 to TI16 for CVN68, LHD1, LPD17 ship classes. For SSDS MK2 TI-16 equipment, the SSDS program will use competitive build to specification production contracts, and leverage common enterprise COTS Open Architecture Computing Environment (OACE) products for computing, storage, display, network, conversion, and cyber-security. A competitive Combat System Engineering Agent (CSEA) / SSDS MK2 Design Agent (DA) contract is planned for FY2018-FY2027 with RFP preparation efforts commencing early in FY16.

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A sole source CPAF/CPIF delivery order, N00178-04-D-4112-0004, was awarded in FY05 to acquire a Systems Engineering & Integration agent to support SSDS MK2 (ACB12) development, integration and testing for the CVN78 Class Warfare System. A follow-on competitive CPIF contract is planned to be awarded for FY17 to support SSDS MK2 (ACB20) development and integration for both CVN and Amphibious Ship Classes.

E. Performance Metrics

Requirement Documents

- Capability Development Document (CDD) for Ship Self Defense System (SSDS) MK2 approved 19 December 2013.
- Test and Evaluation Master Plan (TEMP No. 1400) For Ship Self Defense System (SSDS) Revision B, 5 Mar 2008. Revision C is in routing and anticipated to be signed out by the end of FY15.

Background

- SSDS MK1 OPEVAL was successfully completed June 1997 with a Milestone III approval in March 1998
- SSDS MK2 MOD 1 FOT&E was conducted on CVN 76 in 2005. All KPP thresholds were met. However, the system was assessed as not suitable and not effective by COMOPTEVFOR based on the identification of SSDS MK2 and Combat Systems deficiencies (24major, 37 minor deficiencies).
- SSDS MK 2 Mod 2 FOT&E was conducted in LPD 17-19 in 2007/2008. All KPPs thresholds were met and the system was assessed OPERATIONALLY EFFECTIVE and OPERATIONALLY SUITABLE by COMOPTEVFOR in the 12 Feb 2010 report. 10 major and minor deficiencies were identified against SSDS MK 2. (Also, major Warfare effects deficiencies were identified against the LPD 17 class Combat System).
- SSDS MK 2 Mod 3A FOT&E was conducted in LHD 8 in Feb 2010. All KPPs thresholds were met and the system was assessed OPERATIONALLY EFFECTIVE and OPERATIONALLY SUITABLE by COMOPTEVFOR in the 13 Dec 2010 report. 10 major deficiencies were identified against SSDS MK 2. (Also, major Warfare effects deficiencies were identified against the LHD 8 Combat System).
- SSDS MK2 FOT&E with ESSM and RAM Block 1 was conducted in the SDTS Oct-Dec 2011 as part of Enterprise Test - 03. Combat System (system-of-system) deficiencies identified during MSLEX with stressing targets has resulted in a phased corrective action plan, designated as Fire Control Loop Improvement Project (FCLIP).
- SSDS MK2 FOT&E with RAM Block 2 DT&E was conducted in the SDTS Dec 2014 as part of Enterprise Test - O5 Phase 2. Low altitude, supersonic, maneuvering targets were successfully engaged with RAM Block 2 missiles.
- Conducted Enterprise Test (ET) Event 5 and Event 6 against a wide array of subsonic and supersonic targets during live fire testing conducted against the Self Defense Test Ship (SDTS) and the USS America (LHD 6) to assess performance of the Integrated Combat System (ICS).

Status

- The Director, Operational Test and Evaluation (DOT&E) Annual Reports have identified ship self-defense mission deficiencies based on operational testing. The report is a compilation of multiple reports from Commander, Operational Test Force (COTF) including shipboard testing on the CVN 76, CVN 70, LPD 17, LPD 18, LPD 19, LHD 8;

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<p>and enterprise testing on the SDTS and in the Probability of Raid Annihilation (PRA) test-bed.</p> <ul style="list-style-type: none"> - SSDS was assessed Operationally Effective and Operationally Suitable for the LPD 17 Class and LHD 8. The Combat Systems (CVN, LPD, LHD) were assessed Not Operationally Effective against several Anti-Ship Cruise Missiles (ASCM). There are system of systems performance issues and design limitations. The issues are divided into four categories: detect, engage, test resources, and threat representation. - All of the major training deficiencies have been addressed and are pending Verification of Correction of Deficiency (VCD) by COTF. Revised SSDS NTSP was signed 30 Jul 2012. - OPNAV N96 is working with PEO IWS, DASN, and COTF to address the shortfalls in performance testing with the following initiatives: <ul style="list-style-type: none"> a. Develop, test and field combat system improvements through the Fire Control Loop Improvement Project (FCLIP) Phase 1 with SSDS MK2 integration of: High Diver improvements to SPS-48E and CEC; SPQ-9B tracking improvements; North Atlantic Treaty Organization (NATO) Seasparrow Surface Missile System (NSSMS) MK 9 Target Illuminator improvements. b. Integrate, test, and field SEWIP Block 2, and NULKA improvements. c. Expand the use of Modeling and Simulation. d. Develop FCLIP Phase 2 capabilities for RAM Block 2 Multi-Target processing, NSSMS MK9 TI Multi-Target discrimination and reporting, ESSM 2T Up-link, CIWS integration with CEC / SSDS MK2, and CEC/SSDS MK2 Engage Remote Capability. e. Consider follow on high return self-defense improvements with FCLIP and Advanced Capability Builds (ACB). - Additional T&E and certification initiatives include: <ul style="list-style-type: none"> a. Conduct element and platform level cyber-security testing using land based test site (LBTS) facilities. b. Move away from platform centric certification testing towards baseline configuration centric testing for combat systems certification testing. c. Utilize Value Stream Analysis (VSA) to streamline certification testing process and implement process to better leverage existing or past test artifacts. 		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
ACB-12 / LSD / AMIIP PSEA / SW Dev't	SS/CPIF	RSC IDS (5128) : San Diego, CA	34.317	28.121	Nov 2014	35.952	Feb 2016	31.880	Dec 2016	-		31.880	Continuing	Continuing	Continuing
ACB-12 / LSD / AMIIP PSEA / SW Dev't	SS/CPAF	RSC IDS (5122) : San Diego, CA	38.416	0.000		0.000		0.000		-		0.000	0.000	38.416	-
ACB-12 / LSD / AMIIP SE	SS/CPFF	JHU/APL : Laurel, MD	63.413	3.474	Dec 2014	5.000	Feb 2016	4.550	Dec 2016	-		4.550	Continuing	Continuing	Continuing
ACB-12 - SW Dev/PL-STM	SS/CPAF	Gen. Dyn. (5100) : Fairfax, VA	3.628	0.000		0.000		0.000		-		0.000	0.000	3.628	-
ACB-12 / LSD / AMIIP SE	WR	NSWC DD : Dalhgren, VA	66.348	3.383	Nov 2014	5.500	Jan 2016	5.100	Nov 2016	-		5.100	Continuing	Continuing	Continuing
ACB-12 / LSD / AMIIP SE / ILS	WR	CDSA DN : Dam Neck, VA	21.766	0.518	Nov 2014	1.401	Jan 2016	1.400	Nov 2016	-		1.400	Continuing	Continuing	Continuing
ACB-12 / LSD / AMIIP SE&I	C/CPIF	RSC (IIS) : Suffolk, VA	0.000	0.361	Dec 2014	0.000		0.000		-		0.000	0.000	0.361	-
ACB-12 / LSD / AMIIP - Training Dev	WR	NSWC PHD : Pt Hueneme, CA	24.851	0.825	Nov 2014	1.500	Jan 2016	2.600	Nov 2016	-		2.600	Continuing	Continuing	Continuing
TI-16 HW Dev / ILS / EDM Proc (DN)	WR	CDSA DN : Dam Neck, VA	5.361	0.945	Nov 2014	6.000	Jan 2016	6.000	Nov 2016	-		6.000	Continuing	Continuing	Continuing
TI-16 HW Engr	WR	NSWC DD : Dalhgren, VA	0.108	0.217	Nov 2014	0.900	Jan 2016	0.750	Nov 2016	-		0.750	Continuing	Continuing	Continuing
TI-16 for ACB-12 SW Migration PSEA	SS/CPIF	RSC IDS (5128) : San Diego, CA	1.348	0.516	Dec 2014	10.900	Feb 2016	9.600	Dec 2016	-		9.600	Continuing	Continuing	Continuing
TI-16 - Training Course Development	WR	NSWC-PHD : Pt Hueneme, CA	0.000	0.000		1.305	Jan 2016	1.600	Nov 2016	-		1.600	Continuing	Continuing	Continuing
FCLIP Phase 2 - PSEA	SS/CPIF	RSC IDS (5128) : San Diego, CA	0.333	0.260	Dec 2014	8.751	Feb 2016	8.853	Dec 2016	-		8.853	Continuing	Continuing	Continuing
FCLIP Phase 2 / SE	SS/CPFF	JHU/APL : Laurel, MD	1.221	0.309	Dec 2014	6.022	Feb 2016	2.882	Dec 2016	-		2.882	Continuing	Continuing	Continuing
FCLIP Phase 2 / SE	WR	NSWC-DD : Dahlgren, VA	0.215	0.217	Nov 2014	0.853	Jan 2016	0.327	Nov 2016	-		0.327	Continuing	Continuing	Continuing
FCLIP Phase 2 / SE	WR	CDSA DN : Dam Neck, VA	0.000	0.000		0.136	Jan 2016	0.100	Nov 2016	-		0.100	0.000	0.236	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
FCLIP Phase 2 / SE	WR	NSWC PHD : Pt Hueneme, CA	0.000	0.206	Nov 2014	0.217	Jan 2016	0.150	Nov 2016	-		0.150	Continuing	Continuing	Continuing
FCLIP Phase 2 / SE / Planning	C/CPIF	Delta Resources : Not Specified	0.000	0.000		0.233	Feb 2016	0.233	Dec 2016	-		0.233	0.000	0.466	-
FCLIP Phase 2 / SE & I	C/CPIF	RSC IIS (4112) : Suffolk, VA	0.000	0.103	Dec 2014	1.529	Feb 2016	0.000		-		0.000	Continuing	Continuing	Continuing
FCLIP Phase 2 / SEI&T	C/CPIF	TBD - Competition : TBD	0.000	0.000		0.000		0.617	Dec 2016	-		0.617	0.000	0.617	-
FCLIP Phase 2 / SE CIWS	TBD	IWS 3B : TBD	0.000	0.000		0.651	Jan 2016	0.000		-		0.000	0.000	0.651	-
FCLIP Phase 2 / SE	WR	NAWC : China Lake	0.000	0.000		1.035	Feb 2016	0.567	Nov 2016	-		0.567	Continuing	Continuing	Continuing
FCLIP Phase 2 / SE	SS/CPFF	RSC(5432/5410) : Tuscon, AZ	0.000	0.000		2.420	Feb 2016	0.000		-		0.000	Continuing	Continuing	Continuing
FCLIP Phase 2 / SE	WR	NSWC : Crane, IN	0.000	0.000		0.271	Jan 2016	0.175	Dec 2016	-		0.175	Continuing	Continuing	Continuing
FCLIP Phase 2 / SE / SW Dev't	SS/CPAF	RSC (5202) : St. Pete, FL	0.000	0.000		2.734	Feb 2016	0.600	Dec 2016	-		0.600	Continuing	Continuing	Continuing
FCLIP Phase 2 / SE / SW Dev't	SS/CPAF	Rayth (RIDS) : Portsmouth, RI	0.000	0.000		1.530	Feb 2016	0.000	Dec 2016	-		0.000	0.000	1.530	-
FTIIP - PSEA / SW Dev't	SS/CPIF	RSC IDS (5128) : San Diego, CA	0.000	0.000		1.511	Feb 2016	1.675	Dec 2016	-		1.675	Continuing	Continuing	Continuing
FTIIP - SE	C/BA	JHU/APL : Laurel, MD	0.000	0.000		0.326	Feb 2016	0.300	Dec 2016	-		0.300	0.000	0.626	-
FTIIP / SE	WR	NSWC-DD : Dahlgren, VA	0.000	0.000		0.465	Jan 2016	0.250	Nov 2016	-		0.250	Continuing	Continuing	Continuing
FTIIP / SE	WR	CDSA DN : Dam Neck, VA	0.000	0.000		0.673	Jan 2016	0.688	Nov 2016	-		0.688	Continuing	Continuing	Continuing
FTIIP / SE&I	C/CPIF	RSC IIS (4112) : Suffolk, VA	0.000	0.000		0.125	Feb 2016	0.287	Dec 2016	-		0.287	Continuing	Continuing	Continuing
ICS SE - PSEA SE	SS/CPIF	RSC IDS (5128) : San Diego, CA	0.333	0.175	Dec 2014	0.000		0.200	Dec 2016	-		0.200	0.000	0.708	-
ICS SE / SE&I	C/CPIF	RSC (IIS) : Suffolk, VA	1.368	0.258	Nov 2014	1.950	Feb 2016	0.000		-		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
1319 / 5				PE 0604755N / Ship Self Def (Detect & Cntrl)				2178 / QRCC							
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
ACB-20 / ICS SE / SEI&T	C/CPIF	TBD - Competition : TBD	0.000	0.000		0.000		3.134	Dec 2016	-		3.134	0.000	3.134	-
ACB-20 / ICS SE	SS/CPFF	JHU/APL : Laurel, MD	0.677	0.309	Dec 2014	1.200	Feb 2016	0.600	Dec 2016	-		0.600	Continuing	Continuing	Continuing
ACB-20 / ICS SE	WR	NSWC DD : Dalhgren, VA	1.631	0.237	Nov 2014	1.200	Jan 2016	0.843	Nov 2016	-		0.843	Continuing	Continuing	Continuing
ACB-20 / ICS SE	WR	CDSA DN : Dam Neck, VA	0.000	0.215	Nov 2014	0.572	Jan 2016	0.400	Nov 2016	-		0.400	Continuing	Continuing	Continuing
TI-20 HW Engineering	WR	CDSA DN : Dam Neck, VA	0.000	0.000		0.000		0.657	Nov 2016	-		0.657	0.000	0.657	-
TI-20 HW Engineering	WR	NSWC-DD : Dalhgren, VA	0.000	0.000		0.000		0.324	Nov 2016	-		0.324	0.000	0.324	-
EASR / ESS SE	SS/CPFF	JHU/APL : Laurel, MD	0.000	0.000		1.300	Feb 2016	1.200	Dec 2016	-		1.200	Continuing	Continuing	Continuing
EASR / ESS SE	WR	NSWC DD : Dalhgren, VA	0.000	0.000		0.500	Jan 2016	0.800	Nov 2016	-		0.800	Continuing	Continuing	Continuing
EASR / ESS / SE&I	C/CPIF	RSC IIS (4112) : Suffolk, VA	0.000	0.000		0.000	Feb 2016	0.000		-		0.000	0.000	0.000	-
EASR / ESS / SEI&T	C/CPIF	TBD - Competition : TBD	0.000	0.000		0.000		1.000	Dec 2016	-		1.000	0.000	1.000	-
EASR / ESS SE / Analysis	C/BA	IWS 7.0 : Washington DC	0.000	0.000		0.700	Jan 2016	0.500	Dec 2016	-		0.500	Continuing	Continuing	Continuing
TFCA - BDC PSEA SW Dev't	SS/CPFF	RSC IDS (5128) : San Diego, CA	0.000	0.000		1.450	Feb 2016	3.000	Dec 2016	-		3.000	Continuing	Continuing	Continuing
TFCA - BDC SE	SS/CPFF	JHU/APL : Laurel, MD	0.000	0.000		0.481	Feb 2016	0.600	Dec 2016	-		0.600	Continuing	Continuing	Continuing
TFCA - BDC SE	WR	NSWC-DD : Dalhgren, VA	0.000	0.000		0.989	Jan 2016	2.400	Nov 2016	-		2.400	Continuing	Continuing	Continuing
TFCA - BDC SE	WR	CDSA DN : Dam Neck, VA	0.000	0.000		0.696	Jan 2016	1.000	Nov 2016	-		1.000	Continuing	Continuing	Continuing
TFCA - BDC / SE&I	C/CPIF	RSC (IIS) : Suffolk, VA	0.000	0.000		0.329	Feb 2016	0.000		-		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604755N / Ship Self Def (Detect & Cntrl)	Project (Number/Name) 2178 / QRCC
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
TFCA - BDC / SEI&T	C/CPIF	TBD : TBD	0.000	0.000		0.000		0.500	Dec 2016	-		0.500	0.000	0.500	-
TFCA - BDC Cyber Products	C/CPIF	Progeny Systems Corp : Manasas, Va	0.000	0.000		0.055	Feb 2016	0.000	Dec 2016	-		0.000	Continuing	Continuing	Continuing
TFCA - BDC Cyber Products	TBD	TBD : TBD	0.000	0.000		0.000		0.500	Dec 2016	-		0.500	0.000	0.500	-
HQ Travel	Various	PEO IWS : Washington DC	0.050	0.100	Oct 2014	0.100	Jan 2016	0.100	Dec 2016	-		0.100	Continuing	Continuing	Continuing
SE/Dev/Integrate	SS/CPAF	Rayth(5412) (RIDS) : Portsmouth, RI	83.451	0.000		0.000		0.000		-		0.000	0.000	83.451	-
Misc - Prior Year Cum Cost	C/BA	SEA 05C : Washington DC	278.839	0.155	Dec 2014	0.167	Feb 2016	0.166	Dec 2016	-		0.166	0.000	279.327	-
Subtotal			627.674	40.904		109.629		99.108		-		99.108	-	-	-

Remarks
 The increase in PU 2178 from FY15 to FY16/FY17 is required for the following major initiatives:
 *Completion of SSDS MK2 ACB12/TI-12 development & integration for CVN78 and LHD2.
 *Completion of the development and integration of the SSDS MK2 TI-16 equipment and migration of SSDS ACB-12 S/W to the TI-16 configuration.
 *The development of FCLIP Phase 2 / FTIIP / TFCA-BDC improvements.
 *Development of the concept of integration capability phasing, combat system requirements, and interface requirements for ACB-20 / EASR / ESS.

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DT&E (PHD)	WR	NSWC PHD : Port Hueneme, CA	91.132	3.349	Nov 2014	3.594	Jan 2016	3.875	Nov 2016	-		3.875	Continuing	Continuing	Continuing
DT&E (SCSC-WI)	WR	SCSC-WI : Wallops Is, VA	56.354	5.030	Nov 2014	7.131	Jan 2016	7.150	Nov 2016	-		7.150	Continuing	Continuing	Continuing
DT&E (JHU)	SS/CPFF	JHU/APL : Laurel, MD	18.697	1.122	Dec 2014	2.169	Feb 2016	2.173	Dec 2016	-		2.173	Continuing	Continuing	Continuing
DT&E (Corona)	WR	NSWC Corona : Corona, CA	7.551	1.075	Nov 2014	3.135	Jan 2016	3.198	Nov 2016	-		3.198	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604755N / Ship Self Def (Detect & Cntrl)	Project (Number/Name) 2178 / QRCC
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
DT&E (Raytheon - St. Pete)	SS/CPAF	RSC (5202) : St. Pete, FL	3.670	1.038	Dec 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
DT&E (RAM & ESSM) (China Lake)	WR	NAWC : China Lake, CA	1.150	0.000	Dec 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
DT&E (RAM & ESSM) (RSC)	SS/CPFF	RSC(5432/5410) : Tucson, AZ	3.153	0.000	Dec 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
DT&E (Raytheon - SE&I)	C/CPFI	Rayth - IIS : Norfolk, Va.	0.571	0.000	Dec 2014	0.000		0.000		-		0.000	0.000	0.571	-
DT&E Raytheon - PSEA	SS/CPFI	RSC (5128) : San Diego, CA	0.000	0.182	Nov 2014	0.000		0.000		-		0.000	0.000	0.182	-
DT&E (GD/AIS - IWS 1.0)	SS/CPAF	GD/AIS : Fairfax Va.	0.266	0.000		0.000		0.000		-		0.000	0.000	0.266	-
DT&E/CST (DD - CST)	WR	NSWC DD : Dahlgren, VA	11.213	3.457	Nov 2014	6.665	Jan 2016	6.890	Nov 2016	-		6.890	Continuing	Continuing	Continuing
DT&E (COTF)	WR	OPTEVFOR : Norfolk, VA	3.760	0.052	Nov 2014	1.173	Jan 2016	1.195	Nov 2016	-		1.195	Continuing	Continuing	Continuing
DT&E (CDSA-DN)	WR	CDSA DN : Dam Neck, VA	3.346	0.731	Nov 2014	0.586	Jan 2016	0.607	Nov 2016	-		0.607	Continuing	Continuing	Continuing
DT&E (Raytheon - RIDS)	SS/CPAF	RSC (5412) : Portsmouth, RI	1.902	0.000	Oct 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
DT&E (SPAWAR-SD)	WR	SPAWAR : San Diego, CA	5.624	0.156	Dec 2014	0.342	Jan 2016	0.352	Nov 2016	-		0.352	0.000	6.474	-
Subtotal			208.389	16.192		24.795		25.440		-		25.440	-	-	-

Remarks
 The increases in PU 2178 from FY15 to FY16/FY17 are required for the following major T&E and certification initiatives:
 *Accomplishment of SSDS MK2 ICS integration and certification testing for ship system installation and deployment;
 *Accomplishment of the SSDS MK2 ICS test and evaluation for the CVN78 SSDS MK2 Mod 6C baseline.
 *In FY17, the T&E and certification efforts continue on new SSDS integrated combat system baselines (see R-4 exhibit)

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604755N / Ship Self Def (Detect & Cntrl)	Project (Number/Name) 2178 / QRCC
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support	C/CPIF	Various : Various	26.154	2.277	Dec 2014	2.970	Feb 2016	3.030	Dec 2016	-		3.030	Continuing	Continuing	Continuing
Subtotal			26.154	2.277		2.970		3.030		-		3.030	-	-	-

Remarks
 For FY15-FY17, new contracts have been established on a competitive basis with Tech Marine for financial management support, and with CACI for Acquisition/Logistics support. During FY15-FY17, Engility (formerly TASC) will continue to provide program support for T&E, and Delta Resources will provide program management support for project planning, under competitively awarded SEAPORT contracts.

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	862.217	59.373	137.394	127.578	-	127.578	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604755N / <i>Ship Self Def (Detect & Cntrl)</i>	Project (Number/Name) 2178 / QRCC
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FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Proj 2178																												
SSDS MK 2 MOD 5C (LSD) - PRE&POST CERT SUPPORT (9.08)																												
SSDS MK 2 MOD 5C (LSD) - T&E - ENG TEST/DT/DT ASSIST "I" PHASE 1/Combat System Test (CST) @WI																												
SSDS MK 2 MOD 5C (LSD) - T&E - LSD 50 CSSQT/ET14(DT)																												
SSDS MK2 MOD 5C (LSD) - T&E - CST @ WI																												
SSDS MK 2 MOD 5C (LSD) - T&E - LSD 45 CSSQT / DT/OT III "I" PHASE 2/ET14																												
SSDS MK 2 MOD 5C (LSD) - T&E - (SDTS) - DT/OT III I/PHASE 3/ET12																												
SSDS MK2 MOD 6C - CVN 78 ACB12 / TI12 - T&E - SIT/ET/TRKEX @ WI																												
SSDS MK2 MOD 6C - CVN 78 ACB12 / TI12 - FSIT 1																												
SSDS MK 2 MOD 6C - CVN 78 / LHD2 ACB12 / TI12 - S/W DCTI 2/3																												
SSDS MK2 MOD 6C - CVN 78 ACB12 / TI12 - T&E - CSA @ WI																												
SSDS MK2 MOD 1C - CVN72 ACB12 / TI12 - FSIT 2																												
SSDS MK2 MOD 6C - CVN 78 ACB12/TI12 - FSIT 1 Delta																												
SSDS MK 2 MOD 3C / 1C - LHD 2 / CVN 72 ACB12 / TI12 - FSIT 3 / FQT 1/2																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604755N / Ship Self Def (Detect & Cntrl)	Project (Number/Name) 2178 / QRCC
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
SSDS MK 2 MOD 3C / 1C - LHD2 / CVN 72 ACB12 / TI12 - T&E - CSA @ WI																												
SSDS MK 2 MOD 6C - CVN 78 ACB12/TI12 - FSIT 4 / FQT 3																												
SSDS MK 2 MOD 3C/1C - LHD 2 / CVN 72 ACB12 / TI12 - T&E - CST @ WALLEPS																												
SSDS MK 2 MOD 6C - CVN 78 ACB12/TI12 - PRE & POST CERT SUPPORT / SW DCTI 4																												
SSDS MK 2 MOD 6C - CVN 78 ACB12/TI12 - T&E - DT III J PHASE 2 / ET10 @ CVN 78																												
SSDS MK 2 MOD 6C - CVN 78 ACB12/TI12 - T&E CST #1 @ WI																												
SDTS - SSDS MK 2 MOD 6C - CVN 78 ACB12/TI12 - FCL RISK REDUCTION TRKEX / MSLEX																												
SDTS - SSDS MK 2 MOD 6C - CVN 78 ACB12/TI12 - T&E - DT/OT III J/PHASE 3/ ET09																												
SSDS MK 2 MOD 6C - CVN 78 ACB12 / TI12 - FSIT5 / FQT4																												
SSDS MK 2 MOD 6C - CVN 78 ACB12 / TI12 - T&E - CST #2 @ WI																												
SSDS MK 2 MOD 6C - CVN 78 ACB12 / TI12 - PRE & POST CERT SPT																												
SSDS MK 2 MOD 6C - CVN 78 ACB12 / TI12 - T&E CSSQT																												
SSDS MK 2 MOD 6C - CVN 78 ACB12 / TI12 - DT/OT III J PHASE 2/ ET10																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604755N / <i>Ship Self Def (Detect & Cntrl)</i>	Project (Number/Name) 2178 / QRCC
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
SSDS MK 2 MOD 6C - CVN 78 ACB12 / TI12 - T&E - C2X																												
SSDS MK 2 MOD 6C - CVN 78 ACB12 / TI12 - T&E - JTFX																												
SSDS MK 2 MOD 3E / 2E / 1E - LPD 19 / CVN 77 ACB12 / TI-16 - SE / CRITICAL EXPERIMENTS																												
SSDS MK 2 MOD 3E / 2E / 1E - LPD 19 / CVN 77 ACB12 / TI-16 - HW IPR																												
SSDS MK 2 MOD 3E / 2E / 1E - LPD 19 / CVN 77 ACB12 / TI-16 - HW PDR																												
SSDS MK 2 MOD 3E / 2E / 1E - LPD 19 / CVN 77 ACB12 / TI-16 - SRR / SFR																												
SSDS MK 2 MOD 3E / 2E / 1E - LPD 19 / CVN 77 ACB12 / TI-16 - IPR 1																												
SSDS MK 2 MOD 3E / 2E / 1E - LPD 19 / CVN 77 ACB12 / TI-16 - IPR 2																												
SSDS MK 2 MOD 3E / 2E / 1E - LPD 19 / CVN 77 ACB12 / TI-16 - IPR 3																												
SSDS MK 2 MOD 3E / 2E / 1E - LPD 19 / CVN 77 ACB12 / TI-16 - FSIT / FQT																												
SSDS MK 2 MOD 3E / 2E / 1E - LPD 19 / CVN 77 ACB12 / TI-16 - (T&E) SIT / ET @ WI																												
SSDS MK 2 MOD 3E / 2E / 1E - LPD 19 / CVN 77 ACB12 / TI-16 - (T&E) CST @ WI																												
SSDS MK 2 MOD 3E / 2E / 1E - LPD 19 / CVN 77 ACB12 / TI-16 - PRE & POST CERT SUPPORT																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604755N / Ship Self Def (Detect & Cntrl)	Project (Number/Name) 2178 / QRCC
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021								
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4					
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - STUDIES/ANALYSIS/Top Level Requirements					■	■	■	■																									
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - SoS SRR / SFR							■	■																									
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - Element SRR / SFR											■	■																					
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - REL F-1 SSR / PDR											■	■																					
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - IPR 1												■																					
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - T&E - REL F-1 SIT / ET @ WI												■	■																				
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - REL F-1 FSIT / FQT													■	■																			
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - T&E - REL F-1 CST															■	■																	
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - REL F-2 SSR / PDR															■	■																	
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - IPR 2																■																	
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - REL F-2 SIT / ET @ WI																■	■																
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - T&E - REL F-2 FSIT / FQT																■																	
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - PRE & POST CERTIFICATION																	■	■															
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - T&E - REL F-2 CST																					■	■											

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604755N / Ship Self Def (Detect & Cntrl)	Project (Number/Name) 2178 / QRCC
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - ANALYSIS / TOP LEVEL REQ'T / CPP / COI	██████████																											
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - COMBAT SYSTEM REQUIREMENTS/ INTERFACE DOC (CSR D)					██████████																							
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - DRAFT RFP									████																			
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - FINAL RFP									████																			
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - COMBAT SYSTEM INTERFACE REQUIREMENT SPEC (IRS)													████															
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - CSEA CONTRACT AWARD													████															
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - SoS SRR / SFR																	████											
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - ELEMENT SRR / SFR																	████											
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - REL A-1 SSR / PDR																	████											
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - IPR 1																	████											
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - T&E - REL A-1 SIT / ET @ WI																	████████											
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - REL A-1 FSIT / FQT																	████											
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - REL A-2 SSR / PDR																	████											

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy

Date: February 2016

Appropriation/Budget Activity

1319 / 5

R-1 Program Element (Number/Name)

PE 0604755N / Ship Self Def (Detect & Cntrl)

Project (Number/Name)

2178 / QRCC

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021					
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4		
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - REL A-1 CST																														
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - IPR 2																														
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - T&E - SIT / ET @ WI																														
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - REL A-2 FSIT / FQT																														
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - REL A-2 CST																														
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - REL A-3 SSR / PDR																														
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - IPR 3																														
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - T&E - REL A-3 SIT / ET @ WI																														
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - REL A-3 FSIT / FQT																														
SDTS - SSDS MK 2 OACE MOD 4B - T&E - DT / OT III H / ET05 PHASE 2																														
SDTS - SSDS MK 2 OACE MOD 4B - T&E - DT / OT III H/ET06 PHASE 2 / CSSQT																														
SDTS - SSDS MK 2 OACE MOD 4B - T&E - MSLEX G / MSLEX I / MSLEX X																														
SDTS - SSDS MK 2 OACE MOD 4B - T&E - DT / OT III H / ET05 PHASE 2 (MSST EVENTS)																														

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604755N / <i>Ship Self Def (Detect & Cntrl)</i>	Project (Number/Name) 2178 / QRCC
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FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

SDTS - SSDS MK 2 OACE MOD 4B - T&E - DT / OT III I / PHASE 3 / ET12 (MSST EVENTS)	<div style="background-color: black; width: 100px; height: 15px; margin: 0 auto;"></div>
SDTS - SSDS MK 2 OACE MOD 4B - T&E - DT / OT III J / PHASE 3 / ET09 (MSST EVENTS)	<div style="background-color: black; width: 100px; height: 15px; margin: 0 auto;"></div>

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604755N / <i>Ship Self Def (Detect & Cntrl)</i>	Project (Number/Name) 2178 / QRCC

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2178				
SSDS MK 2 MOD 5C (LSD) - PRE&POST CERT SUPPORT (9.08)	1	2015	4	2016
SSDS MK 2 MOD 5C (LSD) - T&E - ENG TEST/DT/DT ASSIST "I" PHASE 1/Combat System Test (CST) @WI	1	2015	2	2016
SSDS MK 2 MOD 5C (LSD) - T&E - LSD 50 CSSQT/ET14(DT)	2	2016	2	2016
SSDS MK2 MOD 5C (LSD) - T&E - CST @ WI	3	2016	4	2016
SSDS MK 2 MOD 5C (LSD) - T&E - LSD 45 CSSQT / DT/OT III "I" PHASE 2/ET14	3	2016	4	2016
SSDS MK 2 MOD 5C (LSD) - T&E - (SDTS) - DT/OT III I/PHASE 3/ET12	3	2016	3	2016
SSDS MK2 MOD 6C - CVN 78 ACB12 / TI12 - T&E - SIT/ET/TRKEX @ WI	1	2015	3	2018
SSDS MK2 MOD 6C - CVN 78 ACB12 / TI12 - FSIT 1	1	2015	1	2015
SSDS MK 2 MOD 6C - CVN 78 / LHD2 ACB12 / TI12 - S/W DCTI 2/3	1	2015	2	2015
SSDS MK2 MOD 6C - CVN 78 ACB12 / TI12 - T&E - CSA @ WI	2	2015	3	2015
SSDS MK2 MOD 1C - CVN72 ACB12 / TI12 - FSIT 2	2	2015	3	2015
SSDS MK2 MOD 6C - CVN 78 ACB12/TI12 - FSIT 1 Delta	3	2015	4	2015
SSDS MK 2 MOD 3C / 1C - LHD 2 / CVN 72 ACB12 / TI12 - FSIT 3 / FQT 1/2	1	2016	2	2016
SSDS MK 2 MOD 3C / 1C - LHD2 / CVN 72 ACB12 / TI12 - T&E - CSA @ WI	2	2016	3	2016
SSDS MK 2 MOD 6C - CVN 78 ACB12/TI12 - FSIT 4 / FQT 3	3	2016	3	2016
SSDS MK 2 MOD 3C/1C - LHD 2 / CVN 72 ACB12 / TI12 - T&E - CST @ WALLOPS	4	2016	1	2017
SSDS MK 2 MOD 6C - CVN 78 ACB12/TI12 - PRE & POST CERT SUPPORT / SW DCTI 4	3	2016	3	2017
SSDS MK 2 MOD 6C - CVN 78 ACB12/TI12 -T&E - DT III J PHASE 2 / ET10 @ CVN 78	3	2016	1	2018
SSDS MK 2 MOD 6C - CVN 78 ACB12/TI12 -T&E CST #1 @ WI	4	2016	2	2017

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy			Date: February 2016	
Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)		
1319 / 5	PE 0604755N / Ship Self Def (Detect & Cntrl)	2178 / QRCC		
Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
SDTS - SSDS MK 2 MOD 6C - CVN 78 ACB12/TI12 - FCL RISK REDUCTION TRKEX / MSLEX	2	2017	3	2017
SDTS - SSDS MK 2 MOD 6C - CVN 78 ACB12/TI12 - T&E - DT/OT III J/PHASE 3/ ET09	4	2017	4	2017
SSDS MK 2 MOD 6C - CVN 78 ACB12 / TI12 - FSIT5 / FQT4	3	2017	4	2017
SSDS MK 2 MOD 6C - CVN 78 ACB12 / TI12 - T&E - CST #2 @ WI	4	2017	1	2018
SSDS MK 2 MOD 6C - CVN 78 ACB12 / TI12 - PRE & POST CERT SPT	4	2017	4	2018
SSDS MK 2 MOD 6C - CVN 78 ACB12 / TI12 - T&E CSSQT	1	2018	2	2018
SSDS MK 2 MOD 6C - CVN 78 ACB12 / TI12 - DT/OT III J PHASE 2/ ET10	4	2018	4	2018
SSDS MK 2 MOD 6C - CVN 78 ACB12 / TI12 - T&E - C2X	2	2019	2	2019
SSDS MK 2 MOD 6C - CVN 78 ACB12 / TI12 - T&E - JTFX	3	2019	3	2019
SSDS MK 2 MOD 3E / 2E / 1E - LPD 19 / CVN 77 ACB12 / TI-16 - SE / CRITICAL EXPERIMENTS	1	2015	3	2015
SSDS MK 2 MOD 3E / 2E / 1E - LPD 19 / CVN 77 ACB12 / TI-16 - HW IPR	4	2015	4	2015
SSDS MK 2 MOD 3E / 2E / 1E - LPD 19 / CVN 77 ACB12 / TI-16 - HW PDR	2	2016	2	2016
SSDS MK 2 MOD 3E / 2E / 1E - LPD 19 / CVN 77 ACB12 / TI-16 - SRR / SFR	2	2016	2	2016
SSDS MK 2 MOD 3E / 2E / 1E - LPD 19 / CVN 77 ACB12 / TI-16 - IPR 1	3	2016	3	2016
SSDS MK 2 MOD 3E / 2E / 1E - LPD 19 / CVN 77 ACB12 / TI-16 - IPR 2	4	2016	4	2016
SSDS MK 2 MOD 3E / 2E / 1E - LPD 19 / CVN 77 ACB12 / TI-16 - IPR 3	2	2017	2	2017
SSDS MK 2 MOD 3E / 2E / 1E - LPD 19 / CVN 77 ACB12 / TI-16 - FSIT / FQT	3	2017	4	2017
SSDS MK 2 MOD 3E / 2E / 1E - LPD 19 / CVN 77 ACB12 / TI-16 - (T&E) SIT / ET @ WI	3	2017	4	2017
SSDS MK 2 MOD 3E / 2E / 1E - LPD 19 / CVN 77 ACB12 / TI-16 - (T&E) CST @ WI	1	2018	2	2018
SSDS MK 2 MOD 3E / 2E / 1E - LPD 19 / CVN 77 ACB12 / TI-16 - PRE & POST CERT SUPPORT	1	2018	4	2018
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - STUDIES/ANALYSIS/Top Level Requirements	1	2016	4	2016

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604755N / <i>Ship Self Def (Detect & Cntrl)</i>	Project (Number/Name) 2178 / QRCC
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - SoS SRR / SFR	2	2016	4	2016
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - Element SRR / SFR	4	2016	1	2017
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - REL F-1 SSR / PDR	2	2017	3	2017
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - IPR 1	4	2017	4	2017
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - T&E - REL F-1 SIT / ET @ WI	4	2017	1	2018
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - REL F-1 FSIT / FQT	1	2018	1	2018
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - T&E - REL F-1 CST	2	2018	2	2018
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - REL F-2 SSR / PDR	2	2018	2	2018
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - IPR 2	4	2018	4	2018
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - REL F-2 SIT / ET @ WI	3	2018	4	2018
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - T&E - REL F-2 FSIT / FQT	4	2018	4	2018
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - PRE & POST CERTIFICATION	1	2019	1	2019
SSDS MK 2 FCLIP PHASE 2 / FTIIP / TFCA BDC - T&E - REL F-2 CST	1	2019	1	2019
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - ANALYSIS / TOP LEVEL REQ'T / CPP / COI	1	2015	1	2016
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - COMBAT SYSTEM REQUIREMENTS/ INTERFACE DOC (CSR)	2	2016	2	2017
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - DRAFT RFP	1	2017	1	2017
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - FINAL RFP	2	2017	2	2017
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - COMBAT SYSTEM INTERFACE REQUIREMENT SPEC (IRS)	4	2017	4	2017
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - CSEA CONTRACT AWARD	1	2018	1	2018
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - SoS SRR / SFR	3	2018	3	2018
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - ELEMENT SRR / SFR	4	2018	4	2018
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - REL A-1 SSR / PDR	1	2019	1	2019
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - IPR 1	3	2019	3	2019

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604755N / <i>Ship Self Def (Detect & Cntrl)</i>	Project (Number/Name) 2178 / QRCC
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - T&E - REL A-1 SIT / ET @ WI	3	2019	4	2019
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - REL A-1 FSIT / FQT	4	2019	4	2019
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - REL A-2 SSR / PDR	1	2020	1	2020
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - REL A-1 CST	1	2020	1	2020
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - IPR 2	3	2020	3	2020
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - T&E - SIT / ET @ WI	3	2020	4	2020
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - REL A-2 FSIT / FQT	4	2020	4	2020
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - REL A-2 CST	1	2021	1	2021
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - REL A-3 SSR / PDR	1	2021	1	2021
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - IPR 3	3	2021	3	2021
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - T&E - REL A-3 SIT / ET @ WI	3	2021	4	2021
SSDS MK 2 ACB 20 / EASR / ESS / TI-20 - REL A-3 FSIT / FQT	4	2021	4	2021
SDTS - SSDS MK 2 OACE MOD 4B - T&E - DT / OT III H / ET05 PHASE 2	1	2015	1	2015
SDTS - SSDS MK 2 OACE MOD 4B - T&E - DT / OT III H/ET06 PHASE 2 / CSSQT	2	2015	3	2015
SDTS - SSDS MK 2 OACE MOD 4B - T&E - MSLEX G / MSLEX I / MSLEX X	2	2015	3	2015
SDTS - SSDS MK 2 OACE MOD 4B - T&E - DT / OT III H / ET05 PHASE 2 (MSST EVENTS)	2	2019	2	2019
SDTS - SSDS MK 2 OACE MOD 4B - T&E - DT / OT III I / PHASE 3 / ET12 (MSST EVENTS)	3	2019	3	2019
SDTS - SSDS MK 2 OACE MOD 4B - T&E - DT / OT III J / PHASE 3 / ET09 (MSST EVENTS)	4	2019	4	2019

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604755N / <i>Ship Self Def (Detect & Cntrl)</i>				Project (Number/Name) 3172 / <i>Joint Non-Lethal Weapons</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3172: <i>Joint Non-Lethal Weapons</i>	31.425	4.196	4.825	4.177	-	4.177	5.158	2.974	3.038	3.103	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Develop non-lethal weapon systems in support of anti-terrorism/force protection missions. Technologies include, but are not limited to, ocular interrupters, ship entanglement systems, and audible hailing devices. Current efforts are focused on the Long-Range Ocular Interrupter (LROI), Hailing Acoustic Laser and Light Tactical System (HALLTS), and Maritime Vessel Stopper(MVS). The LROI is intended to provide the U.S. Navy with the capability to deliver a bright light producing a dazzling or glare effect on a closing target to warn and/or suppress potential threats through increasing levels of visual degradation. The planned LROI will generate controlled, high-intensity output, providing warning and suppression effects. The extended range capability of LROI will effectively increase tactical decision-making time in support of escalation of force (EoF) tactics, techniques and procedures (TTP) across a broad range of military operations (ROMO). Further, the LROI will enhance Joint Force operations in assessing the intent of personnel and controlling the potential threat as early as possible.

HALLTS is a single-operator, man-portable, hailing and warning system developed to enhance the ability of security forces to effectively execute escalation of force procedures. HALLTS integrates three COTs, Navy-fielded non-lethal devices, consisting of an acoustic loud-hailing device, a high intensity white light and a dazzling green beam laser, using a common system controller and common mounting options. HALLTS reduces the manpower requirements for operation of multiple non-lethal devices and enhance the execution of escalation of force procedures.

MVS technologies are means of defending against small, attacking vessels while utilizing methodologies designed to incapacitate personnel or materiel while minimizing fatalities, permanent injury to personnel, and undesired damage to property and the environment. MVS technologies are being studied with consideration for the defense of U.S. Navy personnel, material, and operations.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Joint Non-Lethal Weapons Development	4.196	4.825	4.177	0.000	4.177
Articles:	8	-	-	-	-
FY 2015 Accomplishments: Completed LROI design and development, manufactured two test systems, and conducted Environmental and Developmental Testing. Conducted Laser Safety Review Board, developed training manuals, and Operations & Maintenance Guide for the Rapid Acquisition effort. Designed and started fabricating Hailing Acoustic Laser and Light Tactical Systems (HALLTS).					
FY 2016 Plans: Produce 8 LROI systems and complete developmental Technical Data Package (TDP). Perform an MUA with NECC. Perform any LROI engineering updates identified during NECC MUA. Initiate LROI program of record					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604755N / <i>Ship Self Def (Detect & Cntrl)</i>	Project (Number/Name) 3172 / <i>Joint Non-Lethal Weapons</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
documentation and begin approval process. Receive HALLTS feedback from NECC fleet users and incorporate their input via ECPs. Complete MVS CDD and begin JCIDS process.					
<i>FY 2017 Base Plans:</i> Complete the LROI program of record transition strategy and issue RFP. Continue performing HALLTS engineering updates identified during fleet user feedback and assessment; and conduct test and evaluation. Issue RFP for HALLTS production contract to fully meet the fielding requirement of units to NECC. Begin development effort of other emerging non-lethal technologies for vessel stopping.					
<i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	4.196	4.825	4.177	0.000	4.177

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• OPN/8128: <i>NCW Forces Active</i>	1.236	0.000	5.744	-	5.744	6.235	7.805	7.805	7.961	Continuing	Continuing

Remarks

D. Acquisition Strategy

The initial LROI systems are being designed, developed, and deployed as a Rapid Acquisition and will be transitioned to a Program of Record (PoR). A developmental Technical Data Package (TDP) will be developed as part of the Rapid Acquisition effort. The developmental TDP will be included in the Request for Proposal (RFP) to the industry to be further refined for a production-level TDP to be used for PoR. The RFP including the production-level TDP will be provided to the industry to solicit offers for the LRIP production and subsequently for full rate production for a total of 100 LROI systems to be fielded to NECC. In FY16, initial HALLTS systems will be developed and tested. These units will go through user assessment for their feedback. ECP will be performed to incorporate user inputs. The RFP, including the developmental TDP, will be provided to the industry to solicit offers for the LRIP production after refining the TDP and subsequently for full rate production for a total of 117 HALLTS systems to be fielded to NECC.

E. Performance Metrics

Successfully produce LROI systems, conduct Military Utility Assessment (MUA) with Navy Expeditionary Combat Command (NECC) sailors, and transition to a PoR. Successfully conduct HALLTS testing and fielding to fleet users.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
1319 / 5				PE 0604755N / Ship Self Def (Detect & Cntrl)				3172 / Joint Non-Lethal Weapons								
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
System Engineering	WR	NSWC Dahlgren : Dahlgren VA	11.025	1.596	Feb 2015	2.234	Feb 2016	2.202	Nov 2016	-		2.202	Continuing	Continuing	Continuing	
System Engineering	WR	NSWC Port Hueneme : Port Hueneme CA	0.628	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing	
System Engineering	WR	NSWC Crane : Crane IN	0.580	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing	
Subtotal			12.233	1.596		2.234		2.202		-		2.202	-	-	-	
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Engineering Services (NSWC)	WR	NSWC Dahlgren : Dahlgren, VA	2.000	1.000	Feb 2015	1.000	Feb 2016	0.000		-		0.000	0.000	4.000	-	
Program Management	WR	NUWC Newport : Newport, RI	2.857	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing	
Engineering Services (NSWC)	WR	NSWC Panama City : Panama City, FL	1.200	0.000		0.000		0.875	Nov 2016	-		0.875	0.000	2.075	-	
Subtotal			6.057	1.000		1.000		0.875		-		0.875	-	-	-	
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Test and Evaluation	WR	NSWC Dahlgren : Dahlgren VA	1.800	0.500	Feb 2015	0.500	Feb 2016	0.500	Nov 2016	-		0.500	0.000	3.300	-	
Test and Evaluation	MIPR	Military Sealift Command : Washington DC	2.200	0.000		0.000		0.000		-		0.000	0.000	2.200	-	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604755N / Ship Self Def (Detect & Cntrl)	Project (Number/Name) 3172 / Joint Non-Lethal Weapons
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test and Evaluation	WR	COMOPTEVFOR : Norfolk VA	3.925	0.500	Feb 2015	0.500	Feb 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			7.925	1.000		1.000		0.500		-		0.500	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management	WR	NSWC Dahlgren : Dahlgren VA	5.192	0.600	Feb 2015	0.591	Feb 2016	0.600	Nov 2016	-		0.600	Continuing	Continuing	Continuing
DAWDF	Various	Not Specified : Not Specified	0.018	0.000		0.000		0.000		-		0.000	0.000	0.018	-
Subtotal			5.210	0.600		0.591		0.600		-		0.600	-	-	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			31.425	4.196	4.825	4.177	-	4.177	-	-	-

Remarks

- FY15 planned 4th QTR LROI RDC Quick Reaction Assessment (QRA) was determined to be no longer required due to the cancellation of the 2008 U.S. Central Command (CENTCOM) Non-Lethal Weapons (NLW) Urgent Operational Need (UON).
- After PB16 submit, RDC requirements increased to include a Military Utility Assessment (MUA) of the produced eight (8) RDC units, extending POR by 9 months. These efforts include:
 - Conduct MUA
 - Collect and verify user assessment data
 - Perform cost/benefit analysis
 - Update system design
 - Perform solid modeling and finite element analysis
 - Update Technical Data Package (TDP)
- The HALLTS S&T efforts were funded by Physical Security Enterprise and Analysis Group (PSEAG). The S&T project completed ahead of schedule enabling the PMO to start the design efforts on production level system sooner than planned.

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604755N / Ship Self Def (Detect & Cntrl)	Project (Number/Name) 3172 / Joint Non-Lethal Weapons

FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Proj 3172	
Acquisition Milestones: Long-Range Ocular Interrupter (LROI) Program of Record (PoR) Initial Operational Capability (IOC)	█
Acquisition Milestones: Maritime Vessel Stopping (MVS) Milestone C	█
Acquisition Milestones: Long-Range Ocular Interrupter (LROI) Program of Record (PoR) Milestone C	█
Acquisition Milestones: Maritime Vessel Stopping (MVS) Milestone B	█
Acquisition Milestones: Long-Range Ocular Interrupter (LROI) Program of Record (PoR) Milestone B	█
System Development: Long-Range Ocular Interrupter (LROI) Rapid Acquisition System (RAS) Fabricate two test units	██████
System Development: Long-Range Ocular Interrupter (LROI) Rapid Acquisition System (RAS) Developmental/Environmental Testing	██████
System Development: Fabricate eight Long-Range Ocular Interrupter (LROI) Rapid Acquisition System (RAS)	██████
System Development: Long-Range Ocular Interrupter (LROI) RDC Deployment	█
System Development: Long-Range Ocular Interrupter (LROI) Doc Development	██████████████████

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604755N / <i>Ship Self Def (Detect & Cntrl)</i>	Project (Number/Name) 3172 / <i>Joint Non-Lethal Weapons</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
System Development: Long-Range Ocular Interrupter (LROI) Rapid Acquisition System (RAS) Issue Request for Proposal												■																
System Development: Fabricate 4 Hailing Acoustic Light and Laser Tactical System (HALLTS) initial Systems								■																				
System Development: Hailing Acoustic Light and Laser Tactical System (HALLTS) Initial Deployment								■																				
System Development: Hailing Acoustic Light and Laser Tactical System (HALLTS) Engineering Changes												■																
System Development: Hailing Acoustic Light and Laser Tactical System (HALLTS) Test and Evaluation												■																
System Development: Hailing Acoustic Light and Laser Tactical System (HALLTS) Issue Production RFP												■																
System Development: Long-Range Ocular Interrupter (LROI) RDC Military Utility Assessment								■																				
System Development: Refine RDC Design Package with User Input								■																				

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604755N / <i>Ship Self Def (Detect & Cntrl)</i>	Project (Number/Name) 3172 / <i>Joint Non-Lethal Weapons</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3172				
Acquisition Milestones: Long-Range Ocular Interrupter (LROI) Program of Record (PoR) Initial Operational Capability (IOC)	2	2020	2	2020
Acquisition Milestones: Maritime Vessel Stopping (MVS) Milestone C	2	2020	2	2020
Acquisition Milestones: Long-Range Ocular Interrupter (LROI) Program of Record (PoR) Milestone C	2	2019	2	2019
Acquisition Milestones: Maritime Vessel Stopping (MVS) Milestone B	2	2018	2	2018
Acquisition Milestones: Long-Range Ocular Interrupter (LROI) Program of Record (PoR) Milestone B	1	2018	1	2018
System Development: Long-Range Ocular Interrupter (LROI) Rapid Acquisition System (RAS) Fabricate two test units	2	2015	3	2015
System Development: Long-Range Ocular Interrupter (LROI) Rapid Acquisition System (RAS) Developmental/Environmental Testing	3	2015	4	2015
System Development: Fabricate eight Long-Range Ocular Interrupter (LROI) Rapid Acquisition System (RAS)	1	2016	2	2016
System Development: Long-Range Ocular Interrupter (LROI) RDC Deployment	2	2016	2	2016
System Development: Long-Range Ocular Interrupter (LROI) Doc Development	4	2016	4	2017
System Development: Long-Range Ocular Interrupter (LROI) Rapid Acquisition System (RAS) Issue Request for Proposal	3	2017	3	2017
System Development: Fabricate 4 Hailing Acoustic Light and Laser Tactical System (HALLTS) initial Systems	4	2015	3	2016
System Development: Hailing Acoustic Light and Laser Tactical System (HALLTS) Initial Deployment	3	2016	3	2016
System Development: Hailing Acoustic Light and Laser Tactical System (HALLTS) Engineering Changes	4	2016	2	2017

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604755N / <i>Ship Self Def (Detect & Cntrl)</i>	Project (Number/Name) 3172 / <i>Joint Non-Lethal Weapons</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
System Development: Hailing Acoustic Light and Laser Tactical System (HALLTS) Test and Evaluation	2	2017	2	2017
System Development: Hailing Acoustic Light and Laser Tactical System (HALLTS) Issue Production RFP	3	2017	3	2017
System Development: Long-Range Ocular Interrupter (LROI) RDC Military Utility Assessment	3	2016	4	2016
System Development: Refine RDC Design Package with User Input	3	2016	1	2017

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604755N / Ship Self Def (Detect & Cntrl)				Project (Number/Name) 3306 / Integrated Swimmer Defense (ISD)			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3306: <i>Integrated Swimmer Defense (ISD)</i>	2.669	0.035	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	2.704
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The scope of this project is to provide the fleet Expeditionary (specifically the Maritime Expeditionary Security Force) units with the capability of a portable maritime Integrated Swimmer Defense (ISD) system to engage combat swimmers/divers or unknown individuals underwater once they have been detected. The ISD program combines the detection and engagement operations in order to complete the swimmer defense picture for the fleet. The objective of the integrated swimmer defense system (ISD) is the development and deployment of an integrated system capable of being deployed by the expeditionary harbor security units (primarily the Maritime Expeditionary Security Force). ISD will be designed to detect, track, classify, warn, deter and neutralize divers' and swimmers' threats. ISD is important to protecting high value assets within harbors from the increasing threat of waterborne terrorist or combatant attacks. This program has been cancelled.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Integrated Swimmer Defense	0.035	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Award contract for Test Articles. Receive Test Articles and begin integrated Test & Evaluation.					
FY 2016 Plans: Not Applicable. Program cancelled by OPNAV Resource Sponsor after FY15.					
FY 2017 Base Plans: N/A					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.035	0.000	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPN/8128: ISD	0.461	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.461

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604755N / <i>Ship Self Def (Detect & Cntrl)</i>	Project (Number/Name) 3306 / <i>Integrated Swimmer Defense (ISD)</i>

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks

D. Acquisition Strategy

The acquisition strategy includes the integration of swimmer/diver detection sensors and using software to fuse the sensor track data thereby creating an end to end combat system capability for swimmer/diver defense. The ISD program of record system configuration will be produced through an Acquisition Category (ACAT) program to procure component systems needed to bring the performance of the UOES prototypes up to the full production requirements.

The Department has cancelled this program after FY15.

E. Performance Metrics

User Operational Evaluation Systems (UOES) will culminate defined set of system capabilities and limitations. Define level specifications and technical data packages.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
1319 / 5				PE 0604755N / Ship Self Def (Detect & Cntrl)				3306 / Integrated Swimmer Defense (ISD)								
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Hardware/Software Development	WR	NUWC Keyport : Keyport	0.697	0.000	Feb 2015	0.000		0.000		-		0.000	0.000	0.697	-	
Hardware/Software Development - FNC	WR	NUWC Newport : Newport RI	0.100	0.000		0.000		0.000		-		0.000	0.000	0.100	-	
Hardware/Software Development - FNC Detection and Targeting	WR	NUWC Newport : Newport RI	0.125	0.000		0.000		0.000		-		0.000	0.000	0.125	-	
Subtotal			0.922	0.000		0.000		0.000		-		0.000	0.000	0.922	-	
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Engineering Services	WR	NUWC : Keyport	1.125	0.000	Feb 2015	0.000		0.000		-		0.000	0.000	1.125	-	
Subtotal			1.125	0.000		0.000		0.000		-		0.000	0.000	1.125	-	
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Test and Evaluation	WR	NUWC : Keyport	0.035	0.025	Feb 2015	0.000		0.000		-		0.000	0.000	0.060	-	
Subtotal			0.035	0.025		0.000		0.000		-		0.000	0.000	0.060	-	
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Program Management	WR	NUWC : Keyport	0.587	0.010	Feb 2015	0.000		0.000		-		0.000	0.000	0.597	-	
Subtotal			0.587	0.010		0.000		0.000		-		0.000	0.000	0.597	-	

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy								Date: February 2016			
Appropriation/Budget Activity 1319 / 5			R-1 Program Element (Number/Name) PE 0604755N / Ship Self Def (Detect & Cntrl)				Project (Number/Name) 3306 / Integrated Swimmer Defense (ISD)				
	Prior Years	FY 2015	FY 2016		FY 2017 Base	FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	2.669	0.035	0.000		0.000	-		0.000	0.000	2.704	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604755N / <i>Ship Self Def (Detect & Cntrl)</i>	Project (Number/Name) 3306 / <i>Integrated Swimmer Defense (ISD)</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Proj 3306	
Acquisition Milestones: Performance Specification Delivered	█
Acquisition Milestones: Award Test Article Contracts	█
Test and Evaluation: IT&E Phase	██████████

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604755N / <i>Ship Self Def (Detect & Cntrl)</i>	Project (Number/Name) 3306 / <i>Integrated Swimmer Defense (ISD)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3306				
Acquisition Milestones: Performance Specification Delivered	1	2015	1	2015
Acquisition Milestones: Award Test Article Contracts	1	2015	1	2015
Test and Evaluation: IT&E Phase	2	2015	4	2015

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604755N / <i>Ship Self Def (Detect & Cntrl)</i>				Project (Number/Name) 3358 / <i>SSDS Training Improvement Program</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3358: <i>SSDS Training Improvement Program</i>	0.754	1.100	3.117	2.864	-	2.864	7.624	7.545	7.572	8.948	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The SSDS Total Ship Training Capability (TSTC) provides enhancements and upgrades to the training components within the combat system to address needs for increased training capability and functionality in conjunction with SSDS MK2 Advanced Capability Builds (ACB)/Fire Control Loop Improvement Project (FCLIP), Far-Term Interoperability Improvement Project (FTIIP), Task Force Cyber Awakening (TFCA) Boundary Defense Capability (BDC), and Technical Insertion efforts under PU 2178 (QRCC). These enhancements will address current and future training requirements by implementing new functionality to enable the individual warfighter through distributed battle group events to engage in more complex training requirements to support fleet required training certification events. Capability Development and integration are related to Self Defense, Underwater, Surface, and other warfare areas. Capability enhancements and upgrades include development of re-useable common components that can be leveraged by SSDS MK2 combat systems, and/or integration of re-usable common components developed by the TSTC BFTT Program and AEGIS TSTC Total Ship Training Capability (TSTC) projects to meet AEGIS combat system training requirements.

PU 3358 funds the development and/or integration of TSTC improvements into the SSDS MK2 ACB-12, FCLIP Phase 2 / FTIIP / TFCA BDC, and ACB-20 / EASR / ESS (Enterprise Air Search Radar / Enterprise Surveillance Suite) baselines and TI-12/TI-16/TI-20 configurations. The integrated SSDS MK2 TSTC improvements will be included in the SSDS MK2 baseline documentation, testing and certification. The planning schedule for the SSDS MK2 baselines are documented in QRCC Project (PU 2178). The TSTC improvements encompass physical and functional upgrades to the existing SSDS MK2 onboard training capabilities and configuration implemented with Battle Force Tactical Trainer (BFTT). Planned TSTC improvements include integration with the SSDS MK2 TI-12/TI-16/TI-20 Open Architecture Computing Environment (OACE) for TSTC implementation.

TSTC provides realistic joint warfare training across the spectrum of armed conflict, realistic unit level team training in all warfare areas. TSTC provides ships' Commanding Officers and Battle Group/Battle Force Commanders with the ability to conduct coordinated realistic, high stress, combat system level team training as an integral part of the Afloat Training Organization, the Tactical Training Groups and C2F/C3F Fleet Synthetic Trainers (FSTs).

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: SSDS Total Ship Training Capability	1.100	3.117	2.864	0.000	2.864
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604755N / <i>Ship Self Def (Detect & Cntrl)</i>	Project (Number/Name) 3358 / <i>SSDS Training Improvement Program</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>- Continued Integrated Combat System engineering to define and allocate TSTC functional requirements to the training system, SSDS MK2, and other Combat System elements. Defined Integrated Combat System software architecture including common software components for SSDS and AEGIS integrated combat systems.</p> <p>- Defined new technical approach for CVN78 baseline with Dual Band Radar (DBR) to provide in-port and underway self defense fire control loop training capabilities involving integration of DBR simulation software into the CVN78 SSDS MK2 ACB-12 / TI-12 baseline.</p> <p>- Initiated integration of DBR simulation software for delivery of in-port training capability (Phase 1) to CVN78 as part of SSDS MK2 ACB-12 / TI-12 baseline.</p> <p>FY 2016 Plans:</p> <p>- Complete adaptation, integration, test and delivery of DBR simulation software (Phase 1) as part of SSDS MK2 ACB-12 / TI-12 for CVN78 in-port fire control loop training capability in support of CVN78 ship delivery to the Navy.</p> <p>- Initiate additional software modifications for integration of DBR simulation software (Phase 2) to support CVN78 underway training as part of the CVN78 SSDS MK2 ACB-12 / TI-12 baseline.</p> <p>- Start the incorporation of TSTC functional requirements into SSDS Integrated Combat System Requirements Documentation for the first FCLIP Phase 2 / FTIIP / TFCA BDC baseline with the initiation of system engineering and development of documentation to support System of Systems Requirements Review / Functional Review (SoS SRR/SFR), and Combat System element SRRs/SFRs.</p> <p>- Initiate development of requirements to support TSTC capability improvements to support tactical training requirements of SSDS ACB-20 / EASR / ESS. Initiate study to determine method of simulating real world environments within SSDS MK2 shipboard sensors for Anti-Area / Area Denial (A2AD) training. Investigate options to integrate of Full Motion Video capability to provide required realism/fidelity for Surface Warfare Training.</p> <p>FY 2017 Base Plans:</p> <p>- Continue development of TSTC requirements into SSDS Integrated Combat System (ICS) for the first FCLIP Phase 2 / FTIIP / TFCA BDC baselines with the completion of the SSDS MK2 software specifications and development (Design, code, and integration test) and conduct of associated system / software design reviews.</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604755N / <i>Ship Self Def (Detect & Cntrl)</i>	Project (Number/Name) 3358 / <i>SSDS Training Improvement Program</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Complete SoS requirements, functional allocation and interface requirements to support the TSTC capability improvements for tactical training requirements for the SSDS ACB 20 / EASR / ESS baselines. Finalize requirements to support simulating real world environments within SSDS MK2 shipboard sensors for Anti-Area / Area Denial (A2AD) training.					
- Complete software modification, integration, test and delivery of DBR simulation as part of CVN 78 SSDS MK2 ACB-12 / TI-12 baseline for CVN78 in-port and underway fire control loop training capabilities in support of CVN78 CSSQT and deployment.					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	1.100	3.117	2.864	0.000	2.864

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• RDTEN / PE 0204571N: <i>Surface Tactical Team Trainer (PU 1427)</i>	16.366	9.954	12.289	-	12.289	10.647	9.543	9.796	10.034	Continuing	Continuing
• RDT&E / PE 0604307N: <i>AEGIS Training Improv. Prog. (PU 3357)</i>	8.767	14.677	10.458	-	10.458	7.819	6.574	5.081	5.196	Continuing	Continuing

Remarks

D. Acquisition Strategy

For the SSDS MK2 software development, including the integration of TSTC software improvements and the TI-16 Open Architecture Computing Environment, the acquisition strategy identified for SSDS MK2 for QRCC Project (PU 2178) (R-2A exhibit) applies.

E. Performance Metrics

Performance metrics for SSDS MK2 for QRCC Project (PU 2178) apply (R-2A exhibit). The milestones identified in the R-4A exhibit for PU2178 apply for the CVN78 SSDS MK2 ACB-12 / TI-12 baseline development and the integration of the DBR simulation software to provide CVN78 in-port and underway fire control loop training capabilities. The milestones for implementation of TSTC improvements into future SSDS MK2 ICS baselines for the SSDS MK2 FCLIP Phase 2 / FTIIP / TFCA BDC, and ACB-20 / EASR / ESS baselines in QRCC Project (PU 2178) apply and are listed in the R-4A exhibits for PU 3358.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604755N / Ship Self Def (Detect & Cntrl)	Project (Number/Name) 3358 / SSDS Training Improvement Program
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
TSTC Sys Eng / Safety	WR	DD : Dahlgren, VA	0.072	0.000		0.227	Jan 2016	0.651	Nov 2016	-		0.651	Continuing	Continuing	Continuing
TSTC Sys Eng / ILS	WR	DN : Dam Neck, VA	0.156	0.250	Nov 2014	0.841	Jan 2016	0.937	Nov 2016	-		0.937	Continuing	Continuing	Continuing
TSTC Sys Eng / Integration	C/CPIF	RSC IIS (4112) : Suffolk, VA	0.401	0.675	Dec 2014	0.000	Jan 2016	0.000		-		0.000	Continuing	Continuing	Continuing
TSTC TDL Gateway	WR	SPAWAR PMW 150 : San Diego, CA	0.000	0.000		0.216	Jan 2016	0.000		-		0.000	0.000	0.216	-
TSTC Sys Eng / PSEA	SS/CPIF	RSC (5128) : San Diego, CA	0.000	0.000		1.833	Jan 2016	1.137	Dec 2016	-		1.137	Continuing	Continuing	Continuing
TSTC Sys Eng / MH-60R Training Capability	WR	Keyport (NUWC) : Keyport, RI	0.125	0.150	Dec 2014	0.000	Jan 2016	0.139	Nov 2016	-		0.139	Continuing	Continuing	Continuing
TSTC Planning Support	C/CPIF	TMB : Washington, DC	0.000	0.025	Dec 2014	0.000		0.000		-		0.000	0.000	0.025	-
Subtotal			0.754	1.100		3.117		2.864		-		2.864	-	-	-

			Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.754	1.100		3.117		2.864		-		2.864	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604755N / Ship Self Def (Detect & Cntrl)	Project (Number/Name) 3358 / SSDS Training Improvement Program

FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Proj 3358	
SSDS MK 2 FCLIP PHASE 2 / FTIIP TFCA BDC - STUDIES/ANALYSIS/TOP LEVEL REQUIREMENTS	██████████
SSDS MK 2 FCLIP PHASE 2 / FTIIP TFCA BDC - SoS SRR / SFR	██████████
SSDS MK 2 FCLIP PHASE 2 / FTIIP TFCA BDC - Element SRR / SFR	██████████
SSDS MK 2 FCLIP PHASE 2 / FTIIP TFCA BDC - REL F-1 SSR / PDR	██████████
SSDS MK 2 FCLIP PHASE 2 / FTIIP TFCA BDC - IPR 1	██████████
SSDS MK 2 FCLIP PHASE 2 / FTIIP TFCA BDC - T&E - REL F-1 SIT / ET @ WI	██████████
SSDS MK 2 FCLIP PHASE 2 / FTIIP TFCA BDC - REL F-1 FSIT / FQT	██████████
SSDS MK 2 FCLIP PHASE 2 / FTIIP TFCA BDC - REL F-2 SSR / PDR	██████████
SSDS MK 2 FCLIP PHASE 2 / FTIIP TFCA BDC - IPR 2	██████████
SSDS MK 2 FCLIP PHASE 2 / FTIIP TFCA BDC - T&E - REL F-2 SIT / ET @ WI	██████████
SSDS MK 2 FCLIP PHASE 2 / FTIIP TFCA BDC - REL F-2 FSIT / FQT	██████████
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - ANALYSIS / TOP LEVEL REQUIREMENTS / CPP / COI	██████████

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604755N / Ship Self Def (Detect & Cntrl)	Project (Number/Name) 3358 / SSDS Training Improvement Program
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - COMBAT SYSTEM REQUIREMENTS / INTERFACE DOCUMENTATION																												
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - DRAFT RFP																												
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - FINAL RFP																												
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - COMBAT SYSTEMS INTERFACE REQUIREMENTS SPECIFICATIONS (IRS)																												
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - CSEA CONTRACT AWARD																												
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - SoS SRR / SFR																												
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - ELEMENT SRR / SFR																												
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - REL A-1 SSR / PDR																												
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - IPR 1																												
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - T&E - REL A-1 SIT / ET @ WI																												
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - REL A-1 FSIT / FQT																												
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - REL A-2 SSR / PDR																												
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - IPR 2																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604755N / Ship Self Def (Detect & Cntrl)	Project (Number/Name) 3358 / SSDS Training Improvement Program
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - T&E - SIT / ET @ WI																																
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - REL A-2 FSIT / FQT																																
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - REL A-3 SSR / PDR																																
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - IPR 3																																
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - T&e - REL A-3 SIT / ET @ WI																																
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - REL A-3 FSIT / FQT																																

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604755N / <i>Ship Self Def (Detect & Cntrl)</i>	Project (Number/Name) 3358 / <i>SSDS Training Improvement Program</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3358				
SSDS MK 2 FCLIP PHASE 2 / FTIIP TFCA BDC - STUDIES/ANALYSIS/TOP LEVEL REQUIREMENTS	1	2016	4	2016
SSDS MK 2 FCLIP PHASE 2 / FTIIP TFCA BDC - SoS SRR / SFR	2	2016	4	2016
SSDS MK 2 FCLIP PHASE 2 / FTIIP TFCA BDC - Element SRR / SFR	4	2016	1	2017
SSDS MK 2 FCLIP PHASE 2 / FTIIP TFCA BDC - REL F-1 SSR / PDR	2	2017	3	2017
SSDS MK 2 FCLIP PHASE 2 / FTIIP TFCA BDC - IPR 1	4	2017	4	2017
SSDS MK 2 FCLIP PHASE 2 / FTIIP TFCA BDC - T&E - REL F-1 SIT / ET @ WI	4	2017	1	2018
SSDS MK 2 FCLIP PHASE 2 / FTIIP TFCA BDC - REL F-1 FSIT / FQT	1	2018	1	2018
SSDS MK 2 FCLIP PHASE 2 / FTIIP TFCA BDC - REL F-2 SSR / PDR	2	2018	2	2018
SSDS MK 2 FCLIP PHASE 2 / FTIIP TFCA BDC - IPR 2	4	2018	4	2018
SSDS MK 2 FCLIP PHASE 2 / FTIIP TFCA BDC - T&E - REL F-2 SIT / ET @ WI	3	2018	4	2018
SSDS MK 2 FCLIP PHASE 2 / FTIIP TFCA BDC - REL F-2 FSIT / FQT	4	2018	4	2018
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - ANALYSIS / TOP LEVEL REQUIREMENTS / CPP / COI	1	2015	1	2016
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - COMBAT SYSTEM REQUIREMENTS / INTERFACE DOCUMENTATION	2	2016	2	2017
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - DRAFT RFP	1	2017	1	2017
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - FINAL RFP	2	2017	2	2017
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - COMBAT SYSTEMS INTERFACE REQUIREMENTS SPECIFICATIONS (IRS)	4	2017	4	2017
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - CSEA CONTRACT AWARD	1	2018	1	2018
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - SoS SRR / SFR	3	2018	3	2018

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604755N / <i>Ship Self Def (Detect & Cntrl)</i>	Project (Number/Name) 3358 / <i>SSDS Training Improvement Program</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - ELEMENT SRR / SFR	4	2018	4	2018
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - REL A-1 SSR / PDR	1	2019	1	2019
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - IPR 1	3	2019	3	2019
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - T&E - REL A-1 SIT / ET @ WI	3	2019	4	2019
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - REL A-1 FSIT / FQT	4	2019	4	2019
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - REL A-2 SSR / PDR	1	2020	1	2020
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - IPR 2	3	2020	3	2020
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - T&E - SIT / ET @ WI	3	2020	4	2020
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - REL A-2 FSIT / FQT	4	2020	4	2020
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - REL A-3 SSR / PDR	1	2021	1	2021
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - IPR 3	3	2021	3	2021
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - T&e - REL A-3 SIT / ET @ WI	3	2021	4	2021
SSDS MK 2 ACB20 / EASR / ESS / TI-20 - REL A-3 FSIT / FQT	4	2021	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	699.997	94.534	86.811	114.475	-	114.475	196.008	182.398	106.978	106.018	Continuing	Continuing
0167: <i>5in Rolling Airframe Missile</i>	206.119	12.304	14.275	18.100	-	18.100	19.346	7.461	3.513	0.459	Continuing	Continuing
0173: <i>NATO Sea Sparrow</i>	446.151	73.988	67.836	90.256	-	90.256	132.700	108.653	80.792	82.432	Continuing	Continuing
0243: <i>ALaMO</i>	0.000	0.000	0.000	5.759	-	5.759	25.984	24.982	0.000	0.000	0.000	56.725
3342: <i>Griffin Missile</i>	47.727	2.407	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	50.134
9081: <i>Phalanx CIWS SEARAM</i>	0.000	5.835	1.000	0.360	-	0.360	17.978	41.302	22.673	23.127	Continuing	Continuing
9999: <i>Congressional Adds</i>	0.000	0.000	3.700	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	3.700

A. Mission Description and Budget Item Justification

This program element provides funding for the development of systems that fulfill a portion of the third phase of the Ship Self Defense: Engage Hard Kill. Development in this line will focus on hard kill capabilities in which missiles are used to intercept incoming Anti-Ship Cruise Missiles (ASCM). Missile and system improvements necessary to meet their requirements are being addressed via NATO SEASPARROW Missile System (NSSMS) (0173), Rolling Airframe Missile (RAM) (0167), Advanced Low Cost Munition Ordnance (ALaMO), Phalanx Close-In Weapon System (CIWS) SeaRAM (9081), Griffin, Javelin and Spike Missile (3342). Missile improvements include improved kinematic performance plus advanced seeker and low elevation fusing/warhead capability improvements. CIWS System improvements include Technology Refresh for current fleet population and Next Generation CIWS for the future fleet. New system developments include integration of Griffin missile into Patrol Coastal (PC) and Littoral Combat Ship Missile Module, and development and/or qualification of shoulder launched missile system. ALaMo (0243) qualifies a guided 57mm projectile with an active seeker for United States Navy (USN) use. ALaMo provides enhanced lethality against Fast In-shore Attack Craft (FIAC) when compared to existing 57mm ammunition.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	96.937	99.619	107.920	-	107.920
Current President's Budget	94.534	86.811	114.475	-	114.475
Total Adjustments	-2.403	-12.808	6.555	-	6.555
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-16.508			
• Congressional Rescissions	-	-			
• Congressional Adds	-	3.700			
• Congressional Directed Transfers	-	-			
• Reprogrammings	1.000	0.000			
• SBIR/STTR Transfer	-3.403	0.000			
• Program Adjustments	0.000	0.000	12.700	-	12.700
• Rate/Misc Adjustments	0.000	0.000	-6.145	-	-6.145

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 9999: *Congressional Adds*

Congressional Add: *Shield Protection*

	FY 2015	FY 2016
Congressional Add Subtotals for Project: 9999	0.000	3.700
Congressional Add Totals for all Projects	0.000	3.700

Change Summary Explanation

Decrease in Ship Self Defense (Engage: Hard Kill) by \$4.939M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

FY15 funding decrease due to SBIR/STTR Transfer.

FY16-FY18 funding increase for RAM supports the implementation of RAM changes identified in the Integrated Combat System Failure Review Board (CSFRB) report known as the Fire Control Loop Improvement Project (FCLIP). These funds support RAM systems engineering, design analysis and testing of the combat system in support of the FCLIP process. Funding will deliver software baseline changes to the RAM Block 2 missiles, launcher software updates and updated interface to the combat system.

FY16-FY17 funding increase for NATO Sea Sparrow supports ramping up to full E&MD effort in preparation for ESSM Block 2 Testing and ESSM Block 2 Production in accordance with supporting the U.S. share of costs under the Block 2 E&MD MOU. Specific efforts include: Maturation of the ESSM Blk2 design during the EMD phase of the program focusing on Software and Hardware development as well as preparation for Milestone C.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i>	

FY17-FY20 funding increase for RAM supports the implementation of RAM BLK 2+ with Ship Self Defense System (SSDS) combat system improvement efforts that are key to air defense survivability. This issue completes the Fire Control Loop Improvement (FCLIP) developmental efforts and installs FCLIP fixes onto the ships. Addresses current capability gaps to improve overall Probability of Raid Annihilation (PRA) as identified during Failure Review Board (FRB) following A5-1 test event. Funding closes these gaps by implementing FRB-identified fixes which improve PRA.

Changes to RAM Initial Operational Test and Evaluation (IOT&E) milestones which also impact the planned Full Rate Production (FRP) Decision have been driven by the following: All flight testing was disrupted a national moratorium on usage of BQM targets imposed after the 16 November 2013 testing incident where a BQM-74 drone impacted USS Chancellorsville (CG 62). RAM flight testing was reinstated in June 2014. In addition to the BQM flight test moratorium, a successful demonstration of Combat System (CS) enhancements, implemented as a result of the Fire Control Loop Improvement Project (FCLIP) was required to ensure proper RAM designation for stream raid engagement. IT-C2 is comprised of three test events: G,I and J. Test events G and I were completed in FY15 2nd Quarter. The final live-fire event, ET05J, a combined IWS Enterprise test event, has been moved to the right to align to another required element program's schedule. This delay has caused the final RAM IOT&E (OT-C5) LHA 6 PRA Testbed Event to slide to the right impacting RAM FRP decision.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i>				Project (Number/Name) 0167 / <i>5in Rolling Airframe Missile</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
0167: <i>5in Rolling Airframe Missile</i>	206.119	12.304	14.275	18.100	-	18.100	19.346	7.461	3.513	0.459	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The RAM program is an international cooperative program with the government of the Federal Republic of Germany. The purpose of this program is to develop, test, and field a surface-to-air self-defense system utilizing a dual mode, passive radio frequency/infrared RAM. The baseline system (Block 0) provides a self-defense system to counter ASCMs. RAM Block 0/1 provide defense capability against active and passive anti-ship missiles, very low altitude missiles, and maneuvering missiles through the utilization of passive radio frequency and infrared seekers and a maritime optimized fuse. The RAM Block 1A software update and the Mk 49 MOD 3 launcher upgrade program provide an additional asymmetric capability against helicopters, aircraft and surface craft. The RAM Block 2 upgrade program is a cooperative requirement of the U.S. and Federal Republic of Germany, as agreed to in an international Memorandum of Understanding (MOU), and allows RAM to counter emerging, highly maneuverable ASCM threats utilizing advanced seekers while maintaining all the proven capabilities of RAM Block 0/1/1A's accurate terminal guidance, proven lethality, and no shipboard post launch dependence. Funding supports formal Developmental and Operational Testing (DT/OT) scheduled through FY18, data analysis, operational/test driven studies, support of combat system performance analysis, identification of operationally relevant improvements.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Rolling Airframe Missile Block 2 Development and Test	12.237	14.211	18.039	0.000	18.039
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					
Funded ongoing Integrated OT&E (Development and Operational) IT-C2 (Multi-target raids) testing, analysis, incorporation of any changes and associated efforts to achieve IOC and support a FRP decision. IOC was achieved May 2015. Funds also supported RAM Systems Engineering, design analysis and testing of the combat system changes in support of the Fire Control Loop Improvement Project (FCLIP) process. Funding delivered software baseline changes to the RAM Block 2 Missiles, launcher software updates and updated interface to the combat system.					
FY 2016 Plans:					
Funds completion of Integrated OT&E (Development and Operational) IT-C2 (Multi-target raids) testing, analysis, incorporation of any changes and associated efforts to support a FRP decision. Funds also support RAM systems engineering, design analysis and testing of the combat system changes in support of the FCLIP process. Funding will deliver software baseline changes to the RAM Block 2 Missiles, launcher software updates and updated interface to the combat system. Funds support additional engineering efforts to transition					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604756N / Ship Self Def (Engage: Hard Kill)	Project (Number/Name) 0167 / 5in Rolling Airframe Missile
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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from gap analysis/system requirements generation and simulation environment updates. FCLIP Block 2+ Phase I-Preliminary Design completes with the SSR/SRR and Preliminary Design Review (PDR) in FY16.

FY 2017 Base Plans:
Funds ongoing Integrated OT&E (Development and Operational) OT-C5 (Probability of Raid Annihilation, PRA, Testbed) testing, analysis, incorporation of any changes and associated efforts to support a FRP decision (2018). Funds also support RAM Systems Engineering, design analysis and testing of the combat system changes in support of the Fire Control Loop Improvement Project (FCLIP) process. In support of the FCLIP upgrade process, funding will deliver an updated RAM Block 2 software baseline changes to the Missile, Launcher, and Interface protocols to the combat system. With the completion of RAM system FCLIP Block 2+ Preliminary Design Review (PDR) in FY16, the project will transition into the detailed design, preliminary integration, and prototyping phase. Funds will support system engineering project efforts culminating in a Critical Design Review (CDR) in 1st quarter FY18.

FY 2017 OCO Plans:
N/A

Title: Rolling Airframe Missile Block 2 Travel	0.067	0.064	0.061	0.000	0.061
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Funded program office travel to support program/testing as required by program schedule and in accordance with travel reduction mandate.					
FY 2016 Plans: Funds program office travel to support program/testing as required by program schedule and in accordance with travel reduction mandate.					
FY 2017 Base Plans: Funds program office travel to support program/testing as required by program schedule and in accordance with travel reduction mandate.					
FY 2017 OCO Plans: N/A					

Accomplishments/Planned Programs Subtotals	12.304	14.275	18.100	0.000	18.100
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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i>	Project (Number/Name) 0167 / <i>5in Rolling Airframe Missile</i>

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017	FY 2017	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Cost To	
			Base	OCO	Total					Complete	Total Cost
• WPN 2242: RAM	76.792	74.604	71.557	-	71.557	80.557	82.452	83.807	85.478	Continuing	Continuing
• OPN 5231: <i>Ship Missile Support Equipment</i>	4.373	9.779	8.175	-	8.175	7.783	6.376	3.019	2.988	Continuing	Continuing

Remarks

D. Acquisition Strategy

The RAM Program uses directed sole source contracts with Raytheon Missile Systems Company, Tucson, AZ.

E. Performance Metrics

Successfully complete DT/OT.
Achieved IOC decision and support a FRP decision.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604756N / Ship Self Def (Engage: Hard Kill)	Project (Number/Name) 0167 / 5in Rolling Airframe Missile
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Block 2 Upgrade	C/CPAF	Various : Various	154.650	0.000		0.000		0.000		-		0.000	0.000	154.650	-
Primary Hardware Dev/Blk 1	Various	Various : Various	10.081	0.000		0.000		0.000		-		0.000	0.000	10.081	-
FCLIP	WR	PHD : CA	0.000	0.125	Dec 2014	0.128	Nov 2015	0.318	Nov 2016	-		0.318	0.000	0.571	-
FCLIP	SS/CPFF	AECOM : VA	0.000	0.000		0.232	Dec 2015	0.284	Dec 2016	-		0.284	0.000	0.516	-
FCLIP	SS/CPFF	Raytheon : Tucson/Louisville	0.000	9.607	Jan 2015	11.742	Jan 2016	14.563	Nov 2016	-		14.563	0.000	35.912	-
FCLIP	WR	China Lake : CA	0.000	1.225	Oct 2014	0.867	Nov 2015	1.422	Nov 2016	-		1.422	0.000	3.514	-
FCLIP	SS/CPFF	JHU/APL : MD	0.000	0.118	Jul 2015	0.118	Dec 2015	0.311	Dec 2016	-		0.311	0.000	0.547	-
Subtotal			164.731	11.075		13.087		16.898		-		16.898	0.000	205.791	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Studies and Analysis	Various	Various : Various	1.210	0.000		0.000		0.000		-		0.000	0.000	1.210	-
Subtotal			1.210	0.000		0.000		0.000		-		0.000	0.000	1.210	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test Support	C/CPFF	Raytheon : Tucson	15.944	0.795	Mar 2015	0.426	Nov 2015	0.430	Nov 2016	-		0.430	0.000	17.595	-
Test Support	WR	China Lake/PHD : CA/CA	12.018	0.282	Dec 2014	0.433	Nov 2015	0.441	Nov 2016	-		0.441	Continuing	Continuing	Continuing
FOT&E	WR	China Lake : PHD, CA	4.701	0.000		0.000		0.000		-		0.000	0.000	4.701	-
Miscellaneous	Various	Various : Various	5.755	0.010	Feb 2015	0.000		0.000		-		0.000	0.000	5.765	-
Test Support	SS/CPFF	JHU/APL : MD	0.282	0.075	Jul 2015	0.265	Dec 2015	0.270	Dec 2016	-		0.270	0.000	0.892	-
Subtotal			38.700	1.162		1.124		1.141		-		1.141	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604756N / Ship Self Def (Engage: Hard Kill)	Project (Number/Name) 0167 / 5in Rolling Airframe Missile
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	Allot	Program Office : VA	1.331	0.067	Oct 2014	0.064	Oct 2015	0.061	Oct 2016	-		0.061	Continuing	Continuing	Continuing
Defense Acquisition Workforce Development Fund	Various	various : various	0.147	0.000		0.000		0.000		-		0.000	0.000	0.147	-
Subtotal			1.478	0.067		0.064		0.061		-		0.061	-	-	-

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	206.119	12.304		14.275		18.100		-		18.100	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i>	Project (Number/Name) 0167 / <i>5in Rolling Airframe Missile</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Proj 0167																												
RAM Block 2 Progam Milestones: IOC			■																									
RAM Block 2 Progam Milestones: FRP														■														
Test and Evaluation: IOT&E (IT-C2)			■	■	■	■	■																					
Test and Evaluation: IOT&E (OT-C5)									■	■	■	■																
ECPs/Improvement Studies: ECPs/ Improvement Studies																	■	■	■	■	■	■	■					
FCLIP Phase 1: FCLIP Product Development	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
FCLIP Phase 1: FCLIP Test Events																	■	■	■	■	■	■	■	■	■	■	■	■
FCLIP Phase 2: FCLIP Product Development																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i>	Project (Number/Name) 0167 / <i>5in Rolling Airframe Missile</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 0167				
RAM Block 2 Progam Milestones: IOC	3	2015	3	2015
RAM Block 2 Progam Milestones: FRP	3	2018	3	2018
Test and Evaluation: IOT&E (IT-C2)	2	2015	3	2016
Test and Evaluation: IOT&E (OT-C5)	1	2017	1	2018
ECPs/Improvement Studies: ECPs/Improvement Studies	1	2018	4	2020
FCLIP Phase 1: FCLIP Product Development	1	2015	4	2017
FCLIP Phase 1: FCLIP Test Events	1	2018	4	2018
FCLIP Phase 2: FCLIP Product Development	1	2017	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i>	Project (Number/Name) 0173 / <i>NATO Sea Sparrow</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
0173: <i>NATO Sea Sparrow</i>	446.151	73.988	67.836	90.256	-	90.256	132.700	108.653	80.792	82.432	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project encompasses five (5) primary efforts to enhance ship self defense:

1. Evolved SEASPARROW Missile (ESSM) Testing: A cooperative effort among 10 NATO SEASPARROW Nations and the U.S., to improve the capability of the SEASPARROW Missile to counter the low altitude, highly maneuverable ASCM threat. The program consists of evolving the SEASPARROW Missile through the development of a new rocket motor with tail control; thrust vector control and ordnance (warhead) upgrade; modifications to the MK 41 Vertical Launch System (VLS) to fire from a single cell with 4 ESSM (QuadPack); and modifications to the NATO SEASPARROW Surface Missile System (NSSMS) to provide ESSM capability.
2. NATO SEASPARROW Objective Configuration (OC). The OC Program consists of segmenting and automating the existing MK 57 NSSMS radars (MK 9 Track Illuminator System) and launchers (MK 29 Guided Missile Launching System). The program eliminates all MK 57 watch stations, reduces the required system hardware.
3. NATO SEASPARROW Technical Direction Agent - MK 91 Rearchitecture: The MK 91 rearchitecture program integrates NSSMS into the SSDS architecture to provide ship missile defense utilizing an open architected system technical design agent.
4. ESSM Block 2 Risk Reduction/ESSM Block 2 Engineering and Manufacturing Development (EMD): ESSM Block 2 upgrade is a cooperative effort between U.S Navy and NATO SEASPARROW Consortium Nations. ESSM Block 2 upgrade replaces the largely obsolete guidance section with a dual mode Active/Semi-Active X-Band seeker capable of defeating future threat capabilities within the existing envelope, including; smaller signatures, increased raid sizes, and adverse environments including countermeasures. Threat types include; advanced ASCMs, Anti-Ship Ballistic Missiles (ASBMs), surface and asymmetrical. The U.S. RDT&E funding accounts for 40% of the overall ESSM Block 2 Development Program. Year-to-year fluctuations in funding levels are due to the variations in contributions provided by the other Nations.
5. Dual-Band Transceiver (DBT). The ESSM Block 2 missile will utilize a DBT for in-flight data communications. This two-way datalink enables control and management of the missile during flight. This DBT leverages the new DDG-1000/CVN-78 X-Band Transceiver (XBT) to incorporate the functions to support S-Band Aegis data link (i.e. a Dual Band Transceiver). This solves the S-band obsolescence issues and gives one common transceiver across the ESSM inventory.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Evolved SEASPARROW Missile (ESSM) testing	9.800	1.300	2.880	0.000	2.880
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016				
Appropriation/Budget Activity 1319 / 5		R-1 Program Element (Number/Name) PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i>		Project (Number/Name) 0173 / <i>NATO Sea Sparrow</i>		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)						
		FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Continued Ship Self Defense System (SSDS) integration testing and conducted live fire on LHA 6 class lead ship and Self Defense Test Ship (SDTS). Continued ESSM Aegis Baseline 9 Integration verification testing and live fire on cruisers and destroyers. Commenced planning for verification and validation test and evaluation of Mk 29 Missile Launcher Upgrade, and ESSM Sea-Skimming guidance software improvement.</p> <p>FY 2016 Plans: Conduct Waterfront Integration Testing activities on CVN 78 lead ship. Conduct Aegis Baseline 9 firings in support of operational testing. Continue M&S and flight test planning for Mk 29 Missile Launcher Upgrade, and ESSM Sea-Skimming guidance software improvement. Test plan construction for ESSM Dual Band Transceiver live fire testing</p> <p>FY 2017 Base Plans: Begin integration testing on Zumwalt and CVN 78 Combat Systems installed on the Self-Defense Test Ship. Conduct waterfront integration testing on DDG 1000 lead ship. Begin live-fire testing on the Zumwalt CVN 78 Combat Systems on the Self Defense Test Ship. Participate in CVN 78 lead ship structural test firing planning and execution. Participate in LHD 2 and CVN 72 Combat System Ship Qualification Trial (CSSQT) planning and execution activities. Conduct ESSM Dual Band Transceiver live fire testing. Continue planning activities for Mk 29 Missile Launcher Upgrade testing. Test plan construction for ESSM Sea-Skimming guidance software improvement.</p> <p>FY 2017 OCO Plans: N/A</p>						
<p>Title: NATO Sea Sparrow Combat System Integraton Technical Direction Agent (TDA)</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: Continued as TDA for NSSMS/Mk91 system. Provide engineering support and support risk mitigation with the development of the solid state Mk9 Tracker Illuminator System (TIS) power upgrade and digital receiver.</p> <p>FY 2016 Plans: Continue as TDA for NSSMS/Mk91 system. Provided engineering support and support risk mitigation with the development of the solid state Mk9 TIS power upgrade and digital receiver.</p> <p>FY 2017 Base Plans: Serve as Technical Direction Agent to provide combat system support for Mk57 activities. Participate in NSPSC, Program Reviews, and NIISEN activities as directed.</p>		0.282	0.293	0.304	0.000	0.304
		-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy				Date: February 2016	
Appropriation/Budget Activity 1319 / 5		R-1 Program Element (Number/Name) PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i>		Project (Number/Name) 0173 / <i>NATO Sea Sparrow</i>	
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)					
Provide TDA expertise to review and where authorized by NSPO independently assess and analyze requirements, assess upgrade options, evaluate compliance, and derive delta qualification testing/analysis requirements.					
FY 2017 OCO Plans: N/A					
Title: Evolved SEASPARROW Blk 2 Risk Reduction/ESSM Blk 2 E&MD					
Articles:					
FY 2015 Accomplishments: Completed the risk reduction phase and entered into the Engineering & Manufacturing Development (EMD) phase of the program with a planned IOC of FY2020. Tasks included completing Milestone B; continuing critical experiments and analysis required to further mature the design to support Critical Design review (CDR) in FY16; continuing Hardware (H/W) and Software (S/W) development; procuring long lead material to support flight test; planning and initiating ground based test program.					
FY 2016 Plans: Continue maturing the ESSM Blk2 design during the EMD phase of the program focusing on S/W and H/D development. Tasks include completing CDR; initiating ground based testing to include Electromagnetic Environmental Effects (E3), Computer in the Loop (CiL), and Hardware in the Loop (HiL); execution of Captive Carry Flight testing; maturation of the Models & Simulations supporting performance predictions; and completing design modifications to the Mk 25 Canister.					
FY 2017 Base Plans: Continue maturing the ESSM Blk2 design during the EMD phase of the program focusing on S/W and H/D development. Continue maturing tactical flight code and Models & Simulations supporting performance predictions; execute Captive Carry Flight testing; continue ground based testing; execute two Control Test Vehicle (CTV) Flight tests; prepare H/W and S/W for Developmental Flight Testing; and prepare for Milestone C.					
FY 2017 OCO Plans: N/A					
Title: Dual Band Transceiver (DBT)					
Articles:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i>	Project (Number/Name) 0173 / <i>NATO Sea Sparrow</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p><i>FY 2015 Accomplishments:</i> Finalized critical item developmental and lower level specification. It included support to Safety reviews (Weapon System Explosive Safety Review Board (WSESRB) and Software System Safety Technical Review (SSSTRP)), initialization of DBT Transition to Production (TTP) activities (Mk698 upgrades, presidio development), Block 1 TSC updates and initial support to DBT Proof of Design (POD) development activities.</p> <p><i>FY 2016 Plans:</i> Complete POD development for both Block 1 and Block 2 integration activities. Task include: hold their Incremental Critical Design (ICDR) and support the ESSM Block 2 CDR, continue with Transition to Production (TTP) activities and start Block 1 and Block 2 integration activities (Hardware in Loop (HIL)) and Block 1 All Up Rounds (AUR) validation.</p> <p><i>FY 2017 Base Plans:</i> Development of Proof of Manufacturing (POM) to support both the Block 1 and Block 2 activities. Perform POM integration (HiL), qualification testing (E3, Electromagnetic Vulnerability (EMV)), DC Mag, environmental and hot battery testing), completion of Transition Section Computer (TSC) development , validation and Engineering Change Proposal (ECP) development/completion. It also includes completion of Mk698 development at Camden and of POM development (Andover and Tucson), as well as ECP completion. FY 2017 also includes support to S band and X band Waterfront Integration Test (WIT) and flight testing and support of Safety related reviews (WSESRB and SSSTRP) and Production Readiness Review (PRR).</p> <p><i>FY 2017 OCO Plans:</i> N/A</p>					
Accomplishments/Planned Programs Subtotals	73.988	67.836	90.256	0.000	90.256

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017			FY 2018	FY 2019	FY 2020	FY 2021	Cost To	
			Base	OCO	Total					Complete	Total Cost
• WPN 2307: <i>ESSM</i>	116.934	37.671	107.397	-	107.397	61.138	107.693	100.151	102.218	Continuing	Continuing
• OPN 5231: <i>Ship Missile Defense</i>	23.520	41.850	42.180	-	42.180	44.851	39.780	30.958	31.578	Continuing	Continuing

Remarks

Starting in FY15, funding realigned from OPN 5237 to OPN 5231.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i>	Project (Number/Name) 0173 / <i>NATO Sea Sparrow</i>

D. Acquisition Strategy

ESSM is a directed sole source contract to Raytheon Missile Systems Company. The MK 29 ESSM Launcher Upgrade and Rearchiture (REARC)/Ship Self Defense Syste (SSDS) Integration effort was a directed sole source contract to Raytheon Company Integrated Defense System.

E. Performance Metrics

Successfully complete Developmental Test/Operational testing.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604756N / Ship Self Def (Engage: Hard Kill)	Project (Number/Name) 0173 / NATO Sea Sparrow
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ESSM Systems Engineering/Firing Spt	WR	Corona : CA	8.747	0.945	Oct 2014	0.000		0.705	Oct 2016	-		0.705	0.000	10.397	-
NATO OC System Engineering	C/FFPLOE	Raytheon : RI	1.955	0.000		0.000		0.000		-		0.000	0.000	1.955	-
NATO OC - Software	C/FFPLOE	Raytheon : RI	8.054	0.000		0.000		0.000		-		0.000	0.000	8.054	-
Stalker System Engineering	SS/CPAF	Ball : CO	4.782	0.000		0.000		0.000		-		0.000	0.000	4.782	-
Stalker Hardware Engineering	SS/CPAF	Ball : CO	14.350	0.000		0.000		0.000		-		0.000	0.000	14.350	-
Stalker Software Engineering	SS/CPAF	Ball : CO	2.725	0.000		0.000		0.000		-		0.000	0.000	2.725	-
ESSM Primary Hardware Development	C/CPAF	Raytheon : Tuscon	193.941	0.000		0.000		0.000		-		0.000	0.000	193.941	-
ESSM Ancillary Hardware	Various	Various : Various	71.324	0.000		0.000		0.000		-		0.000	0.000	71.324	-
ESSM Blk 2 EMD	C/CPAF	Raytheon : Tuscon	0.000	38.878	May 2015	51.889	Oct 2015	73.641	Oct 2016	-		73.641	0.000	164.408	-
ESSM Blk 2 Risk reduction	SS/FFPLOE	Raytheon : Tuscon	34.000	10.150	Nov 2014	0.000		0.000		-		0.000	0.000	44.150	-
NATO OC Systems Engineering SPT	WR	NSWC PHD : CA	0.700	0.000		0.000		0.000		-		0.000	0.000	0.700	-
Dual Band Tranceiver	SS/FFP	Raytheon : Tuscon	0.000	2.750	Feb 2015	1.746	Feb 2016	0.460	Dec 2016	-		0.460	0.000	4.956	-
Subtotal			340.578	52.723		53.635		74.806		-		74.806	0.000	521.742	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
NATO System TDA	SS/FP	APL : MD	1.910	0.282	Dec 2014	0.293	Dec 2015	0.304	Dec 2016	-		0.304	Continuing	Continuing	Continuing
NATO OC	SS/FFP	APL : MD	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Stalker -ISEA/TDA/RM&A	SS/FFP	various : various	0.750	0.000		0.000		0.000		-		0.000	0.000	0.750	-
ILS/Engineering Support	Various	Various : Various	15.543	0.000		0.000		0.000		-		0.000	0.000	15.543	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i>	Project (Number/Name) 0173 / <i>NATO Sea Sparrow</i>
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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ESSM Blk 2 EMD	WR	APL : MD	0.000	3.880	Nov 2014	3.976	Nov 2015	4.095	Nov 2016	-		4.095	0.000	11.951	-
ESSM Blk 2 EMD	WR	NSWC CL : CA	0.000	5.379	Nov 2014	5.574	Nov 2015	5.742	Nov 2016	-		5.742	0.000	16.695	-
ESSM Blk 2 EMD	Various	Various : Various	0.000	2.269	Jan 2015	2.458	Jan 2016	2.532	Jan 2017	-		2.532	0.000	7.259	-
NATO OC Support	WR	Dahlgren : VA	2.174	0.000		0.000		0.000		-		0.000	0.000	2.174	-
Dual Band Transceiver	WR	APL : MD	0.000	0.200	Jan 2015	0.200	Feb 2016	0.200	Dec 2016	-		0.200	0.000	0.600	-
Dual Band Tranceiver	WR	NSWC CL : CA	0.000	0.400	Feb 2015	0.400	Feb 2016	0.400	Dec 2016	-		0.400	0.000	1.200	-
Subtotal			20.377	12.410		12.901		13.273		-		13.273	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ESSM Developmental Test & Evaluation	WR	NSWC CL : CA	20.081	1.764	Nov 2014	0.000		0.204	Nov 2016	-		0.204	Continuing	Continuing	Continuing
ESSM OPEVAL/TECHEVAL/Test Firings	WR	Corona, IHD, Dahlgren, SNSWC, PHD) : various	15.633	2.485	Nov 2014	0.000		0.285	Nov 2016	-		0.285	0.000	18.403	-
ESSM Developmental Test & Evaluation	SS/FFP	APL : MD	4.937	0.845	Oct 2014	0.000		0.100	Oct 2016	-		0.100	Continuing	Continuing	Continuing
ESSM Test & Evaluation	C/CPAF	Raytheon : Tuscon	15.155	2.678	Nov 2014	1.084	Feb 2016	1.000	Nov 2016	-		1.000	Continuing	Continuing	Continuing
ESSM Test & Evaluation	WR	Dahlgren/PHD : VA/CA	1.695	0.647	Nov 2014	0.000		0.372	Nov 2016	-		0.372	0.000	2.714	-
Developmental Test & Evaluation	WR	Dahlgren : VA	0.418	0.000		0.000		0.000		-		0.000	0.000	0.418	-
Subtotal			57.919	8.419		1.084		1.961		-		1.961	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604756N / Ship Self Def (Engage: Hard Kill)	Project (Number/Name) 0173 / NATO Sea Sparrow
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ESSM-Support and Performing Activity	Allot	PHD/NAWC CL/ APL : CA/MD	14.427	0.336	Oct 2014	0.116	Oct 2015	0.116	Oct 2016	-		0.116	Continuing	Continuing	Continuing
ESSM-Travel	Allot	Program Office : VA	3.127	0.100	Oct 2014	0.100	Oct 2015	0.100	Oct 2016	-		0.100	Continuing	Continuing	Continuing
ESSM-Misc	Various	various : various	2.149	0.000		0.000		0.000		-		0.000	0.000	2.149	2.065
NATO Travel/Misc	Various	Program Office : various	2.111	0.000		0.000		0.000		-		0.000	0.000	2.111	-
Engineering Support	Various	Various : Various	5.458	0.000		0.000		0.000		-		0.000	0.000	5.458	-
Stalker Travel	Allot	Program Office : VA	0.005	0.000		0.000		0.000		-		0.000	0.000	0.005	-
Subtotal			27.277	0.436		0.216		0.216		-		0.216	-	-	-
Project Cost Totals			446.151	73.988		67.836		90.256		-		90.256	-	-	-

Remarks
Various used for multiple vendors and location under threshold.

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i>	Project (Number/Name) 0173 / <i>NATO Sea Sparrow</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Proj 0173																												
ESSM BLOCK 2: Engineering & Manufacturing Development MOU Signed	■																											
ESSM BLOCK 2: Risk Reduction Complete		■																										
ESSM BLOCK 2: MS B	■																											
ESSM BLOCK 2: Transition to Engineering & Manufacturing Development	■	■	■	■																								
ESSM BLOCK 2: Engineering & Manufacturing Development		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
ESSM BLOCK 2: Integration, Test & Evaluation Begins		■																										
ESSM BLOCK 2: Transition to Production													■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
ESSM BLOCK 2: Production MOU Negotiation/Signature	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
ESSM BLOCK 2: Production Decision LRIP													■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
ESSM BLOCK 2: Low-Rate Initial Production Contract Award 1													■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
ESSM BLOCK 2: Low-Rate Initial Production Contract Award 2																												
OBJECTIVE CONFIGURATION: PDR	■																											
OBJECTIVE CONFIGURATION: CDR													■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i>	Project (Number/Name) 0173 / <i>NATO Sea Sparrow</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 0173				
ESSM BLOCK 2: Engineering & Manufacturing Development MOU Signed	1	2015	1	2015
ESSM BLOCK 2: Risk Reduction Complete	2	2015	2	2015
ESSM BLOCK 2: MS B	1	2015	1	2015
ESSM BLOCK 2: Transition to Engineering & Manufacturing Development	1	2015	4	2015
ESSM BLOCK 2: Engineering & Manufacturing Development	2	2015	3	2019
ESSM BLOCK 2: Integration, Test & Evaluation Begins	2	2015	2	2015
ESSM BLOCK 2: Transition to Production	2	2018	2	2019
ESSM BLOCK 2: Production MOU Negotiation/Signature	1	2015	1	2017
ESSM BLOCK 2: Production Decision LRIP	2	2018	2	2018
ESSM BLOCK 2: Low-Rate Initial Production Contract Award 1	2	2018	2	2018
ESSM BLOCK 2: Low-Rate Initial Production Contract Award 2	2	2019	2	2019
OBJECTIVE CONFIGURATION: PDR	1	2015	1	2015
OBJECTIVE CONFIGURATION: CDR	4	2017	4	2017

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i>	Project (Number/Name) 0243 / <i>ALaMO</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
0243: <i>ALaMO</i>	0.000	0.000	0.000	5.759	-	5.759	25.984	24.982	0.000	0.000	0.000	56.725
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Advanced Low Cost Munition Ordnance (ALaMO) significantly increases 57mm MK 110 Gun Mount lethality and effectiveness against Fast Attack Craft and Fast In-Shore Attack Craft (FAC/FIAC). The 57mm ALaMO funding supports non-recurring engineering, design verification testing, environmental qualification, hazard classification, insensitive munitions and developmental testing. ALaMO will be qualified for USN use at the conclusion of the program.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Systems Engineering and Testing	0.000	0.000	5.759	0.000	5.759
Articles:	-	-	-	-	-
FY 2015 Accomplishments: None; program is FY17 new start.					
FY 2016 Plans: None; program is FY17 new start.					
FY 2017 Base Plans: Procure assets for design verification tests and prepare for DT events in FY18.					
FY 2017 OCO Plans: N/A.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	5.759	0.000	5.759

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

ALaMO will be qualified for Navy use in FY2019, supporting Low Rate Initial Production in 2020.

E. Performance Metrics

Quarterly Program Reviews and semi-annual Product Certification Panel Reviews.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i>	Project (Number/Name) 0243 / ALaMO
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Produce Design Verification hardware, DT/OT Hardware	SS/CPIF	L3/ Mustang : Plano, Tx	0.000	0.000		0.000		4.377	Dec 2016	-		4.377	0.000	4.377	-
Subtotal			0.000	0.000		0.000		4.377		-		4.377	0.000	4.377	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Government Engineering Services	WR	NSWC, DD : Dahlgren, VA	0.000	0.000		0.000		0.806	Oct 2016	-		0.806	0.000	0.806	-
Government Engineering Services	WR	NSWC, IHEODTD : Indian Head, MD	0.000	0.000		0.000		0.576	Oct 2016	-		0.576	0.000	0.576	-
Subtotal			0.000	0.000		0.000		1.382		-		1.382	0.000	1.382	-

			Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	0.000	0.000	5.759	-	5.759	0.000	5.759	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i>	Project (Number/Name) 0243 / <i>ALaMO</i>
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FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Proj 0243	
Build Design Verification Test Hardware	██████████
Conduct Design Verification Tests	██████████
Build DT Hardware	██████████
Conduct DT	██████████

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i>	Project (Number/Name) 0243 / <i>ALaMO</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Proj 0243</i>				
Build Design Verification Test Hardware	2	2017	1	2018
Conduct Design Verification Tests	1	2018	3	2018
Build DT Hardware	2	2018	2	2019
Conduct DT	2	2019	4	2019

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604756N / Ship Self Def (Engage: Hard Kill)	Project (Number/Name) 3342 / Griffin Missile
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3342: <i>Griffin Missile</i>	47.727	2.407	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	50.134
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The purpose of this program is to develop and deliver Counter-Swarm Small Boat defense capabilities for the Surface Fleet. There are two (2) primary efforts supporting this mission area listed below:

1. Rapid Deployment Capabilities (RDCs)
 - Patrol Coastal(PC) with Griffin Missile System (GMS)
 - Littoral Combat Ship (LCS) Missile Module with GMS
2. Shoulder Launched Missile System

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Griffin Missile System (GMS) Rapid Deployment Capability (RDC)	2.407	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Completion of Live Fire Testing for Griffin Missile System, November, 2014 Completion of Griffin Missile Service Life Extension Analysis (SLEA)					
FY 2016 Plans: N/A					
FY 2017 Base Plans: N/A					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	2.407	0.000	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i>	Project (Number/Name) 3342 / <i>Griffin Missile</i>

D. Acquisition Strategy

RDCs consist of GMS integrated on PC and LCS. The Program Office manages development and integration of the GMS on surface ships. GMS consists of Griffin B Block II Missile procured via Raytheon sole source contract with U.S. Army Joint Attack Munitions System (JAMS) program office and U.S. Special Operations Command (SOCOM); BriteStar EO/IR Laser Designator procured by Navy Surface Weapon Center (NSWC) Crane on a Firm Fixed Price (FFP) contract with Forward Looking Infra Red Systems. The Missile Launcher and Battle Management System are developed at NSWC Dahlgren and NSWC Corona.

Naval Air Warfare Center Weapons Division (NAWCWD) China Lake developed the China Lake Spike shoulder fired missile. Javelin missiles were procured through Marine Corps System Command (MARCORSYSCOM) and Armament Research Development and Engineering Center (ARDEC) program offices. Naval Surface Missions Program Office (PEO IWS3S) qualified the Javelin Missile for shipboard firing at Redstone Arsenal and NSWC Dahlgren.

E. Performance Metrics

Successful completion of Live Fire Testing for Griffin Missile System, November, 2014.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604756N / Ship Self Def (Engage: Hard Kill)	Project (Number/Name) 3342 / Griffin Missile
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
GMS - PC Integration	WR	Dahlgren : VA	14.635	0.401	Oct 2014	0.000		0.000		-		0.000	0.000	15.036	-
GMS - PC Integration	WR	PT Mugu : CA	2.184	1.067	Oct 2014	0.000		0.000		-		0.000	0.000	3.251	-
GMS - PC Integration	WR	China Lake : CA	6.500	0.594	Oct 2014	0.000		0.000		-		0.000	0.000	7.094	-
GMS - PC Integration	MIPR	Redstone : AL	5.698	0.098	Feb 2015	0.000		0.000		-		0.000	0.000	5.796	-
GMS - PC Integration	WR	PHD : CA	3.137	0.063	Oct 2014	0.000		0.000		-		0.000	0.000	3.200	-
GMS - PC Integration	WR	CORONA : CA	1.646	0.030	Oct 2014	0.000		0.000		-		0.000	0.000	1.676	-
GMS - PC Integration	WR	Various : Various	3.899	0.000		0.000		0.000		-		0.000	0.000	3.899	-
GMS - PC Integration	WR	Crane : IN	5.777	0.054	Oct 2014	0.000		0.000		-		0.000	0.000	5.831	-
GMS - PC Integration	WR	NAVAIR : MD	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Shoulder Launch Missile Dev	WR	Dahlgren : VA	0.280	0.000		0.000		0.000		-		0.000	0.000	0.280	-
Shoulder Launch Missile Dev	MIPR	Redstone Arsenal : AL	0.150	0.000		0.000		0.000		-		0.000	0.000	0.150	-
Shoulder Launch Missile Dev	WR	Various : Various	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Shoulder Launch Missile Dev	WR	China Lake : CA	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Subtotal			43.906	2.307		0.000		0.000		-		0.000	0.000	46.213	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support	Various	PEO IWS : Arlington, VA	3.821	0.100	Jul 2015	0.000		0.000		-		0.000	0.000	3.921	-
Subtotal			3.821	0.100		0.000		0.000		-		0.000	0.000	3.921	-

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals		47.727	2.407	0.000	0.000	0.000	0.000	50.134	-

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy							Date: February 2016			
Appropriation/Budget Activity 1319 / 5			R-1 Program Element (Number/Name) PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i>			Project (Number/Name) 3342 / <i>Griffin Missile</i>				
	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i>	Project (Number/Name) 3342 / <i>Griffin Missile</i>

FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Proj 3342	
Test: Live Fire Test & Evaluation	██████████

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i>	Project (Number/Name) 3342 / <i>Griffin Missile</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3342				
Test: Live Fire Test & Evaluation	1	2015	1	2015

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i>				Project (Number/Name) 9081 / <i>Phalanx CIWS SEARAM</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
9081: <i>Phalanx CIWS SEARAM</i>	0.000	5.835	1.000	0.360	-	0.360	17.978	41.302	22.673	23.127	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Close in Weapon System (CIWS) Technology Refresh and Next Generation CIWS: CIWS fleet population exceeds 250 systems onboard nearly every USN surface combatant. In addition, CIWS continues to be installed on new construction surface ships with life expectancies of 25+ years. Basic system architecture is 20+ years old and is in need of Technology Refresh in order to avoid hardware obsolescence, maintain/improve reliability, and provide affordable spare parts to achieve acceptable Operational Availability for the next 20+ years. In conjunction with Technology Refresh, a Next Generation CIWS effort is planned (FY19) in order to define the follow-on CIWS system for future ships (and potentially backfit on newer fleet units) that can defeat the emerging anti-ship cruise missile threats at a lower overall life cycle cost. Given the sheer number of CIWS system deployed across the fleet and the amount of time it would take to upgrade existing installations to any Next Generation CIWS configuration, both Technology Refresh efforts (fielded to the fleet through overhauled CIWS Systems) and Next Generation CIWS efforts are required to be executed at same time in order to maintain existing CIWS capability while Next Generation CIWS is developed and begins fielding.

SeaRAM CIWS is to be deployed onboard DDG 64, 71, 75, and 78 in order to provide additional capability to meet emerging threats. Efforts include development, qualification, and testing of software and hardware modifications in order to support fielding on these AEGIS class ships.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Tech Refresh & Next Gen CIWS / SeaRAM on DDG Class	5.835	1.000	0.360	0.000	0.360
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Conducted trade studies and initial requirements definition for CIWS Technology Refresh (for fielding via retrofit kit and overhaul) and Next Generation CIWS with goal of improving system operational availability and performance.					
FY 2016 Plans: Non-recurring engineering efforts for integration/fielding of SeaRAM CIWS onboard DDG 64, 71, 75, and 78.					
FY 2017 Base Plans: Non-recurring engineering efforts for integration/fielding of SeaRAM CIWS onboard DDG 64, 71, 75, and 78.					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	5.835	1.000	0.360	0.000	0.360

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604756N / Ship Self Def (Engage: Hard Kill)	Project (Number/Name) 9081 / Phalanx CIWS SEARAM

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

The MK 15 Close-In Weapons System (CIWS) is a fast reaction, rapid fire, computer controlled radar system utilizing either a 20mm gun (Phalanx) or a SeaRAM weapon system (SeaRAM) to meet its primary mission of providing Anti-Ship Missile (ASM) defense. Funding provides support for efforts related to Technology Refresh (for current fleet population) and Next Generation CIWS (for future and retrofit installations) as well as efforts related to the integration/installation of SeaRAM CIWS in DDG 64, 71, 75, and 78. This work will be completed via sole source contracts to the CIWS Design Agent (Raytheon Missile Systems).

E. Performance Metrics

Successfully complete trade studies and initial requirements definition for Technology Refresh/Next Generation CIWS and efforts related integration/installation of SeaRAM CIWS in DDG class ships.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy Date: February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i>	Project (Number/Name) 9081 / <i>Phalanx CIWS SEARAM</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	
Tech Refresh & Next Generation CIWS	SS/CPFF	Raytheon Missile Systems : Tucson, AZ	0.000	4.435	Feb 2015	0.000		0.000		-		0.000	0.000	4.435	4.435
SeaRAM CIWS on DDG Class	SS/CPFF	Raytheon Missile Systems : Various	0.000	1.000	Jul 2015	1.000	Nov 2015	0.360	Nov 2016	-		0.360	0.000	2.360	-
Subtotal			0.000	5.435		1.000		0.360		-		0.360	0.000	6.795	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	
Studies & Analysis - Tech Refresh & Next Generation CIWS	Various	Various : Various	0.000	0.400	Feb 2015	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			0.000	0.400		0.000		0.000		-		0.000	-	-	-

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	5.835	1.000	0.360	-	0.360	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i>	Project (Number/Name) 9081 / <i>Phalanx CIWS SEARAM</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Proj 9081																												
Trade Studies & Initial Requirements Generation: Trade Studies and Initial Requirements Generation for Tech Refresh & Next Gen CIWS																												
SeaRAM CIWS on DDG Class: Integrate SeaRAM CIWS on DDG 64, 71, 75, and 78																												
Tech Refresh & Next Gen CIWS: Research, Development, and Test for Tech Refresh & Next Gen CIWS																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i>	Project (Number/Name) 9081 / <i>Phalanx CIWS SEARAM</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Proj 9081</i>				
Trade Studies & Initial Requirements Generation: Trade Studies and Initial Requirements Generation for Tech Refresh & Next Gen CIWS	2	2015	1	2016
SeaRAM CIWS on DDG Class: Integrate SeaRAM CIWS on DDG 64, 71, 75, and 78	1	2016	4	2017
Tech Refresh & Next Gen CIWS: Research, Development, and Test for Tech Refresh & Next Gen CIWS	1	2018	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604756N / Ship Self Def (Engage: Hard Kill)	Project (Number/Name) 9999 / Congressional Adds
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
9999: Congressional Adds	0.000	0.000	3.700	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	3.700
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Close in Weapon System (CIWS) Technology Refresh and Next Generation CIWS: CIWS fleet population exceeds 250 systems onboard nearly every USN surface combatant. In addition, CIWS continues to be installed on new construction surface ships with life expectancies of 25+ years. Basic system architecture is 20+ years old and is in need of Technology Refresh in order to avoid hardware obsolescence, maintain/improve reliability, and provide affordable spare parts to achieve acceptable Operational Availability for the next 20+ years. In conjunction with Technology Refresh, a Next Generation CIWS effort is planned (FY19) in order to define the follow-on CIWS system for future ships (and potentially backfit on newer fleet units) that can defeat the emerging anti-ship cruise missile threats at a lower overall life cycle cost. Given the sheer number of CIWS system deployed across the fleet and the amount of time it would take to upgrade existing installations to any Next Generation CIWS configuration, both Technology Refresh efforts (fielded to the fleet through overhauled CIWS Systems) and Next Generation CIWS efforts are required to be executed at same time in order to maintain existing CIWS capability while Next Generation CIWS is developed and begins fielding.

SeaRAM CIWS is to be deployed onboard DDG 64, 71, 75, and 78 in order to provide additional capability to meet emerging threats. Efforts include development, qualification, and testing of software and hardware modifications in order to support fielding on these AEGIS class ships.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016
Congressional Add: Shield Protection	0.000	3.700
FY 2015 Accomplishments: N/A		
FY 2016 Plans: Provide engineering support for development of performance enhancements to MK 15 Mod 31 SeaRAM Weapon System.		
Congressional Adds Subtotals	0.000	3.700

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

This work will be completed via sole source contracts to the CIWS Design Agent (Raytheon Missile Systems).

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i>	Project (Number/Name) 9999 / <i>Congressional Adds</i>

E. Performance Metrics

Successfully complete initial requirements definition for performance enhancements to the MK 15 Mod 31 SeaRAM Weapon System.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity 1319 / 5				R-1 Program Element (Number/Name) PE 0604756N / Ship Self Def (Engage: Hard Kill)					Project (Number/Name) 9999 / Congressional Adds						
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Performance Enhancement to SeaRAM	SS/CPFF	Raytheon Missile System : Tucson, AZ	0.000	0.000		3.700	Mar 2016	0.000		-		0.000	0.000	3.700	-
Subtotal			0.000	0.000		3.700		0.000		-		0.000	0.000	3.700	-
			Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	0.000		3.700		0.000		-		0.000	0.000	3.700	-
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i>	Project (Number/Name) 9999 / <i>Congressional Adds</i>

FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Proj 9999	
Performance Enhancement to SeaRAM:	[REDACTED]

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604756N / <i>Ship Self Def (Engage: Hard Kill)</i>	Project (Number/Name) 9999 / <i>Congressional Adds</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 9999				
Performance Enhancement to SeaRAM:	2	2016	4	2017

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604757N / <i>Ship Self Def (Engage: Soft Kill/EW)</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	1,040.028	107.319	105.416	114.211	-	114.211	120.446	142.509	142.737	145.758	Continuing	Continuing
0954: <i>Shipboard EW Improvement Program</i>	465.509	8.698	10.691	13.322	-	13.322	15.596	15.945	16.023	16.363	Continuing	Continuing
2190: <i>NULKA Decoy</i>	59.047	4.635	1.860	1.934	-	1.934	2.156	7.118	7.261	7.407	Continuing	Continuing
3227: <i>SEWIP Block 2</i>	222.056	0.395	0.412	0.315	-	0.315	0.426	0.439	0.450	0.459	Continuing	Continuing
3316: <i>Advanced Offboard EW</i>	71.261	35.586	32.393	36.080	-	36.080	65.201	81.610	80.856	82.527	Continuing	Continuing
3321.: <i>SEWIP Block 3</i>	222.155	58.005	60.060	62.560	-	62.560	37.067	37.397	38.147	39.002	Continuing	Continuing

Program MDAP/MAIS Code: 582

A. Mission Description and Budget Item Justification

0954 - The Surface Electronic Warfare Improvement Program (SEWIP) Block 1 provides enhanced Electronic Warfare (EW) capabilities to existing and new ship combat systems to improve Anti-Ship Missile Defense (ASMD), counter-targeting and counter surveillance capabilities, as well as improved situational awareness. The SEWIP Block 1 employs an evolutionary acquisition and incremental development strategy to upgrade surface EW capabilities via a series of block upgrades to the AN/SLQ-32(V) system, and field EW improvements to counter the ASMD threat. SEWIP Block 1 will provide required EW capabilities and will incorporate technology advances as they become available to provide incremental upgrades and improvements in performance.

The growth between FY 2016 and FY 2017 is attributable to increased software development efforts required for RCIP #4 software builds.

2190 - The Offboard Active Decoy (NULKA) is a joint cooperative program between the United States and Australia that developed an active offboard decoy that utilizes a broadband radio frequency repeater mounted atop a hovering rocket. NULKA is designed to counter a wide variety of present and future radar guided Anti-Ship Missiles (ASMs) by radiating a large radar cross section while flying a ship-like trajectory. The United States developed the electronic payload and fire control system, while Australia developed the hovering rocket. Future efforts involve development of the capability for high value unit protection.

3227 - SEWIP Block 2 is developing an upgraded antenna, receiver, and combat system interface for SLQ-32. The upgrades are necessary in order to pace the threat, improving detection, accuracy, and mitigation of Electromagnetic Interference (EMI).

3316 - The Advanced Offboard EW (AOEW) program is for the development of long duration off-board decoys integrated with onboard systems for EW coordination to counter identified EW gaps (additional details classified) in response to an urgent operational need from the Fleet that has been approved by the CNO for execution. Currently no counter to the threat exists. The program consists of a Rapid Response Effort (RRE) and provides an initial, limited decoy capability to the Fleet and a Decoy Development Effort (DDE) which will culminate in the delivery of a fully supported, full capability system. The RRE consists of the evaluation and integration

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy I BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604757N / <i>Ship Self Def (Engage: Soft Kill/EW)</i>
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of commercially available decoys. The DDE consists of the development and evaluation of a long duration, active electronic offboard decoy system (payload only) integrated on an existing flight vehicle and an onboard/offboard EW coordinator fully able to counter the threat.

DDE Preliminary Design contract will be competed and contractor name and location will be added upon contract award in 3rd QTR FY16. The FY17 increased Product Development funding and requirements is attributable to the program entering E&MD in FY17.

3321 - SEWIP Block 3 is developing an Electronic Attack (EA) capability improvement required for the AN/SLQ-32(V) system to keep pace with the threat. SEWIP Block 3 is developing a common EA capability to all surface combatants (CVN, CG, DDG, LHD) outfitted with the active variant of the AN/SLQ-32, mainly the (V)3 and (V)4, as well as select new-construction platforms.

The increase in SEWIP Block 3 Development in FY17 is due to commencement of EDM build and integration, using the material purchased in FY16, commencement of test planning for FQT and OA testing, and full hardware/software integration and testing of the EDMs.

The SEWIP Block 3 Acquisition leverages technology developed under the Office of Naval Research's (ONR) Integrated Topside (InTop) Science and Technology (S&T) effort. SEWIP Block 3 will continue to expand the integrated shipboard combat system by providing a new integrated Electronic Attack (EA) transmitter, array, and associated EA techniques. The program builds on the EW Support (ES) capability delivered by SEWIP Blocks 1 and 2. SEWIP Block 3 includes a government software development effort for a SoftKill Coordinator (SKC) to manage EA engagements. SEWIP Block 3 is developing an EW testbed to validate system performance.

SEWIP Block 3 developed and deployed a limited interim capability, starting in 2014, of a focused application of the Naval Research Lab (NRL) Transportable EW Module (TEWM) systems to support CNO Urgent Operational Needs (UON). Block 3T (AN/SLQ-59) is the TEWM system supporting the 7th fleet UON. TEWM Speed to Fleet (STF) (AN/SLQ-62) is the TEWM system supporting the 6th fleet UON.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	116.904	116.798	132.627	-	132.627
Current President's Budget	107.319	105.416	114.211	-	114.211
Total Adjustments	-9.585	-11.382	-18.416	-	-18.416
• Congressional General Reductions	-	-0.063			
• Congressional Directed Reductions	-	-11.319			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-6.600	0.000			
• SBIR/STTR Transfer	-2.986	0.000			
• Program Adjustments	0.000	0.000	-15.182	-	-15.182
• Rate/Misc Adjustments	0.001	0.000	-3.234	-	-3.234

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604757N / <i>Ship Self Def (Engage: Soft Kill/EW)</i>	
<u>Change Summary Explanation</u> FY 2015 funding request includes reductions as a result of SBIR/STTR transfer of \$2.986 million, a reprogramming action of \$6.6 million in support of a department high priority classified effort, and \$0.001 million for Rate/Misc adjustments. FY 2016 funding request reflects a congressional reduction of \$11.319 million as a result of execution delays. FY 2017 funding request reflect decreases of \$4.930 million in order for the Department of the Navy to comply with the Bipartisan Budget Act of 2015, \$10.752 million to account for the availability of prior year funds, \$3.234 million for Rate/Misc adjustments. FY 2017 also reflect an increase of \$0.500 million in support of Speed-to-Fleet (S2F) initiative for Transportable Electronic Warfare Module.		

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604757N / Ship Self Def (Engage: Soft Kill/EW)				Project (Number/Name) 0954 / Shipboard EW Improvement Program			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
0954: Shipboard EW Improvement Program	465.509	8.698	10.691	13.322	-	13.322	15.596	15.945	16.023	16.363	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

SEWIP Block 1 provides enhanced EW capabilities to existing and new ship combat systems to improve ASMD, counter-targeting and counter surveillance capabilities, as well as improved situational awareness. SEWIP Block 1 employs an evolutionary acquisition and incremental development strategy to upgrade surface EW capabilities via a series of block upgrades to the AN/SLQ-32(V) system, and field EW improvements to counter the ASMD threat. SEWIP Block 1 will provide required EW capabilities and will incorporate technology advances as they become available to provide incremental upgrades and improvements in performance.

SEWIP Block 1 is segmented into Block 1A, and Block 1B, ALQ-210 integration, and EW Rapid Capability Insertion Process (RCIP). Block 1A upgrades the AN/SLQ-32 pulse-processing computers and the display console allowing the system to more quickly identify threats and better display the information to the operator. Block 1A Electronic Surveillance Enhancements (ESE) pulse-processing computers and the Improved Control and Display (ICAD) Human System Interface (HSI) console partially open the electronic warfare system architecture to support subsequent EW capability upgrades. Block 1B adds adjunct sensors for special signal intercept, including Specific Emitter Identification (SEI), and High Gain High Sensitivity (HGHS) (Block 1B3), a critical improvement for threat correlation, situational awareness, and extending the battle space. ALQ-210 integration will develop capability to use and integrate Electronic Warfare Support (ES) controls and data between AN/SLQ-32 and the ALQ-210 on the MH60R. EW RCIP identifies joint force ASM capability gaps by analyzing EW baseline and fleet requirements, prioritizes those gaps based on fleet input and critical technology maturity, and develops upgrades to the AN/SLQ-32(V) product line for fielding to address those gaps. EW RCIP will identify and select candidate technologies based on technical maturity and ability to meet the gaps within programmatic (lifecycle cost, schedule, risk) constraints.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Block 1B3	0.600	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					
- Analyzed and corrected deficiencies.					
FY 2016 Plans:					
- N/A					
FY 2017 Base Plans:					
- N/A					
FY 2017 OCO Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / <i>Ship Self Def (Engage: Soft Kill/EW)</i>	Project (Number/Name) 0954 / <i>Shipboard EW Improvement Program</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- N/A					
Title: EW RCIP <p align="right">Articles:</p>	8.098	10.691	13.322	0.000	13.322
<p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Performed RCIP #2 Testing and Software Certification for HGHS threat libraries. - Continued RCIP #3 contract to ensure scalability of the SEWIP system to address the self-defense gap on additional platforms. - Initiated RCIP #4 joint contractor /government effort to integrate SEWIP capabilities into Aegis Baseline 9.C2 to address the Aegis platform gaps for automatic and semi-automatic engagements using NULKA decoys; commenced actions to address classification and tracking gaps through software changes and certification activities. - Initiated investigation of EW cost saving improvement initiatives to reduce life-cycle costs. - Initiated investigations of algorithm development of enhanced processing techniques improvement to SEWIP emitter processing. - Identified additional EW technology shortfalls based on the current and emerging ASM threats and fleet requirements, Solicited industry, University Affiliate Research Centers, and government activities for technical solutions; Evaluated and selected RCIP technology candidates; Evaluated RCIP technologies production readiness. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Continue to investigate and finalize EW cost saving improvement initiatives to reduce life-cycle costs. - Deliver the RCIP #2 HGHS software/firmware upgraded loads using load and threat libraries. - Continue RCIP #3 contract to ensure scalability of the SEWIP system to address the self-defense gap on additional platforms. - Continue RCIP #4 Aegis Baseline 9.C2 Soft Kill Coordinator Subsystem (SKCS) integration efforts to address platform gaps for automatic and semi-automatic engagements using NULKA decoys and to perform radar cued engagements for increased performance in the SLQ-32(V)6 Electronic Warfare systems; Initiate and complete software development and system integration and testing activities for software build 1 in accordance with approved critical design; Initiate software development and system integration and testing activities for software build 2 in accordance with approved critical design; achieve technology improvements for classification and tracking gaps. - Identify Electro Optics/Infrared (EO/IR) EW capability gaps and develop EO/IR requirements. 	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / <i>Ship Self Def (Engage: Soft Kill/EW)</i>	Project (Number/Name) 0954 / <i>Shipboard EW Improvement Program</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<ul style="list-style-type: none"> - Continue investigations of algorithm development of enhanced processing techniques improvement to SEWIP emitter processing. - Award RCIP #5 to initiate improvements to increase EW Tactical Simulation capabilities to address advanced threats in the fleet environment. - Identify additional EW technology shortfalls based on the current and emerging ASM threats and fleet requirements, Solicit industry, University Affiliate Research Centers, and government activities for technical solutions; Evaluate and select RCIP technology candidates; Evaluate RCIP technologies production readiness. <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> - Complete RCIP #3 contract to ensure scalability of the SEWIP system to address the self-defense gap on additional platforms. - Continue RCIP #4 Aegis Baseline 9.C2 Soft Kill Coordinator Subsystem (SKCS) integration efforts to address platform gaps for automatic and semi-automatic Soft Kill engagements using NULKA decoys and to perform radar cued engagements for increased performance in the SLQ-32(V)6 Electronic Warfare systems; Complete software development and system integration and testing activities for software build 2 in accordance with approved critical design; Initiate software development and system integration and testing activities for software build 3 in accordance with approved critical design; Define interface requirements and perform requirements analysis for software build 4. Assess gaps and identify additional techniques and tactics to employ Soft Kill Coordinator. - Continue to address Electro Optics/Infrared (EO/IR) EW capability gaps by further defining top-level requirement specifications. - Continue RCIP #5 improvements to increase EW Tactical Simulation capabilities to address advanced threats in the fleet environment. - Identify additional EW technology shortfalls based on the current and emerging ASM threats and fleet requirements, Solicit industry, University Affiliate Research Centers, and government activities for technical solutions; Evaluate and select RCIP technology candidates; Evaluate RCIP technologies production readiness. <p>FY 2017 OCO Plans:</p> <ul style="list-style-type: none"> - N/A 					
Accomplishments/Planned Programs Subtotals	8.698	10.691	13.322	0.000	13.322

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017	FY 2017	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Cost To	
			Base	OCO	Total					Complete	Total Cost
• 0204228N/2312: OPN BA-2 AN/SLQ-32(V)	195.082	296.271	274.892	-	274.892	318.819	379.231	511.281	767.214	Continuing	Continuing
• 24575N & 72827N/1C2C: OMN BA-1 AN/SLQ-32(V)	6.991	7.113	7.727	-	7.727	7.891	8.006	8.180	8.345	Continuing	Continuing

Remarks

D. Acquisition Strategy

SEWIP will develop Block upgrades to SLQ-32 based on integrating technology advances and adding functional capabilities in an incremental fashion. Each Block and Sub-Block will be developed and contracted in an individual yet coordinated and overlapping fashion.

E. Performance Metrics

Successfully achieve Block 1B3 Milestone C / Low Rate Initial Production (LRIP) Decision Review (DR).
 Successfully complete Block 1B3 Initial Operational Test & Evaluation (IOT&E).
 Successfully achieve Block 1B3 Full Rate Production (FRP) DR.

Successfully identify RCIP capabilities.
 Successfully identify and assess RCIP Science & Technology candidates.
 Award development contract for RCIP #1.
 Successfully demonstrate and validate RCIP capabilities.
 Award development contract for RCIP #2.
 Award development contract for RCIP #3.
 Award development contract for RCIP #4.
 Award development contract for RCIP #5.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / Ship Self Def (Engage: Soft Kill/EW)	Project (Number/Name) 0954 / Shipboard EW Improvement Program
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Ancillary Hardware Development	Various	Various : Various	151.420	0.000		0.000		0.000		-		0.000	0.000	151.420	-
ESE Development	SS/CPFF	Northrop Grumman : Goleta, CA	13.037	0.000		0.000		0.000		-		0.000	0.000	13.037	-
ICAD Development	SS/CPFF	GD-AIS : Fairfax, VA	11.747	0.000		0.000		0.000		-		0.000	0.000	11.747	-
ESE Development (Block 1A)	SS/CPFF	Northrop Grumman : Goleta, CA	0.471	0.000		0.000		0.000		-		0.000	0.000	0.471	-
System Integrator	C/CPAF	GD-AIS : Fairfax, VA	13.798	0.000		0.000		0.000		-		0.000	0.000	13.798	-
1B Development	SS/CPIF	GD-AIS : Fairfax, VA	86.292	0.000		0.000		0.000		-		0.000	0.000	86.292	-
Q-70 Mods	C/CPFF	LM-EAGAN : Eagan, MN	3.491	0.000		0.000		0.000		-		0.000	0.000	3.491	-
Block 2 Study/ Development	C/CPIF	BAE : Nashua, NH	0.336	0.000		0.000		0.000		-		0.000	0.000	0.336	-
ALQ210 Integration	WR	NSWC Dahlgren : Dahlgren, VA	10.345	0.000		0.000		0.000		-		0.000	0.000	10.345	-
Rapid Capability Insertion Process (RCIP) #1	C/CPIF	Lockheed Martin : Syracuse, NY	2.000	0.000		0.000		0.000		-		0.000	0.000	2.000	-
RCIP #1	WR	NSWC Dahlgren : Dahlgren, VA	0.650	0.000		0.000		0.000		-		0.000	0.000	0.650	-
RCIP #2	SS/CPFF	Northrop Grumman : Goleta, CA	2.514	0.000		0.000		0.000		-		0.000	0.000	2.514	-
RCIP #2	SS/FFP	GD-AIS : Fairfax, VA	0.734	0.000		0.000		0.000		-		0.000	0.000	0.734	-
RCIP #3	SS/CPFF	EWA-GSI : Fairmont, WV	1.978	0.000		0.000		0.000		-		0.000	0.000	1.978	-
RCIP #3	WR	ONR/ACI : Washington, DC	1.530	1.600	Feb 2015	0.250	Jan 2016	0.250	Nov 2016	-		0.250	0.000	3.630	-
RCIP #4	SS/CPFF	APL : Laurel, MD	0.000	0.398	Aug 2015	0.500	Feb 2016	1.400	Feb 2017	-		1.400	0.000	2.298	-
RCIP #4	WR	NSWC Dahlgren : Dahlgren, VA	0.000	0.000		2.620	Mar 2016	4.000	Mar 2017	-		4.000	0.000	6.620	-
RCIP #5	WR	NSWC Dahlgren : Dahlgren, VA	0.000	0.000		1.275	Mar 2016	1.029	Apr 2017	-		1.029	0.000	2.304	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy											Date: February 2016				
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost				
Subtotal				300.343	1.998			4.645		6.679		-	6.679	0.000	313.665	-

Remarks
The growth between FY 2016 and FY 2017 in Product Development is attributable to increased software development efforts required for RCIP #4 software builds.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Block 1 Integrated Logistics Support	WR	NSWC Crane, DD, NRL, APL : Crane, IN; Dahlgren, VA; Washington, DC; Laurel, MD	9.912	0.000		0.000		0.000		-		0.000	0.000	9.912	-
Block 1 Integrated Logistics Support	WR	NSWC Crane : Crane, IN	3.418	0.000		0.000		0.000		-		0.000	0.000	3.418	-
Block 1 Integrated Logistics Support	WR	NSWC DD : Dahlgren, VA	0.293	0.000		0.000		0.000		-		0.000	0.000	0.293	-
Block 1 Government Engineering Support	WR	NSWC Crane, DD, NRL, APL : Crane, IN; Dahlgren, VA; Washington, DC; Laurel, MD	34.783	0.000		0.000		0.000		-		0.000	0.000	34.783	-
Block 1 Government Engineering Support	WR	NSWC Dahlgren : Dahlgren, VA	3.448	1.279	Oct 2014	1.100	Jan 2016	1.408	Nov 2016	-		1.408	Continuing	Continuing	Continuing
Block 1 Government Engineering Support	WR	NSWC Crane : Crane, IN	3.227	1.374	Nov 2014	0.433	Jan 2016	1.411	Nov 2016	-		1.411	Continuing	Continuing	Continuing
Block 1 Government Engineering Support	WR	NRL : Washington, DC	2.133	0.192	Nov 2014	0.950	Jan 2016	0.965	Nov 2016	-		0.965	Continuing	Continuing	Continuing
Block 1 Government Engineering Support	SS/CPFF	APL : Laurel, MD	1.684	0.493	Feb 2015	0.166	Jan 2016	0.620	Nov 2016	-		0.620	0.000	2.963	-
Block 1 Government Engineering Support	WR	SWRMC : San Diego, CA	0.000	0.200	Feb 2015	0.000		0.000		-		0.000	0.000	0.200	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy											Date: February 2016				
Appropriation/Budget Activity 1319 / 5						R-1 Program Element (Number/Name) PE 0604757N / Ship Self Def (Engage: Soft Kill/EW)					Project (Number/Name) 0954 / Shipboard EW Improvement Program				

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Block 1 Government Engineering Support	WR	MIT : Hanscom AFB, MA	0.000	0.456	Jul 2015	0.060	Jan 2016	0.000		-		0.000	0.000	0.516	-
Block 1 Government Engineering Support	WR	MITRE : Aberdeen Proving Ground, MD	0.000	0.083	Jul 2015	0.444	Jan 2016	0.000		-		0.000	0.000	0.527	-
Block 1 Government Engineering Support	WR	NUWC Keyport : Keyport, WA	0.000	0.040	Sep 2015	0.284	Jan 2016	0.000		-		0.000	0.000	0.324	-
Block 1 SIPRNET Access	WR	ARL : Adelphi, MD	0.092	0.000		0.000		0.000		-		0.000	0.000	0.092	-
Block 1B3 Install on test ship	WR	NSSA Norfolk : Norfolk, VA	0.857	0.000		0.000		0.000		-		0.000	0.000	0.857	-
Block 1B3 Integration	WR	Lockheed Martin : Syracuse, NY	1.000	0.000		0.000		0.000		-		0.000	0.000	1.000	-
Subtotal			60.847	4.117		3.437		4.404		-		4.404	-	-	-

Remarks
The growth between FY 2016 and FY 2017 in Support is attributable to increased Government Engineering Support requirements for the RCIP #4 software builds.

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Block 1 Integration and Test	WR	NSWC Crane, DD, NRL : Crane, IN; Dahlgren, VA; Washington, DC	0.853	0.000		0.000		0.000		-		0.000	0.000	0.853	-
Developmental Test & Evaluation	Various	Various : Various	8.958	0.000		0.000		0.000		-		0.000	0.000	8.958	-
Block 1A Test Planning/ T&E Events	WR	NSWC Crane, DD, NRL : Crane, IN; Dahlgren, VA; Washington, DC	11.036	0.000		0.000		0.000		-		0.000	0.000	11.036	-
Block 1B Test Planning/ T&E Events	WR	NSWC Crane, DD, NRL, NAVAIR, OPTEVFOR, NSWC	9.567	0.000		0.000		0.000		-		0.000	0.000	9.567	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy											Date: February 2016				
Appropriation/Budget Activity 1319 / 5						R-1 Program Element (Number/Name) PE 0604757N / Ship Self Def (Engage: Soft Kill/EW)					Project (Number/Name) 0954 / Shipboard EW Improvement Program				

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
		PHD : Crane, IN; Dahlgren, VA; Washington, DC; MD; CA													
Block 1B Test Planning/T&E Events	WR	NSWC Dahlgren : Dahlgren, VA	3.231	0.000		0.000		0.000		-		0.000	0.000	3.231	-
Block 1B Test Planning/T&E Events	WR	NSWC Crane : Crane, IN	3.026	0.000		0.000		0.000		-		0.000	0.000	3.026	-
Block 1B Test Planning/T&E Events	WR	NRL : Washington, DC	5.365	0.000		0.000		0.000		-		0.000	0.000	5.365	-
Block 1B Test Planning/T&E Events	WR	OPTEVFOR : Norfolk, VA	0.376	0.236	Nov 2014	0.000		0.000		-		0.000	0.000	0.612	-
Block 1B Test Planning/T&E Events	WR	JITC : Indian Head, MD	0.288	0.000		0.000		0.000		-		0.000	0.000	0.288	-
(V)4 ESE Test Planning/T&E Events	WR	NSWC Crane, DD, NRL : Crane, IN; Dahlgren, VA; Washington, DC	0.686	0.000		0.000		0.000		-		0.000	0.000	0.686	-
(V)4 ESE Test Planning/T&E Events	WR	NSWC Dahlgren : Dahlgren, VA	0.609	0.000		0.000		0.000		-		0.000	0.000	0.609	-
(V)4 ESE Test Planning/T&E Events	WR	NSWC Crane : Crane, IN	1.153	0.000		0.000		0.000		-		0.000	0.000	1.153	-
(V)4 ESE Test Planning/T&E Events	WR	NRL : Washington, DC	1.808	0.000		0.000		0.000		-		0.000	0.000	1.808	-
(V)4 ESE Test Planning/T&E Events	WR	OPTEVFOR : Norfolk, VA	0.192	0.000		0.000		0.000		-		0.000	0.000	0.192	-
RCIP Test Planning/T&E Events	WR	NSWC Dahlgren : Dahlgren, VA	1.052	0.350	Oct 2014	0.100	Jan 2016	0.455	Nov 2016	-		0.455	Continuing	Continuing	Continuing
RCIP Test Planning/T&E Events	WR	NSWC Crane : Crane, IN	0.546	0.343	Nov 2014	0.000		0.460	Nov 2016	-		0.460	Continuing	Continuing	Continuing
RCIP Test Planning/T&E Events	WR	NRL : Washington, DC	0.541	0.388	Nov 2014	0.800	Jan 2016	0.110	Nov 2016	-		0.110	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy											Date: February 2016				
Appropriation/Budget Activity 1319 / 5				R-1 Program Element (Number/Name) PE 0604757N / Ship Self Def (Engage: Soft Kill/EW)				Project (Number/Name) 0954 / Shipboard EW Improvement Program							

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
RCIP Test Planning/T&E Events	SS/CPFF	APL : Laurel, MD	0.000	0.000		0.100	Jan 2016	0.105	Nov 2016	-		0.105	Continuing	Continuing	Continuing
Subtotal			49.287	1.317		1.000		1.130		-		1.130	-	-	-

Remarks
Development Test & Evaluation included several activities from the original development of the SLQ-32 system. This line has been left on the exhibit to track Prior year costs of this PU.

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Block 1 Program Management Support	C/CPFF	SPA (SEAPORT) : Washington, D.C.	32.702	0.000		0.000		0.000		-		0.000	0.000	32.702	-
Block 1 Program Management Support	C/CPFF	TMB (SEAPORT) : Washington, D.C.	0.000	0.113	Aug 2015	0.503	Feb 2016	0.455	Nov 2016	-		0.455	Continuing	Continuing	Continuing
Block 1 Program Management Support	SS/CPFF	SPA : Washington, D.C.	0.000	0.000		1.066	Feb 2016	0.000		-		0.000	0.000	1.066	-
Block 1 Program Management Support	TBD	TBD : TBD	0.000	0.000		0.000		0.616	Nov 2016	-		0.616	Continuing	Continuing	Continuing
Block 1 Program Management Support	WR	NSWC Crane, DD, NRL : Crane, IN; Dahlgren, VA; Washington, DC	17.310	0.000		0.000		0.000		-		0.000	0.000	17.310	-
Block 1 Program Management Support	WR	NSWC Crane : Crane, IN	1.055	0.581	Nov 2014	0.000		0.000		-		0.000	0.000	1.636	-
Block 1 Program Management Support	WR	NSWC Dahlgren : Dahlgren, VA	1.236	0.426	Oct 2014	0.000		0.000		-		0.000	0.000	1.662	-
Block 1 Program Management Support	WR	NRL : Washington, DC	0.977	0.000		0.000		0.000		-		0.000	0.000	0.977	-
Block 1 Program Management Support	SS/CPFF	APL : Laurel, MD	0.431	0.096	Feb 2015	0.000		0.000		-		0.000	0.000	0.527	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / Ship Self Def (Engage: Soft Kill/EW)	Project (Number/Name) 0954 / Shipboard EW Improvement Program
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Block 1 Travel	WR	NAVSEA Program Office Travel : Washington, DC	1.195	0.050	Oct 2014	0.040	Jan 2016	0.038	Nov 2016	-		0.038	Continuing	Continuing	Continuing
Block 1 DoD Acquisition Workforce Fund	Various	Various : Various	0.126	0.000		0.000		0.000		-		0.000	0.000	0.126	-
Subtotal			55.032	1.266		1.609		1.109		-		1.109	-	-	-

Remarks
The TBD for Program Management Support will be competitively awarded in November 2016.

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	465.509	8.698	10.691	13.322	-	13.322	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / Ship Self Def (Engage: Soft Kill/EW)	Project (Number/Name) 0954 / Shipboard EW Improvement Program
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Fiscal Year	2015				2016				2017				2018				2019				2020				2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones			▲	Block 1B3 LRIP #2 DR			△	Block 1B3 FRP DR																				
Development	EW Rapid Capability Insertion Process (RCIP)																											
Test and Evaluation																												
Milestones																												
Development Test																												
Operational Test																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / <i>Ship Self Def (Engage: Soft Kill/EW)</i>	Project (Number/Name) 0954 / <i>Shipboard EW Improvement Program</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 0954				
EW Rapid Capability Insertion Process (RCIP)	1	2015	4	2021
Block 1B3 LRIP #2 DR	3	2015	3	2015
Block 1B3 FRP DR	4	2016	4	2016

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / Ship Self Def (Engage: Soft Kill/EW)	Project (Number/Name) 2190 / NULKA Decoy
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2190: NULKA Decoy	59.047	4.635	1.860	1.934	-	1.934	2.156	7.118	7.261	7.407	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Offboard Active Decoy (NULKA) is a joint cooperative program between the United States and Australia that developed an active offboard decoy that utilizes a broadband radio frequency repeater mounted atop a hovering rocket. NULKA is designed to counter a wide variety of present and future radar guided Anti-Ship Missiles (ASMs) by radiating a large radar cross section while flying a ship-like trajectory. The United States developed the electronic payload and fire control system, while Australia developed the hovering rocket. Future efforts involve development of the capability for high value unit protection.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: NULKA Decoy Subsystem	2.757	1.860	1.934	0.000	1.934
Articles:	-	-	-	-	-
FY 2015 Accomplishments: - Continued NULKA decoy subsystem integration and improvements to include Effectiveness Studies, Engineering Studies, and Fly Out Tactics.					
FY 2016 Plans: - Continue NULKA decoy subsystem integration and improvements to include Effectiveness Studies, Engineering Studies, and Fly Out Tactics.					
FY 2017 Base Plans: - Continue NULKA decoy subsystem integration and improvements to include Effectiveness Studies, Engineering Studies, and Fly Out Tactics.					
FY 2017 OCO Plans: - N/A					
Title: CVN AT-SEA TEST	1.878	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2015 Accomplishments: - N/A					
FY 2016 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / <i>Ship Self Def (Engage: Soft Kill/EW)</i>	Project (Number/Name) 2190 / <i>NULKA Decoy</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Conduct At-Sea test of NULKA CVN capabilities.					
<i>FY 2017 Base Plans:</i> - N/A					
<i>FY 2017 OCO Plans:</i> - N/A					
Accomplishments/Planned Programs Subtotals	4.635	1.860	1.934	0.000	1.934

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• OPN/5231: <i>Ship Missile Support Equipment</i>	35.756	57.791	62.792	-	62.792	80.739	62.163	61.615	62.897	Continuing	Continuing
• OMN/12CR0 (1C2C): <i>Nulka</i>	5.212	7.323	5.864	-	5.864	5.995	6.228	6.362	6.503	Continuing	Continuing

Remarks

D. Acquisition Strategy

NULKA is a joint cooperative program between United States and Australia in full rate production.

E. Performance Metrics

Successfully complete first-of-class testing of MK 53 DLS upgrade for CVN.

Successfully complete Element Certification Decoy Launch Processor (DLP) software version 6_5 for the CVN 68 ship class.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / Ship Self Def (Engage: Soft Kill/EW)	Project (Number/Name) 2190 / NULKA Decoy
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary Hardware Development	WR	Lockheed Martin : Sippican, MA	6.692	0.000		0.000		0.000		-		0.000	0.000	6.692	-
Primary Hardware Development	MIPR	BAE Systems : Australia	7.382	0.000		0.000		0.000		-		0.000	0.000	7.382	-
Systems Engineering	WR	NRL : Washington, DC	18.157	0.722	Nov 2014	0.799	Jan 2016	0.401	Nov 2016	-		0.401	Continuing	Continuing	Continuing
Systems Engineering	WR	NWAD : China Lake, CA	0.120	0.000		0.000		0.000		-		0.000	0.000	0.120	-
MK 53 System Eng Changes	C/FFP	Sechan : PA	0.150	0.000		0.000		0.000		-		0.000	0.000	0.150	-
Systems Engineering	WR	NSWC Dahlgren : Dahlgren, VA	8.307	1.100	Nov 2014	0.859	Jan 2016	1.282	Nov 2016	-		1.282	Continuing	Continuing	Continuing
Systems Engineering	WR	NSMA : VA	0.360	0.000		0.000		0.000		-		0.000	0.000	0.360	-
Systems Engineering	WR	NSWC Crane : IN	6.061	0.520	Nov 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			47.229	2.342		1.658		1.683		-		1.683	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Development Support	WR	NRL : Washington, DC	1.514	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Software Development	WR	NSWC Dahlgren : Dahlgren, VA	2.908	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Software Development	MIPR	BAE Systems : Australia	1.009	0.000		0.000		0.000		-		0.000	0.000	1.009	-
Subtotal			5.431	0.000		0.000		0.000		-		0.000	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / Ship Self Def (Engage: Soft Kill/EW)	Project (Number/Name) 2190 / NULKA Decoy
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental Test & Evaluation	WR	NSWC Dahlgren : Dahlgren, VA	0.700	0.575	Nov 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	NRL : Washington, DC	1.181	0.500	Nov 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Test Assets	WR	NRL : Washington, DC	0.701	0.803	Nov 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Test Support	WR	OPTEVFOR : Norfolk, VA	0.050	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Test Support	WR	BAE Systems : Australia	0.050	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			2.682	1.878		0.000		0.000		-		0.000	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support	C/CPIF	SPA (SEAPORT) : Washington, DC	1.694	0.320	Feb 2015	0.000		0.000		-		0.000	0.000	2.014	Continuing
Program Management Support	SS/CPIF	SPA : Washington, DC	0.000	0.000		0.094	Feb 2016	0.000		-		0.000	0.000	0.094	-
Program Management Support	C/FFP	AT&T Gov't Solutions (SEAPORT) : : Washington, DC	1.147	0.000		0.000		0.000		-		0.000	0.000	1.147	-
Program Management Support	C/CPIF	Gryphon Technology (SEAPORT) : Washington, DC	0.226	0.000		0.000		0.000		-		0.000	0.000	0.226	-
Program Management Support	C/CPIF	ICI (SEAPORT) : Washington, DC	0.000	0.060	Feb 2015	0.026	Feb 2016	0.035	Nov 2016	-		0.035	0.000	0.121	-
Program Management Support	C/CPIF	TMB (SEAPORT) : Washington, DC	0.000	0.000		0.067	Feb 2016	0.086	Nov 2016	-		0.086	0.000	0.153	-
Program Management Support	TBD	TBD : TBD	0.000	0.000		0.000		0.120	Nov 2016	-		0.120	0.000	0.120	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / Ship Self Def (Engage: Soft Kill/EW)	Project (Number/Name) 2190 / NULKA Decoy
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Travel	WR	NAVSEA Program Office Travel : Washington, DC	0.623	0.035	Feb 2015	0.015	Jan 2016	0.010	Nov 2016	-		0.010	Continuing	Continuing	Continuing
DoD Acquisition Workforce Fund (DAWDF)	Various	Various : Various	0.015	0.000		0.000		0.000		-		0.000	0.000	0.015	-
Subtotal			3.705	0.415		0.202		0.251		-		0.251	-	-	-

Remarks
The TBD for Program Management Support will be competitively awarded in November 2016.

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	59.047	4.635	1.860	1.934	-	1.934	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / Ship Self Def (Engage: Soft Kill/EW)	Project (Number/Name) 2190 / NULKA Decoy

Fiscal Year	2015				2016				2017				2018				2019				2020				2021				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
System Development	EFFECTIVENESS STUDIES, ENGINEERING STUDIES, AND FLY OUT TACTICS																												
Production Milestones																													
Test & Evaluation Milestones																													
Development Test			▲																										
Operational Test						▲																							

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / <i>Ship Self Def (Engage: Soft Kill/EW)</i>	Project (Number/Name) 2190 / <i>NULKA Decoy</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2190				
EFFECTIVENESS STUDIES, ENGINEERING STUDIES, AND FLY OUT TACTICS	1	2015	4	2021
LHA 6 INSTALL CERTIFICATION	3	2015	3	2015
CVN CLASS DT	1	2016	1	2016

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / Ship Self Def (Engage: Soft Kill/EW)	Project (Number/Name) 3227 / SEWIP Block 2
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3227: SEWIP Block 2	222.056	0.395	0.412	0.315	-	0.315	0.426	0.439	0.450	0.459	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The SEWIP Block 2 program is developing an upgraded antenna, receiver, and combat system interface for SLQ-32. The upgrades are necessary in order to pace the threat, improving detection, accuracy, and mitigation of EMI.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: SEWIP Block 2	0.395	0.412	0.315	0.000	0.315
Articles:	-	-	-	-	-
FY 2015 Accomplishments: - Analyzed and corrected deficiencies.					
FY 2016 Plans: - Continue analysis and make recommendations for corrections of deficiencies.					
FY 2017 Base Plans: - Continue analysis and make recommendations for corrections of deficiencies.					
FY 2017 OCO Plans: - N/A					
Accomplishments/Planned Programs Subtotals					
	0.395	0.412	0.315	0.000	0.315

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• 0204228N/2312: OPN BA-2 AN/SLQ-32(V)	195.082	296.271	274.892	-	274.892	318.819	379.231	511.281	767.214	Continuing	Continuing
• 0204575N/1C2C: OMN BA-1 AN/SLQ-32(V)6	5.447	6.373	11.667	-	11.667	11.927	12.200	12.466	12.691	Continuing	Continuing

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / Ship Self Def (Engage: Soft Kill/EW)	Project (Number/Name) 3227 / SEWIP Block 2

D. Acquisition Strategy

SEWIP will develop Block upgrades to SLQ-32 based on integrating technology advances and adding functional capabilities in an incremental fashion. Each Block and Sub-Block will be developed and contracted in an individual yet coordinated and overlapping fashion.

E. Performance Metrics

- Successfully achieve Block 2 MS C / LRIP DR.
- Successfully complete Block 2 Initial Operational Test & Evaluation (IOT&E).
- Successfully achieve Block 2 Full Rate Production (FRP) DR.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / Ship Self Def (Engage: Soft Kill/EW)	Project (Number/Name) 3227 / SEWIP Block 2
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Block 2 E&MD	C/CPIF	Lockheed Martin : Syracuse, NY	107.833	0.000		0.000		0.000		-		0.000	0.000	107.833	-
Block 2 Preliminary Development	C/CPIF	Lockheed Martin : Syracuse, NY	17.211	0.000		0.000		0.000		-		0.000	0.000	17.211	-
Block 2 SEWTT Development	SS/CPFF	EWA-GSI : Fairmont, WV	1.432	0.000		0.000		0.000		-		0.000	0.000	1.432	-
Block 2 SEWTT Development	WR	NSWC Crane : Crane, IN	0.047	0.000		0.000		0.000		-		0.000	0.000	0.047	-
Subtotal			126.523	0.000		0.000		0.000		-		0.000	0.000	126.523	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Block 2 Integrated Logistics Support	WR	NSWC Crane, DD, NRL, APL : Crane, IN; Dahlgren, VA; Washington DC; Laurel, MD	1.309	0.000		0.000		0.000		-		0.000	0.000	1.309	-
Block 2 Integrated Logistics Support	WR	NSWC Crane : Crane, IN	4.246	0.000		0.000		0.000		-		0.000	0.000	4.246	-
Block 2 Government Engineering Support	WR	NSWC Crane, DD, NRL, APL : Crane, IN; Dahlgren, VA; Washington DC; Laurel, MD	14.710	0.000		0.000		0.000		-		0.000	0.000	14.710	-
Block 2 Government Engineering Support	WR	NSWC Dahlgren : Dahlgren, VA	11.883	0.153	Dec 2014	0.000		0.000		-		0.000	0.000	12.036	-
Block 2 Government Engineering Support	WR	NSWC Crane : Crane, IN	6.372	0.000		0.000		0.000		-		0.000	0.000	6.372	-
Block 2 Government Engineering Support	WR	NRL : Washington, DC	4.314	0.000		0.000		0.000		-		0.000	0.000	4.314	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / Ship Self Def (Engage: Soft Kill/EW)	Project (Number/Name) 3227 / SEWIP Block 2
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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Block 2 Government Engineering Support	SS/CPFF	APL : Laurel, MD	5.348	0.000		0.412	Jan 2016	0.315	Nov 2016	-		0.315	Continuing	Continuing	Continuing
Block 2 - Combat System Integration	SS/CPFF	Raytheon : San Diego, CA	0.250	0.000		0.000		0.000		-		0.000	0.000	0.250	-
Block 2 - MSMO Cost	WR	NSSA Norfolk : Norfolk, VA	1.431	0.000		0.000		0.000		-		0.000	0.000	1.431	-
Block 2 - Mast Study	WR	SUPSHIP : Bath, ME	0.033	0.000		0.000		0.000		-		0.000	0.000	0.033	-
Block 2 - Fleet Support	WR	NSSA SURFLANT : Norfolk, VA	0.030	0.000		0.000		0.000		-		0.000	0.000	0.030	-
Block 2 - Range Cost	WR	NUWC NEWPORT : Newport, RI	0.018	0.000		0.000		0.000		-		0.000	0.000	0.018	-
Subtotal			49.944	0.153		0.412		0.315		-		0.315	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Block 2 Test Planning/T&E Events	WR	NSWC Crane, DD, NRL : Crane, IN; Dahlgren, VA; Washington DC;	2.523	0.000		0.000		0.000		-		0.000	0.000	2.523	-
Block 2 Test Planning/T&E Events	WR	NSWC Crane : Crane, IN	4.772	0.000		0.000		0.000		-		0.000	0.000	4.772	-
Block 2 Test Planning/T&E Events	WR	NSWC Dahlgren : Dahlgren, VA	4.094	0.209	Dec 2014	0.000		0.000		-		0.000	0.000	4.303	-
Block 2 Test Planning/T&E Events	WR	NRL : Washington, DC	5.521	0.000		0.000		0.000		-		0.000	0.000	5.521	-
Block 2 Test Planning/T&E Events	WR	Surface Combat Systems Center : Wallops Island, VA	0.662	0.000		0.000		0.000		-		0.000	0.000	0.662	-
Subtotal			17.572	0.209		0.000		0.000		-		0.000	0.000	17.781	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / Ship Self Def (Engage: Soft Kill/EW)	Project (Number/Name) 3227 / SEWIP Block 2
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Block 2 Program Management Support	C/CPIF	SPA (SEAPORT) : Washington, DC	5.568	0.000		0.000		0.000		-		0.000	0.000	5.568	-
Block 2 Program Management Support	WR	NSWC Crane, DD, PHD, NRL : Crane, IN; Dahlgren, VA; PHD CA; Washington DC;	15.892	0.000		0.000		0.000		-		0.000	0.000	15.892	-
Block 2 Program Management Support	WR	NSWC Dahlgren : Dahlgren, VA	1.596	0.000		0.000		0.000		-		0.000	0.000	1.596	-
Block 2 Program Management Support	WR	NSWC Crane : Crane, IN	1.331	0.000		0.000		0.000		-		0.000	0.000	1.331	-
Block 2 Program Management Support	WR	NRL : Washington, DC	0.627	0.000		0.000		0.000		-		0.000	0.000	0.627	-
Block 2 Program Management Support	MIPR	Navy Post Graduate School : Monterey, CA	0.174	0.000		0.000		0.000		-		0.000	0.000	0.174	-
Block 2 Program Management Support	SS/CPFF	APL : Laurel, MD	1.962	0.000		0.000		0.000		-		0.000	0.000	1.962	-
Block 2 Program Management	WR	NSWC PHD : Port Hueneme, CA	0.091	0.000		0.000		0.000		-		0.000	0.000	0.091	-
Block 2 Travel	WR	NAVSEA Program Office Travel : Washington, DC	0.639	0.033	Oct 2014	0.000		0.000		-		0.000	0.000	0.672	-
Block 2 DoD Acquisition Workforce Fund	Various	Various : Various	0.137	0.000		0.000		0.000		-		0.000	0.000	0.137	-
Subtotal			28.017	0.033		0.000		0.000		-		0.000	0.000	28.050	-

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	222.056	0.395	0.412	0.315	-	0.315	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / Ship Self Def (Engage: Soft Kill/EW)	Project (Number/Name) 3227 / SEWIP Block 2
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Fiscal Year	2015				2016				2017				2018				2019				2020				2021							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Acquisition Milestones			▲					△																								
	Block 2 LRIP #2 DR				Block 2 FRP DR																											
Block 2 Development																																
Block 2 Test and Evaluation Milestones																																
Development Test																																
Operational Test																																

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / <i>Ship Self Def (Engage: Soft Kill/EW)</i>	Project (Number/Name) 3227 / <i>SEWIP Block 2</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3227				
Block 2 LRIP #2 DR	3	2015	3	2015
Block 2 FRP DR	4	2016	4	2016

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604757N / Ship Self Def (Engage: Soft Kill/EW)				Project (Number/Name) 3316 / Advanced Offboard EW			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3316: <i>Advanced Offboard EW</i>	71.261	35.586	32.393	36.080	-	36.080	65.201	81.610	80.856	82.527	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

3316 - The Advanced Offboard EW (AOEW) program is for the development of long duration off-board decoys integrated with onboard systems for EW coordination to counter identified EW gaps (additional details classified) in response to an urgent operational need from the Fleet that has been approved by the CNO for execution. Currently no counter to the threat exists. The program consists of a Rapid Response Effort (RRE) and a Decoy Development Effort (DDE) culminating in the delivery of a fully supported, full capability system. The RRE consists of the evaluation and integration of commercially available decoys. The DDE consists of the development and evaluation of a long duration, active electronic offboard decoy system (payload only) integrated on an existing flight vehicle and an onboard/offboard EW coordinator fully able to counter the threat.

In FY15 and FY16 AOEW includes a government software development effort to integrate AOEW into the Softkill Coordinator (SKC) to gain maximum effectiveness from the AOEW decoy through coordination with on board systems.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: AOEW - Decoy Development Effort (DDE)	31.458	32.393	36.080	0.000	36.080
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					
- Completed development of concepts of operation					
- Continued interoperability analysis					
- Commenced tactics analysis and development					
- Continued acquisition documentation development					
FY 2016 Plans:					
- Award competitive development contract for decoy Preliminary Design/Engineering & Manufacturing Development (E&MD)					
- Commence AOEW SKC development					
- Commence AOEW integration					
- Continue interoperability analysis					
- Continue tactics analysis and development					
- Conduct System Requirements Review					
- Conduct Integrated Baseline Review					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / <i>Ship Self Def (Engage: Soft Kill/EW)</i>	Project (Number/Name) 3316 / <i>Advanced Offboard EW</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Conduct System Functional Review FY 2017 Base Plans: - Complete AOEW Preliminary Design - Continue AOEW SKC development - Conduct Preliminary Design Review - Conduct Critical Design Review FY 2017 OCO Plans: N/A					
Title: AOEW - Rapid Response Effort (RRE) FY 2015 Accomplishments: - Commenced RRE testing FY 2016 Plans: - Complete RRE testing FY 2017 Base Plans: N/A FY 2017 OCO Plans: N/A	0.730 Articles: -	0.000 -	0.000 -	0.000 -	0.000 -
Title: EW Urgent Operational Needs (UONs) FY 2015 Accomplishments: - Completed test of modified MK59 - Commenced modifications to MK59 Decoys (12) - Commenced SLQ-62 modifications and testing FY 2016 Plans: - Complete SLQ-62 modifications and testing FY 2017 Base Plans:	3.398 Articles: -	0.000 -	0.000 -	0.000 -	0.000 -

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / <i>Ship Self Def (Engage: Soft Kill/EW)</i>	Project (Number/Name) 3316 / <i>Advanced Offboard EW</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	35.586	32.393	36.080	0.000	36.080

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• OPN/5231: <i>Ship Missile Support Equipment</i>	35.756	57.791	62.792	-	62.792	80.739	62.163	61.615	62.897	Continuing	Continuing

Remarks

D. Acquisition Strategy
The AOEW DDE decoy is being competitively contracted and developed, and builds on technologies and concepts currently in development by ONR. For RRE, commercially available decoys were procured for evaluation, integration and testing.

E. Performance Metrics

For DDE:
 Complete Analysis of Alternatives.
 Complete systems requirements definition.
 Achieve Milestone (MS) B
 Award Preliminary Design/E&MD contract.
 Conduct System Requirements Review (SRR)
 Conduct System Functional Review (SFR)
 Conduct Preliminary Design Review (PDR)
 Conduct Critical Design Review (CDR)
 Confirm Operational Affectiveness (OA)
 Achieve Milestone (MS) C
 Conduct Initial Operational Test and Evaluation (IOT&E)

For RRE:
 Complete evaluation and integration.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / <i>Ship Self Def (Engage: Soft Kill/EW)</i>	Project (Number/Name) 3316 / <i>Advanced Offboard EW</i>
Complete testing of commercially available decoys.		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / Ship Self Def (Engage: Soft Kill/EW)	Project (Number/Name) 3316 / Advanced Offboard EW
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Analysis of Alternatives	WR	CNA : Alexandria, VA	1.300	0.000		0.000		0.000		-		0.000	0.000	1.300	Continuing
Concept Analysis and Integration Assessment	SS/CPFF	APL : Laurel, MD	4.585	3.173	Feb 2015	1.000	Jan 2016	1.080	Nov 2016	-		1.080	Continuing	Continuing	Continuing
Concept Analysis and Technology Studies	WR	MIT-LL : Boston, MA	1.607	0.973	Feb 2015	0.500	Jan 2016	0.170	Nov 2016	-		0.170	Continuing	Continuing	Continuing
Concept Development and Technology Studies	WR	NRL : Washington, D.C.	14.214	8.089	Oct 2014	2.483	Jan 2016	2.469	Nov 2016	-		2.469	Continuing	Continuing	Continuing
Technology Development and Systems Requirements	WR	NSWC Dahlgren : Dahlgren, VA	1.827	8.639	Oct 2014	4.393	Jan 2016	3.560	Nov 2016	-		3.560	Continuing	Continuing	Continuing
Systems Requirements and Integration Studies	WR	NSWC Crane : Crane, IN	2.233	0.000		0.000		0.000		-		0.000	0.000	2.233	Continuing
Concept Development and Technology Studies	WR	NAVAIR : Patuxent River, MD	0.740	0.000		3.039	Jan 2016	2.206	Nov 2016	-		2.206	Continuing	Continuing	Continuing
RRE Hardware Development	C/CPFF	Airborne Systems : UK	7.400	0.964	Jul 2015	0.000		0.000		-		0.000	0.000	8.364	Continuing
DDE Preliminary Design/ E&MD	C/CPFF	TBD : Not specified	0.000	0.000		10.796	Jun 2016	15.482	Nov 2016	-		15.482	Continuing	Continuing	Continuing
Ship Integration	TBD	TBD : Not specified	0.000	1.497	Dec 2015	0.600	Mar 2016	0.696	Nov 2016	-		0.696	0.000	2.793	-
Subtotal			33.906	23.335		22.811		25.663		-		25.663	-	-	-

Remarks
DDE Preliminary Design contract will be competed and contractor name and location will be added upon contract award in 3rd QTR FY16. The FY17 increased Product Development funding and requirements is attributable to the program entering E&MD in FY17.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Government Development Support	WR	NRL : Washington, DC	5.727	1.237	Oct 2014	1.157	Jan 2016	1.250	Nov 2016	-		1.250	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
1319 / 5				PE 0604757N / Ship Self Def (Engage: Soft Kill/EW)				3316 / Advanced Offboard EW							
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Development and Engineering Support	WR	NSWC Dahlgren : Dahlgren, VA	4.088	2.456	Oct 2014	2.037	Jan 2016	2.199	Nov 2016	-		2.199	Continuing	Continuing	Continuing
Government Engineering Support	WR	NSWC Crane : Crane, IN	5.072	1.594	Oct 2014	1.664	Jan 2016	1.796	Nov 2016	-		1.796	Continuing	Continuing	Continuing
Government Engineering Support	WR	NSWC Carderock : Bethesda, MD	0.495	0.121	Feb 2015	0.150	Jan 2016	0.162	Nov 2016	-		0.162	Continuing	Continuing	Continuing
Systems Engineering Support	SS/CPFF	APL : Laurel, MD	0.501	0.250	Feb 2015	0.500	Jan 2016	0.540	Nov 2016	-		0.540	Continuing	Continuing	Continuing
Government Development Support	WR	NAVAIR : Patuxent River, MD	1.421	0.588	Oct 2014	0.716	Jan 2016	0.773	Nov 2016	-		0.773	Continuing	Continuing	Continuing
Logistics/Training	C/CPFF	Pioneering Evolution : Arlington, VA	0.166	0.000		0.000		0.000		-		0.000	0.000	0.166	-
RRE Installation	WR	Planning Yard : Yokosuka, Japan	0.034	0.000		0.000		0.000		-		0.000	0.000	0.034	-
RRE Installation	SS/CPFF	Planning Yard : Bath, ME	4.254	0.000		0.000		0.000		-		0.000	0.000	4.254	-
EW UON	WR	Cherry Point Army : Aberdeen Proving Ground, MD	0.022	0.000		0.000		0.000		-		0.000	0.000	0.022	-
EW UON	WR	Cherry Point Navy : Cherry Point, NC	0.148	0.000		0.000		0.000		-		0.000	0.000	0.148	-
EW UON	WR	NSWC Indian Head : Indian Head, MD	0.050	0.000		0.000		0.000		-		0.000	0.000	0.050	-
EW UON	WR	NSSA Norfolk : Norfolk, VA	0.070	0.000		0.000		0.000		-		0.000	0.000	0.070	-
RRE Installation	WR	Norfolk Naval Shipyard : Norfolk, VA	2.064	0.000		0.000		0.000		-		0.000	0.000	2.064	-
RRE Installation	WR	Det-Naples : Naples, Italy	0.500	0.000		0.000		0.000		-		0.000	0.000	0.500	-
Logistics/Training	SS/CPFF	EWA : Fairmont, WV	0.000	0.767	Sep 2015	0.000		0.000		-		0.000	0.000	0.767	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / Ship Self Def (Engage: Soft Kill/EW)	Project (Number/Name) 3316 / Advanced Offboard EW
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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			24.612	7.013		6.224		6.720		-		6.720	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test Planning and Development Testing	WR	NRL : Washington, DC	1.588	1.573	Oct 2014	0.658	Jan 2016	0.511	Nov 2016	-		0.511	Continuing	Continuing	Continuing
Test Planning and Development Testing	WR	NSWC/Dahlgren : Dahlgren, VA	1.412	0.417	Oct 2014	0.150	Jan 2016	0.168	Nov 2016	-		0.168	Continuing	Continuing	Continuing
Test Planning and Development Testing	WR	NSWC Crane : Crane, IN	0.458	0.480	Oct 2014	0.150	Jan 2016	0.162	Nov 2016	-		0.162	Continuing	Continuing	Continuing
Test Planning and Development Testing	WR	NAVAIR : Patuxent River, MD	0.000	0.038	Oct 2014	0.500	Jan 2016	0.540	Nov 2016	-		0.540	Continuing	Continuing	Continuing
Test Planning and Development Testing	WR	OPTEVFOR : Norfolk, VA	0.169	0.050	Jul 2015	0.330	Jan 2016	0.356	Nov 2016	-		0.356	Continuing	Continuing	Continuing
Test and Evaluation	WR	Navy Post Graduate School : Monterey, CA	0.090	0.000		0.000		0.000		-		0.000	0.000	0.090	-
EW UON Test and Evaluation	C/FPAF	SRF Rota : Rota, Spain	1.728	0.000		0.000		0.000		-		0.000	0.000	1.728	-
EW UON Test and Evaluation	WR	NSSA Norfolk : Norfolk, VA	0.018	0.000		0.000		0.000		-		0.000	0.000	0.018	-
EW UON Test and Evaluation	WR	SUPSHIP Bath : Bath, ME	1.166	0.000		0.000		0.000		-		0.000	0.000	1.166	-
Subtotal			6.629	2.558		1.788		1.737		-		1.737	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / Ship Self Def (Engage: Soft Kill/EW)	Project (Number/Name) 3316 / Advanced Offboard EW
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support	C/CPIF	SPA (SEAPORT) : Washington, DC	6.041	1.825	Feb 2015	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Program Management Support	SS/CPIF	SPA : Washington, DC	0.000	0.000		0.750	Feb 2016	0.000		-		0.000	0.000	0.750	-
Program Management Support	C/CPIF	TMB (SEAPORT) : Washington, DC	0.000	0.455	May 2015	0.600	Feb 2016	0.756	Nov 2016	-		0.756	0.000	1.811	-
Program Management Support	C/CPIF	CACI (SEAPORT) : Washington, DC	0.000	0.065	Jun 2015	0.150	Feb 2016	0.189	Nov 2016	-		0.189	0.000	0.404	-
Program Management Support	C/CPFF	CSC (SEAPORT) : Washington, DC	0.000	0.315	Apr 2015	0.000		0.000		-		0.000	0.000	0.315	-
Program Management Support	TBD	TBD : TBD	0.000	0.000		0.000		0.945	Nov 2016	-		0.945	0.000	0.945	-
Travel	WR	NAVSEA Program Office Travel : Washington, DC	0.073	0.020	Feb 2015	0.070	Jan 2016	0.070	Nov 2016	-		0.070	Continuing	Continuing	Continuing
Subtotal			6.114	2.680		1.570		1.960		-		1.960	-	-	-

Remarks
The TBD for Program Management Support will be competitively awarded in November 2016.

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	71.261	35.586	32.393	36.080	-	36.080	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy

Date: February 2016

Appropriation/Budget Activity
1319 / 5

R-1 Program Element (Number/Name)
PE 0604757N / Ship Self Def (Engage: Soft Kill/EW)

Project (Number/Name)
3316 / Advanced Offboard EW

Fiscal Year	2015				2016				2017				2018				2019				2020				2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones (TBD)							△ MSB												△ MS C/LRIP DR									
Development																												
Development Test																												

DDE Preliminary Design

DDE/Engineering and Manufacturing Development (E&MD)

RRE Test

DDE Test and Certification

RRE: Rapid Response Effort
DDE: Decoy Development Effort

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / <i>Ship Self Def (Engage: Soft Kill/EW)</i>	Project (Number/Name) 3316 / <i>Advanced Offboard EW</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3316				
RRE Test	1	2015	2	2016
Milestone (MS) B	3	2016	3	2016
DDE Preliminary Design	3	2016	3	2017
System Requirements Review (SRR) / System Functional Review (SFR)	4	2016	4	2016
Preliminary Design Review (PDR)	2	2017	2	2017
DDE / E&MD	3	2017	1	2020
Critical Design Review (CDR)	4	2017	4	2017
DDE Test and Certification	1	2018	1	2019
Operational Assessment (OA)	1	2019	1	2019
Milestone (MS) C / LRIP DR	3	2019	3	2019
Initial Operational Test and Evaluation (IOT&E)	3	2020	3	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / Ship Self Def (Engage: Soft Kill/EW)	Project (Number/Name) 3321. / SEWIP Block 3
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3321.: SEWIP Block 3	222.155	58.005	60.060	62.560	-	62.560	37.067	37.397	38.147	39.002	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

SEWIP Block 3 is developing an Electronic Attack (EA) capability improvement required for the AN/SLQ-32(V) system to keep pace with the threat. SEWIP Block 3 is developing a common EA capability to all surface combatants (CVN, CG, DDG, LHD) outfitted with the active variant of the AN/SLQ-32, mainly the (V)3 and (V)4, as well as select new-construction platforms.

The SEWIP Block 3 Acquisition leverages technology developed under the Office of Naval Research's (ONR) Integrated Topside (InTop) Science and Technology (S&T) effort. SEWIP Block 3 will continue to expand the integrated shipboard combat system by providing a new integrated Electronic Attack (EA) transmitter, array, and associated EA techniques. The program builds on the EW Support (ES) capability delivered by SEWIP Blocks 1 and 2. SEWIP Block 3 includes a government software development effort for a SoftKill Coordinator (SKC) to manage EA engagements. SEWIP Block 3 is developing an EW testbed to validate system performance.

SEWIP Block 3 developed and deployed a limited interim capability, starting in 2014, of a focused application of the Naval Research Lab (NRL) Transportable EW Module (TEWM) systems to support CNO Urgent Operational Needs (UON). Block 3T (AN/SLQ-59) is the TEWM system supporting the 7th fleet UON. TEWM Speed to Fleet (STF) (AN/SLQ-62) is the TEWM system supporting the 6th fleet UON.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: SEWIP Block 3 Government Engineering	31.344	21.389	20.460	0.000	20.460
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					
<ul style="list-style-type: none"> - Awarded Preliminary Design contract. - Conducted Integrated Baseline Review (IBR) for Preliminary Design. - Supported System Functional Review (SFR) and System Requirements Review (SRR). - Supported Preliminary Design Review (PDR). - Exercised Engineering and Manufacturing Development (E&MD) option. - Commenced EW testbed model development. - Supported integrated topside design activities with multiple ship classes. - Supported integration activities to ensure compatibility with AEGIS and SSDS Combat Systems. - Continued system engineering. - Developed end-to-end SKC model for EW testbed. 					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / <i>Ship Self Def (Engage: Soft Kill/EW)</i>	Project (Number/Name) 3321. / <i>SEWIP Block 3</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<ul style="list-style-type: none"> - Continued SKC software development for radar cued engagements. - Conducted SKC subsystem PDR. - Conducted SKC subsystem Critical Design Review (CDR). - Commenced SKC integration activities with AEGIS ACB-16 Combat System. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Complete Preliminary Design. - Support CDR. - Conduct IBR for E&MD. - Continue EW testbed model development and verification/validation of model performance. - Continue systems engineering activities for detailed design. - Continue integrated topside design activities with multiple ship classes. - Support integration activities to ensure compatibility with AEGIS and SSDS Combat Systems. - Commence SKC software development for EA functionality. - Continue SKC integration activities with AEGIS ACB-16 Combat System. - Complete SKC software development for radar cued engagements. <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> - Support and oversee Engineering Development Model (EDM) development and integration. - Commence Milestone C acquisition documentation preparation. - Perform test planning for Formal Qualification Testing (FQT), Operational Assessment (OA), Block 3 Stand-Alone Operation, and Threat Engagements. - Perform test facilities planning at Chesapeake Beach Detachment (CBD) and Wallops Island. - Implement test facilities infrastructure improvements (power handling upgrades, cooling infrastructure, antenna mounting platform, cabling, connections, security fencing) - Develop and procure special test equipment (Combat Electromagnetic Environment Simulator, Techniques Generator, command and control test trailer, and referee receiver) - Continue EW testbed model development and verification/validation of model performance. - Continue integrated topside design activities with multiple ship classes. - Perform development and procurement of test assets for Initial Operational Test and Evaluation (IOT&E). - Support integration activities to ensure compatibility with AEGIS and SSDS Combat Systems. - Deliver SKC code to Block 3 system integrator in support of FQT. - Continue SKC integration activities with AEGIS ACB-16. - Continue SKC software development for EA functionality. 					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / Ship Self Def (Engage: Soft Kill/EW)	Project (Number/Name) 3321. / SEWIP Block 3
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Support LRIP LLM authorization. FY 2017 OCO Plans: - N/A					
Title: SEWIP Block 3 Development	18.341	38.671	41.600	0.000	41.600
Articles:	-	-	-	-	-
FY 2015 Accomplishments: - Commenced Preliminary Design. - Supported IBR for Preliminary Design. - Conducted SFR and SRR. - Conducted PDR. - Commenced E&MD. - Commenced integrated topside design activities with multiple ship classes. - Commenced integration activities to ensure compatibility with AEGIS and SSDS Combat Systems.					
FY 2016 Plans: - Complete Preliminary Design - Continue E&MD - Conduct CDR. - Support IBR for E&MD. - Continue integrated topside design activities with multiple ship classes. - Continue integration activities to ensure compatibility with AEGIS and SSDS Combat Systems.					
FY 2017 Base Plans: - Continue E&MD. - Commence EDM build and integration. - Commence test planning for FQT and OA. - Continue integrated topside design activities with multiple ship classes. - Continue integration activities to ensure compatibility with AEGIS and SSDS Combat Systems. - Commence SEWTT development.					
FY 2017 OCO Plans: - N/A					
Title: SEWIP Block 3T (AN/SLQ-59) Systems Engineering	7.000	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / Ship Self Def (Engage: Soft Kill/EW)	Project (Number/Name) 3321. / SEWIP Block 3

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p align="right"><i>Articles:</i></p> <p>FY 2015 Accomplishments: - Completed systems engineering and technical support for the installation, verification, and checkout of two Block 3T prototype systems.</p> <p>FY 2016 Plans: - N/A</p> <p>FY 2017 Base Plans: - N/A.</p> <p>FY 2017 OCO Plans: - N/A</p>	-	-	-	-	-
<p>Title: TEWM Speed To Fleet (STF) (AN/SLQ-62) Development</p> <p align="right"><i>Articles:</i></p> <p>FY 2015 Accomplishments: - Completed development of the TEWM STF system.</p> <p>FY 2016 Plans: - N/A</p> <p>FY 2017 Base Plans: - Complete development of TEWM Speed To Fleet (STF) (AN/SLQ-62) upgrade.</p> <p>FY 2017 OCO Plans: - N/A</p>	0.691 -	0.000 -	0.200 -	0.000 -	0.200 -
<p>Title: TEWM Speed to Fleet (STF) (AN/SLQ-62) Systems Engineering</p> <p align="right"><i>Articles:</i></p> <p>FY 2015 Accomplishments: - Completed TEWM STF systems engineering and integration.</p> <p>FY 2016 Plans: - N/A</p> <p>FY 2017 Base Plans:</p>	0.629 -	0.000 -	0.300 -	0.000 -	0.300 -

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / Ship Self Def (Engage: Soft Kill/EW)	Project (Number/Name) 3321. / SEWIP Block 3
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Complete TEWM Speed To Fleet (STF) (AN/SLQ-62) systems engineering, integration, and test.					
FY 2017 OCO Plans: - N/A					
Accomplishments/Planned Programs Subtotals	58.005	60.060	62.560	0.000	62.560

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0204228N/2312: AN/SLQ-32	195.082	296.271	274.892	-	274.892	318.819	379.231	511.281	767.214	Continuing	Continuing

Remarks

D. Acquisition Strategy
 SEWIP will develop block upgrades to SLQ-32 based on integrating technology advances and adding functional capabilities in an incremental fashion. Each block and sub-block will be developed and contracted in an individual yet coordinated and overlapping fashion. Specifically, SEWIP Block 3 involves the transitioning and leveraging of work performed under the INTOP program sponsored by ONR, which focused on designing/architecting an integrated Electronic Attack (EA), Information Operations (IO), and Line of Site (LOS) Comms system for Naval Surface Platforms. SEWIP Block 3 also leverages work performed under the TEWM program that is sponsored by NRL that focuses on technique development and active engagement analysis/modeling for Naval surface combatants. TEWM includes Block 3T (AN/SLQ-59) system supporting the 7th fleet UON and TEWM STF (AN/SLQ-62) system supporting the 6th fleet UON.

E. Performance Metrics
 Achieve Block 3 Milestone (MS) B.
 Complete Block 3T and Speed to Fleet (STF) development.
 Complete Block 3T and STF integration and testing.
 Award Preliminary Design Contract.
 Conduct System Functional Review (SFR) and System Requirements Review (SRR).
 Conduct Preliminary Design Review (PDR).
 Exercise Engineering & Manufacturing Development (E&MD) option.
 Conduct Critical Design Review (CDR).
 Achieve Block 3 MS C / Low Rate Initial Production (LRIP) Decision Review (DR).
 Complete Formal Qualification Testing (FQT).
 Complete Operational Assessment (OA).
 Complete Test Readiness Review (TRR).

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / <i>Ship Self Def (Engage: Soft Kill/EW)</i>	Project (Number/Name) 3321. / <i>SEWIP Block 3</i>
Complete TECHEVAL. Complete Initial Operational Test & Evaluation (IOT&E). Achieve Block 3 Full Rate Production (FRP) DR.		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / Ship Self Def (Engage: Soft Kill/EW)	Project (Number/Name) 3321. / SEWIP Block 3
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Block 3 Technology Demonstration	SS/CPFF	Northrop Grumman: Linthicum, MD : Raytheon: Tewksbury, MA	37.195	0.000		0.000		0.000		-		0.000	0.000	37.195	-
Block 3T Primary Hardware Development	C/CPFF	ITT Exelis : Alexandria, VA	54.624	0.000		0.000		0.000		-		0.000	0.000	54.624	-
Block 3 SEWTT Development	SS/CPFF	EWA-GSI : Fairmont, WV	1.619	0.000		0.000		0.100	Nov 2016	-		0.100	Continuing	Continuing	Continuing
TEWM STF Primary Hardware Development	WR	NRL : Washington, DC	7.000	0.691	Feb 2015	0.000		0.200	Nov 2016	-		0.200	0.000	7.891	-
Block 3 Preliminary Design/E&MD	C/CPIF	Northrop Grumman : Baltimore, MD	0.000	18.341	Feb 2015	38.671	Jan 2016	41.500	Nov 2016	-		41.500	Continuing	Continuing	Continuing
Subtotal			100.438	19.032		38.671		41.800		-		41.800	-	-	-

Remarks
The increase in SEWIP Block 3 Development in FY17 is due to commencement of EDM build and integration, using the material purchased in FY16, commencement of test planning for FQT and OA testing, and full hardware/software integration and testing of the EDMs.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Block 3 Integrated Logistics Support	WR	NSWC Crane : Crane, IN	6.101	2.151	Nov 2014	1.859	Jan 2016	1.700	Nov 2016	-		1.700	Continuing	Continuing	Continuing
Block 3 Integrated Logistics Support	WR	NSWC Carderock : Bethesda, MD	0.000	0.133	Nov 2014	0.139	Jan 2016	0.142	Nov 2016	-		0.142	Continuing	Continuing	Continuing
Block 3 Government Engineering Support	WR	NSWC Dahlgren : Dahlgren, VA	13.249	6.551	Nov 2014	5.225	Jan 2016	2.050	Nov 2016	-		2.050	Continuing	Continuing	Continuing
Block 3 Government Engineering Support	WR	NSWC Crane : Crane, IN	5.314	0.799	Oct 2014	1.697	Jan 2016	0.800	Nov 2016	-		0.800	Continuing	Continuing	Continuing
Block 3 Government Engineering Support	WR	NRL : Washington, DC	12.504	4.449	Nov 2014	1.996	Jan 2016	1.983	Nov 2016	-		1.983	0.000	20.932	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / Ship Self Def (Engage: Soft Kill/EW)	Project (Number/Name) 3321. / SEWIP Block 3
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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Block 3 Government Engineering Support	SS/CPFF	APL : Laurel, MD	14.923	6.542	Feb 2015	3.838	Jan 2016	2.140	Nov 2016	-		2.140	Continuing	Continuing	Continuing
Block 3 Government Engineering Support	WR	MIT-LL : Cambridge, MA	3.099	1.582	Jan 2015	0.123	Jan 2016	0.150	Nov 2016	-		0.150	Continuing	Continuing	Continuing
Block 3 Government Engineering Support	WR	GTRI : Atlanta, GA	1.040	0.000		0.000		0.000		-		0.000	0.000	1.040	-
Block 3 Feasibility Studies	C/BA	BIW : Bath, ME	0.000	0.039	Apr 2015	0.000		0.000		-		0.000	0.000	0.039	-
Block 3 Feasibility Studies	C/BA	Norfolk Naval Shipyard (NNSY) : Norfolk, VA	0.000	0.040	Apr 2015	0.000		0.000		-		0.000	0.000	0.040	-
Block 3 Feasibility Studies	C/BA	SUPSHIP Gulf Coast : Pascagoula, MS	0.000	0.062	Mar 2015	0.000		0.000		-		0.000	0.000	0.062	-
Block 3T Systems Engineering	WR	NRL : Washington, DC	13.532	7.000	Apr 2015	0.000		0.000		-		0.000	0.000	20.532	-
TEWM STF Systems Engineering	WR	NRL : Washington, DC	5.391	0.300	Feb 2015	0.000		0.050	Nov 2016	-		0.050	0.000	5.741	-
TEWM STF Systems Engineering	WR	NSWC Crane : Crane, IN	0.000	0.329	Feb 2015	0.000		0.000		-		0.000	0.000	0.329	-
Subtotal			75.153	29.977		14.877		9.015		-		9.015	-	-	-

Remarks
The \$7.000M increase in FY15 under Block 3T systems engineering is associated with the systems engineering and technical support for the installation, verification, and checkout of two Block 3T prototype systems.

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Block 3 Test Planning/T&E Events	WR	NSWC Dahlgren : Dahlgren, VA	3.024	0.677	Nov 2014	0.193	Jan 2016	1.500	Nov 2016	-		1.500	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / Ship Self Def (Engage: Soft Kill/EW)	Project (Number/Name) 3321. / SEWIP Block 3
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Block 3 Test Planning/T&E Events	WR	NSWC Crane : Crane, IN	1.701	0.460	Oct 2014	0.337	Jan 2016	1.500	Nov 2016	-		1.500	Continuing	Continuing	Continuing
Block 3 Test Planning/T&E Events	WR	NRL : Washington, DC	5.407	1.961	Nov 2014	2.066	Jan 2016	4.500	Nov 2016	-		4.500	Continuing	Continuing	Continuing
Block 3 Test Planning/T&E Events	WR	COMOPTEVFOR : Norfolk, VA	0.000	0.165	Feb 2015	0.082	Jan 2016	0.150	Nov 2016	-		0.150	Continuing	Continuing	Continuing
TEWM Testing	WR	NRL : Washington, DC	10.641	0.000		0.000		0.000		-		0.000	0.000	10.641	-
TEWM STF Testing	WR	NRL : Washington, DC	4.199	0.000		0.000		0.250	Nov 2016	-		0.250	0.000	4.449	-
Subtotal			24.972	3.263		2.678		7.900		-		7.900	-	-	-

Remarks
The increase in FY17 SEWIP Block 3 Test Planning is due to ramp up of test planning activities including the preparation of the testing facilities infrastructure (Chesapeake Beach Detachment (CBD) Land Based Test Site, test control stations, and test support equipment) and the development and procurement of test assets to support FY18 testing events.

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Block 3 Program Management Support	C/CPIF	SPA (SEAPORT) : Washington, DC	14.295	4.588	Feb 2015	0.000		0.000		-		0.000	0.000	18.883	-
Block 3 Program Management Support	C/CPIF	TMB (SEAPORT) : Washington, DC	0.000	0.154	Apr 2015	0.764	Feb 2016	0.753	Nov 2016	-		0.753	Continuing	Continuing	Continuing
Block 3 Program Management Support	SS/CPIF	SPA : Washington, DC	0.000	0.000		2.121	Feb 2016	0.000		-		0.000	0.000	2.121	-
Block 3 Program Management Support	TBD	TBD : TBD	0.000	0.000		0.000		2.091	Nov 2016	-		2.091	Continuing	Continuing	Continuing
Block 3 Program Management Support	WR	NSWC Dahlgren : Dahlgren, VA	3.814	0.237	Nov 2014	0.192	Jan 2016	0.198	Nov 2016	-		0.198	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / Ship Self Def (Engage: Soft Kill/EW)	Project (Number/Name) 3321. / SEWIP Block 3
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Block 3 Program Management Support	WR	NRL : Washington, DC	1.518	0.364	Nov 2014	0.362	Jan 2016	0.373	Nov 2016	-		0.373	Continuing	Continuing	Continuing
Block 3 Program Management Support	MIPR	DISA : Laurel, MD	0.227	0.213	Feb 2015	0.212	Jan 2016	0.220	Nov 2016	-		0.220	Continuing	Continuing	Continuing
Block 3 Travel	WR	NAVSEA Program Office : Washington, DC	0.244	0.050	Oct 2014	0.050	Jan 2016	0.080	Nov 2016	-		0.080	Continuing	Continuing	Continuing
Block 3 Program Management Support	WR	NSWC Crane : Crane, IN	1.494	0.127	Oct 2014	0.133	Jan 2016	0.130	Nov 2016	-		0.130	Continuing	Continuing	Continuing
Subtotal			21.592	5.733		3.834		3.845		-		3.845	-	-	-

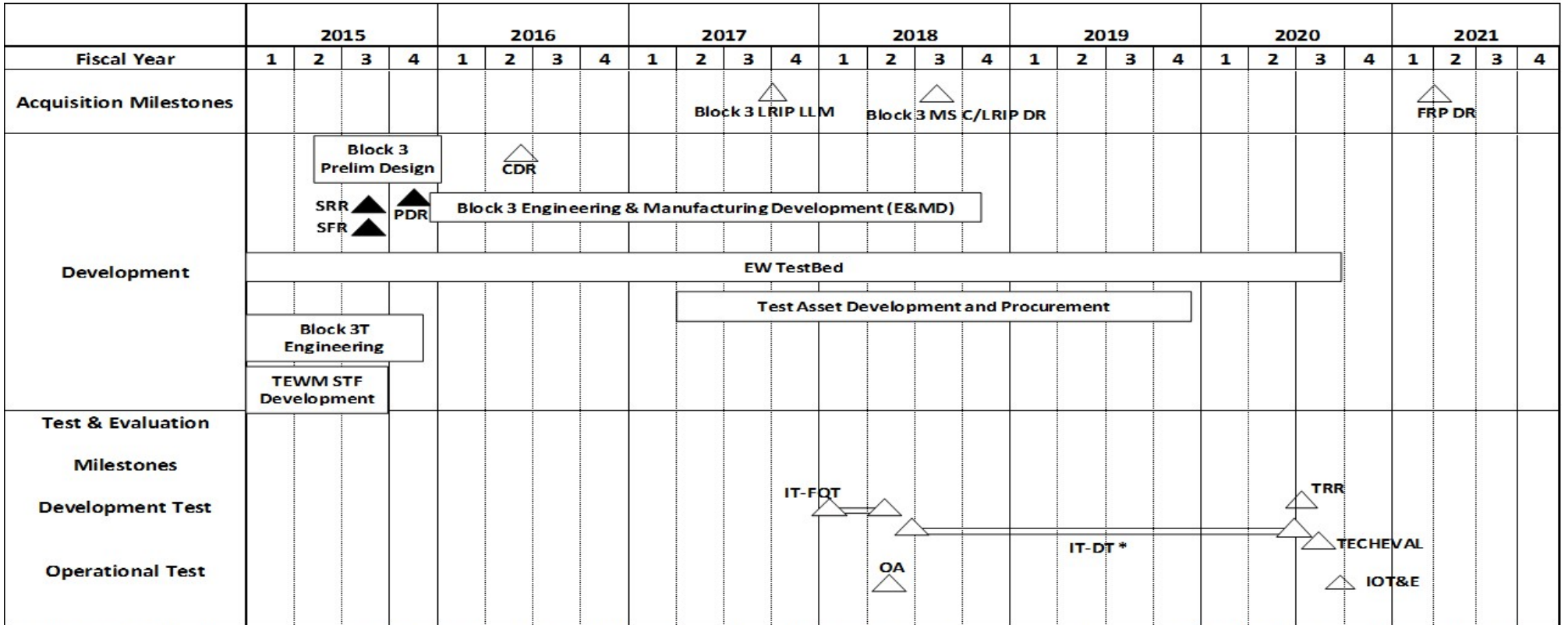
Remarks
The TBD for Program Management Support will be competitively awarded in November 2016.

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	222.155	58.005	60.060	62.560	-	62.560	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy																	Date: February 2016							
Appropriation/Budget Activity 1319 / 5										R-1 Program Element (Number/Name) PE 0604757N / Ship Self Def (Engage: Soft Kill/EW)							Project (Number/Name) 3321.1 SEWIP Block 3							



* Includes the following test events: : Land Test-Block 3 Stand-Alone Operation, Flight Test-Threat Engagements (over water), IA / Maint Demo (Dry Run), CMS Integration (Aegis), CMS Integration (SSDS), DDG-51 Combat System Certification (Aegis Integration), CVN-78 Combat System Certification (SSDS Integration), Environment, EMI, RCS, and Shock Tests

Acronyms: CDR-Critical Design Review; DR-Decision Review; DT-Developmental Test; FQT-Formal Qualification Testing; FRP-Full Rate Production; IOT&E-Initial Operational Test & Evaluation; IT-Integrated Testing; LLM-Long Lead Material; LRIP-Low Rate Initial Production; MS-Milestone; OA-Operational Assessment; PDR-Preliminary Design Review; SFR-System Functional Review; SRR-System Requirements Review; TRR-Test Readiness Review

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604757N / Ship Self Def (Engage: Soft Kill/EW)	Project (Number/Name) 3321.1 SEWIP Block 3

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3321.L24				
TEWM Speed to Fleet Development	1	2015	3	2015
Block 3T Engineering	1	2015	4	2015
Block 3 Preliminary Design	2	2015	2	2015
EW Testbed	1	2015	3	2020
SRR	3	2015	3	2015
SFR	3	2015	3	2015
PDR	4	2015	4	2015
Block 3 Engineering and Manufacturing Development (E&MD)	4	2015	4	2018
CDR	2	2016	2	2016
Test Asset Development and Procurement	2	2017	4	2019
Block 3 LRIP LLM	3	2017	4	2017
Block 3 Integrated Testing	1	2018	3	2020
Block 3 FQT	1	2018	2	2018
Block 3 Operational Assessment	2	2018	2	2018
Block 3 MS C/LRIP DR	3	2018	3	2018
Block 3 TECHEVAL	3	2020	3	2020
Block 3 IOT&E	3	2020	4	2020
Block 3 FRP DR	1	2021	2	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604761N / <i>Intelligence Engineering</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	1.984	0.200	2.053	11.029	-	11.029	15.455	12.522	10.571	10.660	Continuing	Continuing
3103: <i>Intelligence Engineering</i>	1.984	0.200	2.053	11.029	-	11.029	15.455	12.522	10.571	10.660	Continuing	Continuing

A. Mission Description and Budget Item Justification

This RDTEN project is the Navy Foreign Materiel Project (FMP). The FMP provides high leverage cost benefit through acquisition of foreign manufactured equipment with military application and potential military application and the subsequent exploitation of that materiel for the development of countermeasures and tactics.

B. Program Change Summary (\$ in Millions)

	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>
Previous President's Budget	0.200	4.353	4.207	-	4.207
Current President's Budget	0.200	2.053	11.029	-	11.029
Total Adjustments	0.000	-2.300	6.822	-	6.822
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-2.300			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Rate/Misc Adjustments	0.000	0.000	6.822	-	6.822

Change Summary Explanation

The Foreign Materiel Program supports acquisition & exploitation of foreign materiel with an expanding focus on left of the kill chain systems which are typically more expensive. Details are at a higher classification.

FY 2017 decrease in Intelligence Engineering RDTEN by \$0.168M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604761N / Intelligence Engineering				Project (Number/Name) 3103 / Intelligence Engineering			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3103: <i>Intelligence Engineering</i>	1.984	0.200	2.053	11.029	-	11.029	15.455	12.522	10.571	10.660	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

(U) The FMP provides high leverage cost benefit through acquisition of foreign manufactured equipment with military application and potential military application and the subsequent exploitation of that materiel for development of deployable countermeasures and tactics.

Further Mission description is at a higher classification

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Intelligence Engineering	0.200	2.053	11.029	0.000	11.029
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Foreign Materiel Acquisition \$.200					
FY 2016 Plans: Foreign Materiel Acquisition \$2.053 Details at a higher classification					
FY 2017 Base Plans: Foreign Materiel Acquisition \$11.029 Details at a higher classification					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.200	2.053	11.029	0.000	11.029

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

(U)The FMP program combines operational, intelligence and RDT&E requirements into a prioritized list used to identify which acquisition opportunities will obtain priority for funding. After acquisition development the FMP executes the acquisition upon receiving approval by the Deputy Director of Naval Intelligence (DDNI).

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604761N / <i>Intelligence Engineering</i>	Project (Number/Name) 3103 / <i>Intelligence Engineering</i>

E. Performance Metrics

Program direction is dependent upon guidance provided by 6 warfare area planning groups.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604761N / <i>Intelligence Engineering</i>	Project (Number/Name) 3103 / <i>Intelligence Engineering</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Project EKUL	WR	NUWC : Keyport, WA	0.684	0.000		0.000		0.000		-		0.000	0.000	0.684	-
Project WILDEBEEST	WR	NSMA : JBAB, Wash DC	1.300	0.000	May 2015	0.000		0.000		-		0.000	0.000	1.300	-
Project PLOTINIC	WR	NSMA : JBAB, Washington DC	0.000	0.200	Apr 2016	2.053	Apr 2016	11.029	Jan 2017	-		11.029	Continuing	Continuing	Continuing
Subtotal			1.984	0.200		2.053		11.029		-		11.029	-	-	-

Remarks
Further description of cost categories are at a higher classification.

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	1.984	0.200	2.053	11.029	-	11.029	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604761N / <i>Intelligence Engineering</i>	Project (Number/Name) 3103 / <i>Intelligence Engineering</i>
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FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Proj 3103	
Project PLOTINIC	[REDACTED]

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604761N / <i>Intelligence Engineering</i>	Project (Number/Name) 3103 / <i>Intelligence Engineering</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Proj 3103</i>				
Project PLOTINIC	3	2015	3	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604771N / <i>Medical Development</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	99.660	26.589	25.291	9.220	-	9.220	9.313	9.570	9.776	9.968	Continuing	Continuing
0933: <i>Medical/Dental Equipment Dev</i>	16.884	8.089	9.291	9.220	-	9.220	9.313	9.570	9.776	9.968	Continuing	Continuing
9999: <i>Congressional Adds</i>	82.776	18.500	16.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	117.276

A. Mission Description and Budget Item Justification

The purpose of this item is to develop biomedical equipment and related techniques to reduce morbidity; to enhance the logistic feasibility of modern medical care for combat casualties; to sustain casualties for evacuation to fixed medical facilities for definitive care; and to ensure that personnel are medically qualified for military duty. Each work unit undertaken in this project has a military requirement. Efforts are justified based upon military payoff and cost benefit. There is a strong potential for dual use, technology transfer, and biotechnology firm/industry participation in the projects.

B. Program Change Summary (\$ in Millions)

	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>
Previous President's Budget	27.287	9.443	9.599	-	9.599
Current President's Budget	26.589	25.291	9.220	-	9.220
Total Adjustments	-0.698	15.848	-0.379	-	-0.379
• Congressional General Reductions	-	-	-	-	-
• Congressional Directed Reductions	-	-0.152	-	-	-
• Congressional Rescissions	-	-	-	-	-
• Congressional Adds	-	16.000	-	-	-
• Congressional Directed Transfers	-	-	-	-	-
• Reprogrammings	-	-	-	-	-
• SBIR/STTR Transfer	-0.698	0.000	-	-	-
• Rate/Misc Adjustments	0.000	0.000	-0.379	-	-0.379

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 9999: *Congressional Adds*

Congressional Add: *Military Dental Research*

Congressional Add: *Wound Care Research (transferred from Defense Health Program)*

Congressional Add Subtotals for Project: 9999

Congressional Add Totals for all Projects

	FY 2015	FY 2016
	5.895	6.000
	12.605	10.000
	18.500	16.000
	18.500	16.000

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy Date: February 2016

Appropriation/Budget Activity
1319: *Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)*

R-1 Program Element (Number/Name)
PE 0604771N / *Medical Development*

Change Summary Explanation

The FY 2017 funding request was reduced by -\$0.278 million as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604771N / <i>Medical Development</i>				Project (Number/Name) 0933 / <i>Medical/Dental Equipment Dev</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
0933: <i>Medical/Dental Equipment Dev</i>	16.884	8.089	9.291	9.220	-	9.220	9.313	9.570	9.776	9.968	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The purpose of this budget item is to develop biomedical equipment and related techniques to reduce morbidity; to enhance the logistic feasibility of modern medical care for combat casualties; to sustain casualties for evacuation to fixed medical facilities for definitive care; and to ensure that personnel are medically qualified for military duty. Each work unit undertaken in this project has a military requirement. Efforts are justified based upon military payoff and cost benefit. There is a strong potential for dual use, technology transfer, and biotechnology firms/industry participation in the projects.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Medical/Dental Equipment Dev	8.089	9.291	9.220	0.000	9.220
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					
-Continued to augment efforts with the ongoing clinical trial effort to test, for safety and efficacy, a militarily relevant malaria vaccine regimen utilizing a promising vaccine candidate. Initiated cellular immunity studies on FDA Phase 1 clinical trial samples.					
-Continued utilization validation of Individual Fatigue-Based Scheduling and Countermeasure System that predicts, prevents, detects, and mitigates periods of high risk associated with fatigue. Transitioned schedule based crew qualification logic for incorporation into the graphical user interface.					
-Continued controlled efficacy study of an intradermal vaccine to an experimental challenge of model of Enterotoxigenic Escherichia coli (ETEC). Initiated third clinical trial cohort.					
-Continued transition projects from the Force Health Protection Future Naval Capability Program (FNC). Product focus is management of casualties during the extended distances and times required to support the Naval Expeditionary Health Services. Major efforts to include cerebral perfusion pressure and hemorrhage control (including Multifunctional Resuscitation Fluid).					
-Continued to validate the quality control analysis of shelf life extension and bioavailability of intranasal scopolamine for the prevention of motion sickness in dynamic military environments. Presented intranasal scopolamine nasal gel motion sickness trial results at FDA meeting.					
-Continued joint development projects with MARCORSSYSCOM acquisition including developing Mobile Oxygen Ventilation and External Suction (MOVES) SLC development, to include new test and evaluation following improved ruggedization.					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604771N / <i>Medical Development</i>	Project (Number/Name) 0933 / <i>Medical/Dental Equipment Dev</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>-Initiated Naval Expeditionary Health Service Support: Shore based capabilities based military treatment facility.</p> <p>-Completed validation of computer color vision test (CCVT) for use in Naval Aviation. Chief of Naval Air Forces recommended to BUMED that CCVT test be incorporated into NAVMED P-117.</p> <p><i>FY 2016 Plans:</i></p> <p>-Continue support of ongoing clinical trial effort to test, for safety and efficacy, a militarily relevant malaria vaccine regimen utilizing a promising vaccine candidate. Initiate validation of Good Manufacturing Practices (GMP) support for vaccine production scale up.</p> <p>-Continue field user evaluation and validation of Individual Fatigue-Based Scheduling and Countermeasure System that predicts, detects, and prevents or mitigates fatigue during periods of high risk. Individualized performance risk will be predicted and prevented by providing individual fatigue optimized schedules and mitigation strategies for the operating forces.</p> <p>-Continue controlled efficacy study of an intradermal vaccine to an experimental challenge model of Enterotoxigenic Escherichia coli (ETEC). Complete analysis of third clinical trial cohort.</p> <p>-Continue development of transitioned FNC products for cerebral perfusion pressure management and massive hemorrhage control.</p> <p>-Continue stability studies to validate the quality control analysis of shelf life extension and bioavailability of intranasal scopolamine for the prevention of motion sickness in dynamic military environments.</p> <p>-Continue Naval Expeditionary Health Service Support. Primary focus includes: 1) support of shore based and afloat Capabilities-Based Military Treatment Facility consistent with medical mission module evolving concepts; 2) Enhancing casualty treatment capabilities while reducing the overall logistics burden.</p> <p>-Continue joint development projects with MARCORSSYSCOM acquisition for medical products and equipment.</p> <p><i>FY 2017 Base Plans:</i></p> <p>-Continue to augment efforts with the ongoing clinical trial effort to test, for safety and efficacy, a militarily relevant malaria vaccine regimen utilizing a promising vaccine candidate. Continue with validation of manufacturing support for vaccine production scale up.</p> <p>-Continue utilization validation of Individual Fatigue-Based Scheduling and Countermeasure System that predicts, prevents, detects, and mitigates periods of high risk associated with fatigue. Individualized performance risk will be predicted and prevented by providing individual fatigue optimized schedules and mitigation strategies.</p> <p>-Continue development of transitioned FNC products and technologies for cerebral perfusion pressure and hemorrhage control.</p> <p>-Complete primary investment to validate the quality control analysis of shelf life extension and bioavailability of intranasal scopolamine for the prevention of motion sickness in dynamic military environments.</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604771N / <i>Medical Development</i>	Project (Number/Name) 0933 / <i>Medical/Dental Equipment Dev</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
-Continue Naval Expeditionary Health Service Support efforts. Primary focus includes: 1) Completion of the extended distances and time considerations; and 2) Continue en route care, patient transport and trauma care systems associated with the time distance continuum in a sea base environment. -Continue joint development projects with MARCORSSYSCOM acquisition for medical products and equipment. FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	8.089	9.291	9.220	0.000	9.220

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

The acquisition strategy for product lines and products in the Medical Development Program is designed and implemented consistent with the purpose of the particular product and with the nature and size of the investment. The Medical Development Program has a Memorandum of Agreement with the Marine Corps Systems Command (Family of Field Medical Equipment) for co-development of products for procurement by the USMC. The acquisition strategy for products involves direct partnership with the acquisition and procurement professionals at Marine Corps Systems Command.

The major Product Areas in the Medical Development Program are: 1) Equipment, 2) Pharmaceuticals/Biologics, and 3) Operational Knowledge/Concepts. The primary Program Areas of Interest are in: 1) Naval Expeditionary Health Services Support (Navy in Terrestrial, Maritime Surface, Submarine, & Aviation Operations), 2) USMC in Expeditionary Operations and 3) Products for battlefield treatment and en route care of Combat Casualties & Combat Trauma, focusing on delivery of care within the seabase and the littoral environment.

For Product Areas 1 and 2, there are two primary acquisition strategies. The first is to test and evaluate for Naval application commercially-developed medical product or candidates in managed trials with the ultimate goal of Food and Drug Administration (FDA) approval. Partnerships with commercial developers promotes developing products of military interest for procurement by the Operating Forces. A second benefit of this strategy is that products are made available across the DoD, Federal Government, and commercial market, thus reducing overall procurement costs. During development, DoD end users are included in the process to the extent possible. The second strategy is to drive a collaborative development process with larger DoD program investments. Navy and Marine Corps needs can be met at lower service cost. This process involves developing in-house or industrial prototypes in government-managed programs to meet Naval needs while meeting regulatory requirements for production and fielding. Both tactics promote development of procurement plans that align product availability with Service integration strategies.

The Third Product Area (Knowledge/Concepts) is focused on the introduction of technologies, techniques, and procedures that enhance medical practice and standards of care for effective delivery of health care and casualty care in the Naval operating environment. These primarily require early involvement of the senior leadership

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy Date: February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604771N / <i>Medical Development</i>	Project (Number/Name) 0933 / <i>Medical/Dental Equipment Dev</i>
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of military medicine, in that the end product of the program is modification of concepts of operations, policy, and/or doctrine. While these are often much smaller investments, they can have a substantial impact on the care of Sailors and Marines; Medical Development Program examples include Navy/USMC Medical Planning Requirement Assessment and Color Vision Screening Validation.

E. Performance Metrics

Successful completion of Milestones/Demonstration Events for individualized project/product roadmap, on time and on budget. Ensuring dependencies across multiple efforts are maintained on schedule are primary metrics.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604771N / <i>Medical Development</i>	Project (Number/Name) 0933 / <i>Medical/Dental Equipment Dev</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Malaria Vaccine	SS/CR	Sanaria, Inc. : Rockville, MD	0.000	2.000	Aug 2015	1.500	Aug 2016	0.785	Aug 2017	-		0.785	Continuing	Continuing	Continuing
Malaria Vaccine	Allot	Naval Medical Research Center : Silver Spring, MD	0.840	0.432	Mar 2015	0.350	Mar 2016	0.210	Mar 2017	-		0.210	Continuing	Continuing	Continuing
Malaria Vaccine	C/FFP	Evolution Enterprises : San Diego, CA	0.000	0.060	Aug 2015	0.045	Aug 2016	0.023	Aug 2017	-		0.023	0.000	0.128	-
Individualized Fatigue Based Scheduling	SS/FP	Pulsar Informatics : Philadelphia, PA	4.165	0.556	Jun 2015	1.089	Jun 2016	0.537	Jun 2017	-		0.537	Continuing	Continuing	Continuing
Human Factors Individualized Fatigue Based Scheduling	Allot	Naval Submarine Medical Research Laboratory : Groton, CT	0.737	0.394	Nov 2014	0.400	Nov 2015	0.250	Nov 2016	-		0.250	Continuing	Continuing	Continuing
Fatigue Based Scheduling	Allot	Naval Post Graduate School : Monterey, CA	0.511	0.221	Jun 2015	0.216	Nov 2015	0.190	Dec 2016	-		0.190	Continuing	Continuing	Continuing
Management of Cerebral Perfusion Pressure	SS/FP	University of Miami : Miami, FL	0.400	0.361	Apr 2015	0.761	Apr 2016	0.761	Apr 2017	-		0.761	Continuing	Continuing	Continuing
Naval Expeditionary Health Service Support: Capability Based Military Treatment Facility Evaluation	WR	Navy Expeditionary Medical Support Command : Williamsburg, VA	0.000	0.363	May 2015	0.000		0.000		-		0.000	0.363	0.726	-
Naval Expeditionary Health Service Support: Capability Based Military Treatment Facility Energy Efficiency	TBD	TBD : Not Specified	0.000	0.000		1.000	Aug 2016	2.600	Aug 2017	-		2.600	3.600	7.200	-
Multifunctional Resuscitation	Allot	Naval Medical Research Unit - San Antonio : San Antonio, TX	0.000	1.200	Feb 2015	0.582	Feb 2016	0.385	Feb 2017	-		0.385	Continuing	Continuing	Continuing
BioSurveillance Information	MIPR	Pacific Disaster Center : Kihei, HI	0.634	0.095	May 2015	0.050	Dec 2015	0.000		-		0.000	0.779	1.558	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604771N / <i>Medical Development</i>	Project (Number/Name) 0933 / <i>Medical/Dental Equipment Dev</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ETEC Vaccine	Allot	Naval Medical Research Center : Silver Spring, MD	0.359	0.727	Feb 2015	0.000		0.000		-		0.000	1.086	2.172	-
Novel Ossointegration Device	Allot	Naval Medical Research Center : Silver Spring, MD	0.498	0.273	Feb 2015	0.277	Feb 2016	0.000		-		0.000	1.048	2.096	-
Intranasal Scopolamine Prevention of Motion Sickness	Allot	Naval Medical Research Unit - Dayton : Dayton, OH	1.183	0.088	Oct 2014	0.300	Oct 2015	0.305	Oct 2016	-		0.305	Continuing	Continuing	Continuing
Validation of Color Vision Test for Naval Aviation	Allot	Naval Medical Research Unit - Dayton : Dayton, OH	0.788	0.072	Jan 2015	0.000		0.000		-		0.000	0.860	1.720	-
Validation of Mobile EEG Systems	Allot	Naval Health Research Center : San Diego, CA	0.426	0.349	Oct 2014	0.285	Oct 2015	0.000		-		0.000	0.106	1.166	-
Sustainable Team Performance	Allot	Naval Submarine Medical Research Laboratory : Groton, CT	0.401	0.364	Dec 2014	0.000		0.000		-		0.000	0.765	1.530	-
Medical Product Development	Various	Various : Not Specified	5.586	0.145	Sep 2015	1.636	Aug 2016	2.224	Aug 2017	-		2.224	Continuing	Continuing	Continuing
Subtotal			16.528	7.700		8.491		8.270		-		8.270	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Support	Various	Various : Not Specified	0.356	0.389	Aug 2015	0.800	Aug 2016	0.950	Aug 2017	-		0.950	Continuing	Continuing	Continuing
Subtotal			0.356	0.389		0.800		0.950		-		0.950	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy							Date: February 2016						
Appropriation/Budget Activity 1319 / 5			R-1 Program Element (Number/Name) PE 0604771N / <i>Medical Development</i>				Project (Number/Name) 0933 / <i>Medical/Dental Equipment Dev</i>						
	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	16.884	8.089		9.291		9.220		-		9.220	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604771N / Medical Development	Project (Number/Name) 0933 / Medical/Dental Equipment Dev
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Exhibit R-4, RDT&E Program Schedule Profile		Date: FEBRUARY 2016					
Appropriation/Budget Activity: BA5		Program Element Number and Name: 0604771N Medical Development				Project Number and Name: 0933 Medical and Dental Equipment Development	
Fiscal Year	FY15	FY16	FY17	FY18	FY19	FY20	FY21
Preventive Medicine: Malaria Vaccine (partner leveraged)							
Human Performance: Individualized Fatigue Based Scheduling and Countermeasure System							
Patient Movement/Casualty Management: MOVES SLC							
Patient Movement/Casualty Management: NEHSS shore based and afloat CBMTF							
Force Health Protection Future Capability Program Transition Products							

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604771N / <i>Medical Development</i>	Project (Number/Name) 0933 / <i>Medical/Dental Equipment Dev</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 0933				
Preventive Medicine: Malaria Vaccine (Partner Leveraged): System Development	1	2015	1	2016
Preventive Medicine: Malaria Vaccine (Partner Leveraged): Validation of manufacturing scale up	4	2015	3	2017
Preventive Medicine: Malaria Vaccine (Partner Leveraged): Large Scale Efficacy/ Safety Trials	1	2017	4	2018
Preventive Medicine: Malaria Vaccine (Partner Leveraged): FDA Biological License Application	1	2019	4	2019
Human Performance: Individualized Fatigue Based Scheduling and Countermeasure System (IFBCS): Knowledge Transfer of Scheduling Component Complete	1	2015	3	2016
Human Performance: Individualized Fatigue Based Scheduling and Countermeasure System (IFBCS): Field Study Validation	1	2016	4	2018
Patient Movement/Casualty Management: Mobile Oxygen, Ventilation, and External Suction (MOVES) System: Ruggedized Design and Fabrication	1	2015	4	2015
Patient Movement/Casualty Management: Mobile Oxygen, Ventilation, and External Suction (MOVES) System: Ruggedized Evaluation	4	2015	4	2016
Patient Movement/Casualty Management: Naval Expeditionary Support Services shore based and afloat Capabilities Based MTF (NEHSS CB MTF): System Development	1	2015	1	2017
Patient Movement/Casualty Management: Naval Expeditionary Support Services shore based and afloat Capabilities Based MTF (NEHSS CB MTF): System Readiness Review	4	2016	1	2017
Patient Movement/Casualty Management: Naval Expeditionary Support Services shore based and afloat Capabilities Based MTF (NEHSS CB MTF): Technology Readiness Assessment	2	2020	3	2020

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604771N / <i>Medical Development</i>	Project (Number/Name) 0933 / <i>Medical/Dental Equipment Dev</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Patient Movement/Casualty Management: Naval Expeditionary Support Services shore based and afloat Capabilities Based MTF (NEHSS CB MTF): Technology Readiness Review	1	2021	2	2021
Patient Movement/Casualty Management: Naval Expeditionary Support Services shore based and afloat Capabilities Based MTF (NEHSS CB MTF): Source selection and evaluation plan for pre-production	3	2021	4	2021
Force Health Protection Future Capability Program Transition Products: System Development	1	2015	2	2017
Force Health Protection Future Capability Program Transition Products: FDA Package Review Cerebral Perfusion Pressure Management	1	2017	3	2017

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604771N / Medical Development				Project (Number/Name) 9999 / Congressional Adds			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
9999: Congressional Adds	82.776	18.500	16.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	117.276
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

None

A. Mission Description and Budget Item Justification

Congressional Adds

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016
Congressional Add: Military Dental Research	5.895	6.000
FY 2015 Accomplishments: Continue efforts in cranio-facial injury surveillance; combat dentistry; treatment of maxillofacial injury; dental disease non-battle injuries; oral/facial disease and infection in military personnel.		
FY 2016 Plans: N/A		
Congressional Add: Wound Care Research (transferred from Defense Health Program)	12.605	10.000
FY 2015 Accomplishments: Continue to develop novel diagnostics and treatments to enhance the care of the wounded warfighter.		
FY 2016 Plans: N/A		
Congressional Adds Subtotals	18.500	16.000

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

None

E. Performance Metrics

Not required for Congressional adds.

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604771N / <i>Medical Development</i>	Project (Number/Name) 9999 / <i>Congressional Adds</i>
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FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Proj 9999	
Military Dental Research: Schedule Detail	[REDACTED]
Wound Care Research: Schedule Detail	[REDACTED]

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604771N / <i>Medical Development</i>	Project (Number/Name) 9999 / <i>Congressional Adds</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 9999				
Military Dental Research: Schedule Detail	4	2015	4	2016
Wound Care Research: Schedule Detail	4	2015	4	2016

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604777N / <i>Navigation/Id System</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	1,267.775	28.951	32.456	42.723	-	42.723	70.724	95.394	97.706	61.843	Continuing	Continuing
0253: <i>Nav & Electro-Optical Supt</i>	41.534	6.436	7.251	6.992	-	6.992	7.482	36.662	37.277	38.024	Continuing	Continuing
0676: <i>Improve ID Development</i>	32.235	1.612	5.404	4.914	-	4.914	2.499	2.488	2.419	2.469	Continuing	Continuing
0921: <i>NAVSTAR GPS Equipment</i>	1,016.101	17.703	17.156	26.965	-	26.965	58.187	54.188	56.057	19.354	Continuing	Continuing
1253: <i>Combat Ident System</i>	177.905	3.200	2.645	3.852	-	3.852	2.556	2.056	1.953	1.996	Continuing	Continuing

Note

The increase in budget from FY 2016 to FY 2017 is entirely attributable to the GPS Modernization efforts in Proj 0921, which support providing Naval platforms improved access to Global Positioning System (GPS) signals in challenged and jamming environments. Modernized GPS receivers will utilize the new Military Code (M-Code) GPS Signal in Space, incorporate enhanced cryptology, deliver greater position and time accuracy, and provide improved protection against signal spoofing as compared to legacy SAASM receivers. Additionally, GPS Modernization delivers increased GPS anti-jam protection and enables blue force GPS electronic attack. Operationalizes risk reduction efforts currently underway by the Air Force and integrates it into Naval ships, submarines, aircraft, weapons systems, and GPS enabled systems imbedded on those platforms.

A. Mission Description and Budget Item Justification

Reliable and secure navigation and positive identification (ID) systems are essential elements of battle management in the naval environment. The Photonics Imaging System (0253) is a non-hull penetrating replacement for existing optical periscopes. The Photonics Imaging System exploits a wide portion of the electro-magnetic spectrum utilizing advanced Electro-Optic/thermal imaging, and communications intercept/Electronic Warfare Support (ES). The Integrated Submarine Imaging System (ISIS) (0253) is a back fit system to integrate all imaging capabilities on existing submarine classes. The Combat Identification System (CIS) project (1253) for Mark XIIA, and Improved Identification Development (0676) for AN/UPX-29(V), covers the Mark XIIA Mode 5 upgrade to the existing Mark XII family of systems that is Joint and North Atlantic Treaty Organization (NATO) interoperable. Per OSD direction, NATO participation is encouraged and performance data is exchanged to ensure the opportunity for interoperability with allied identification systems is maximized. In addition to distinguishing friend from foe for weapons employment, the Navy requires secure, jam resistant Identification Friend or Foe (IFF) systems for battle group air defense management and air traffic control. Identification is multifaceted and includes information received from several sensors (both cooperative and non-cooperative systems).

Navigation Satellite Timing & Ranging (NAVSTAR) Global Positioning System (GPS) project (0921) is a space-based Positioning, Navigation and Timing (PNT) system that provides authorized users with secure, worldwide, all weather, three dimensional position, velocity and precise time data. Navy Air and Sea Navigation Warfare (NAVWAR) are major elements of the GPS program. NAVWAR's mission is to provide continued access to GPS information in a denied environment. NAVWAR accomplishes this through the use of enhanced user equipment (UE). The GPS-based Positioning, Navigation, and Timing (PNT) Service (GPNTS) system is being developed to replace stand-alone AN/WRN-6 receivers, integrated NAVSSI systems, and integrated commercial-off-the-shelf GPS systems. Additionally, future capability will migrate toward a Common Computing Environment (CCE) such as Consolidated Afloat Networks Enterprise Services (CANES), and provide a path for the

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604777N / <i>Navigation/Id System</i>
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integration of advanced navigation systems and sensors. NAVSTAR GPS supports Anti-Access/Area Denial (A2AD) by providing Assured-PNT (A-PNT) capability to C4ISR and combat systems in standalone and networked architectures throughout the air and maritime domains. GPNTS will support the Joint Aerial Layer Network-Maritime (JALN-M). JALN-M is the Navy implementation of the JALN architecture which provides assured communications in any environment, especially A2AD.

GPS Modernization addresses the Navy's future integration of GPS Directorate Military GPS User Equipment (MGUE) products being developed that will enable the use of new signals in space. GPS Modernization consists of multiple parallel efforts that address the Navy's integration of multiple next generation GPS receivers that provide Naval air, surface, subsurface and weapon platforms improved access to GPS signals in challenged and jamming environments. Modernized GPS receivers to utilize the new Military-Code (M-Code) GPS Signal in Space, incorporate enhanced cryptology, deliver greater position and time accuracy, and provide improved protection against signal spoofing as compared to legacy receivers. Additionally, GPS Modernization delivers increased GPS anti-jam protection and enables blue force GPS electronic attack

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under System Development and Demonstration because it includes those projects that have passed Milestone B approval and are conducting engineering and manufacturing development tasks aimed at meeting validated requirement prior to full-rate production decision.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	29.504	32.469	35.877	-	35.877
Current President's Budget	28.951	32.456	42.723	-	42.723
Total Adjustments	-0.553	-0.013	6.846	-	6.846
• Congressional General Reductions	-	-0.013			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.552	0.000			
• Rate/Misc Adjustments	-0.001	0.000	6.846	-	6.846

Change Summary Explanation

Decrease in Navigation/ID System by \$1.31M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

Technical: GPS Modernization (0921) was established to accelerate integration of enhanced and protected GPS products being developed into Naval platforms in order to provide improved access to GPS signals in challenged and jamming environments, incorporate enhanced cryptology, deliver greater position and time accuracy, provide improved protection against signal spoofing, deliver increased GPS anti-jam protection, and enable blue force GPS electronic attack. This effort supports Navy compliance with Public Law 111-383 which mandates only M-Code capable receivers can be procured beginning in FY18.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity
1319: *Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)*

R-1 Program Element (Number/Name)
PE 0604777N / *Navigation/Id System*

Schedule: GPS Modernization (0921) - Integration efforts will be conducted from FY17-20 in order to field MGUE onto the Navy's air, surface, subsurface, and weapons platforms.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604777N / Navigation/Id System				Project (Number/Name) 0253 / Nav & Electro-Optical Supt			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
0253: Nav & Electro-Optical Supt	41.534	6.436	7.251	6.992	-	6.992	7.482	36.662	37.277	38.024	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The navigation and electro-optical (E-O) support program develops submarine E-O and imagery systems and equipment that will improve submarine imaging capability in the areas of: ship safety, Intelligence, Surveillance and Reconnaissance (ISR), and tactical control (contact management in the littorals). The Department of the Navy established the Integrated Submarine Imaging System (ISIS) to rapidly field the Type 18 periscope, Periscope Acquisition, Tracking, and Ranging with Improved Observation Techniques (PATRIOT) rangefinder, Type 8 Mod 4 Infra-Red (IR) periscope systems, and integrate existing periscope imagery systems into a single imaging system for installation on board SSN 688 class and SEAWOLF class submarines. The ISIS baseline also includes the Imaging System with the Photonics Mast (PM) and all configurations of Low Profile Photonics Mast (LPPM) onboard VIRGINIA and Photonics Mast Variant (PMV) onboard SSGN class submarines. The PM, LPPM, and PMV design exploit a wide portion of the electro-magnetic spectrum through advanced E-O and thermal imaging and Electronic Warfare Support (ES)/communications intercept. The Common Submarine Imaging System (CSIS) capability development document (CDD), that covers both ISIS and Legacy Imaging systems was approved 22 Dec, 2011. The CDD is used to fully integrate the ISIS program of record into the submarines force rapid Technical Insertion/Advanced Processor Build (TI/APB) process and to incorporate Fleet-endorsed requirements such as the LPPM.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: ISIS and Photonics common software and hardware capabilities development and obsolescence.	1.254	3.053	6.324	0.000	6.324
Articles:	-	-	-	-	-
FY 2015 Accomplishments: ISIS Technical Insertion (TI) development for LOS ANGELES, SEAWOLF, and VIRGINIA classes including hardware and software modifications for integration of LPPM (including prototypes) into ISIS.					
FY 2016 Plans: ISIS Technical Insertion (TI) development for LOS ANGELES, SEAWOLF, and VIRGINIA classes. TI and Advanced Processor Build (APB) productionization efforts include incorporation of significant capability increases over previous TIs including Image Fusion, Auto-detection and Image Tracker Algorithms. FY 2016 efforts also include improvements to system software reliability for increased ISIS Operational Availability (Ao).					
FY 2017 Base Plans: ISIS Technical Insertion (TI) development for LOS ANGELES, SEAWOLF, and VIRGINIA classes. TI and Advanced Processor Build (APB) productionization efforts include incorporation of significant capability increases over previous TIs including Automatic Classification and De-interlacing as well as integration of					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016			
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604777N / Navigation/Id System	Project (Number/Name) 0253 / Nav & Electro-Optical Supt				
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)						
		FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
unique LPPM capabilities. FY 2017 efforts include continued improvements to system and software reliability and increased ISIS Operational Availability (Ao).						
FY 2017 OCO Plans: N/A						
Title: Imaging Systems Test Efforts.	Articles:	0.591 -	0.598 -	0.668 -	0.000 -	0.668 -
FY 2015 Accomplishments: TI-14/APB 13 Testing						
FY 2016 Plans: TI-14/APB 13 688 DT						
FY 2017 Base Plans: TI-14/ APB 13 VA Class OT						
FY 2017 OCO Plans: N/A						
Title: Low Profile Photonics Mast	Articles:	4.591 -	3.600 -	0.000 -	0.000 -	0.000 -
FY 2015 Accomplishments: Completion of LPPM Prototype Development Initiation of LPPM Production Baseline Design, including modular design, extended range camera, and multiple fiber capability						
FY 2016 Plans: Complete LPPM Production Baseline Design						
FY 2017 Base Plans: N/A						
FY 2017 OCO Plans: N/A						
Accomplishments/Planned Programs Subtotals		6.436	7.251	6.992	0.000	6.992

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604777N / Navigation/Id System	Project (Number/Name) 0253 / Nav & Electro-Optical Supt
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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017	FY 2017	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Cost To	
			Base	OCO	Total					Complete	Total Cost
• SCN/201300: <i>Photonics Mast</i>	38.008	38.774	39.560	-	39.560	40.363	41.170	42.076	45.442	Continuing	Continuing
• OPN/0831: <i>Sub Periscopes & Imaging Equip.</i>	57.221	63.109	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	686.587
• RDT&E/0604558N: <i>VIRGINIA Class Design Development</i>	4.500	3.000	3.000	-	3.000	3.051	3.112	3.174	3.174	Continuing	Continuing
• RDT&E/0603562N: <i>Advanced Submarine Support Equipment (ASSEP)</i>	3.320	4.103	4.429	-	4.429	4.143	4.403	4.725	4.828	Continuing	Continuing
• OPN/0840: <i>Sub Periscope, Imaging Equip. and Supt Equip Program</i>	0.000	0.000	136.421	-	136.421	142.104	215.983	249.189	206.465	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Acquisition Strategy for AN/BVS-1 Photonics Mast Program (PMP) is dated 24 Sept 2001. The PMP provides for the development and acquisition of a non-hull penetrating submarine electronic imaging system for VIRGINIA Class submarines. The Acquisition Strategy for Integrated Submarine Imaging System (ISIS) is dated 07 Jul 2003. The Acquisition Program Baseline Agreement for ISIS Advanced Processor Builds 11, 13 and 15 is dated 07 Mar 2013. The Single Acquisition Management Plan (SAMP) for the LPPM is dated 01 Jul, 2013. The ISIS will provide mission critical, all weather, visual, and electronic search, digital image management, indication, warning, and platform architecture interface capabilities for SSN 688, SSN 21, SSN 774 and SSGN class submarines.

E. Performance Metrics

Successful application of system engineering processes. Design and development of improvements.

The Rapid Development and Deployment (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.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604777N / Navigation/Id System	Project (Number/Name) 0253 / Nav & Electro-Optical Supt
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Software Development	C/CPIF	Lockheed Martin : Manassas, VA	13.896	0.232	Mar 2015	1.364	Dec 2015	2.678	Dec 2016	-		2.678	Continuing	Continuing	Continuing
Systems Engineering	WR	NUWC : Newport, RI	14.793	0.497	Oct 2014	0.744	Nov 2015	1.017	Oct 2016	-		1.017	Continuing	Continuing	Continuing
Hardware Development	C/CPIF	Lockheed Martin : Manassas, VA	5.074	0.483	Mar 2015	0.903	Dec 2015	2.584	Dec 2016	-		2.584	Continuing	Continuing	Continuing
Hardware Development	C/CPFF	L3-KEO : Northhampton, MA	0.000	4.591	Apr 2015	3.600	Dec 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			33.763	5.803		6.611		6.279		-		6.279	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Development Test & Evaluation	WR	NUWC : Newport, RI	6.769	0.291	Oct 2014	0.340	Nov 2015	0.418	Oct 2016	-		0.418	Continuing	Continuing	Continuing
Development Test & Evaluation	WR	COMOPTEVFOR : Norfolk, VA	0.552	0.100	Oct 2014	0.258	Jan 2016	0.250	Oct 2016	-		0.250	Continuing	Continuing	Continuing
Development Test & Evaluation	C/CPFF	Lockheed Martin : Manassas, VA	0.000	0.200	Mar 2015	0.000		0.000	Mar 2017	-		0.000	0.000	0.200	-
Subtotal			7.321	0.591		0.598		0.668		-		0.668	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Travel	WR	NAVSEA : Washington, DC	0.450	0.042	Oct 2014	0.042	Oct 2015	0.045	Oct 2016	-		0.045	Continuing	Continuing	Continuing
Subtotal			0.450	0.042		0.042		0.045		-		0.045	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604777N / <i>Navigation/Id System</i>	Project (Number/Name) 0253 / <i>Nav & Electro-Optical Supt</i>
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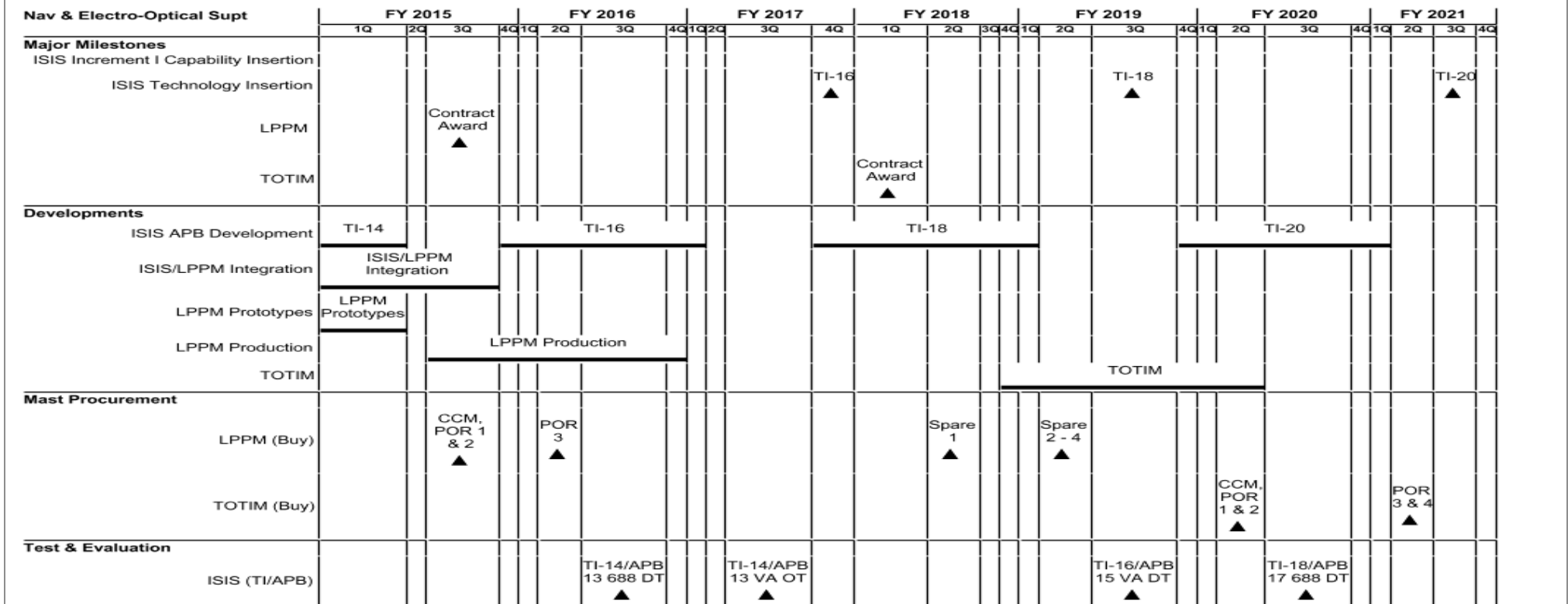
	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	41.534	6.436	7.251	6.992	-	6.992	-	-	-

Remarks
 Increases in FY19 - FY21 are provided for the 360 Imaging Capability/Task Oriented Tech Insertion Mast (TOTIM) development and modifications required to the ISIS TI-20 baseline to integrate with TOTIM. Specific efforts include: development of a common interface between mast modules, upgrades to the ISIS inboard architecture, data storage, display and processing capabilities, and TOTIM development.

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604777N / Navigation/Id System	Project (Number/Name) 0253 / Nav & Electro-Optical Supt
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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604777N / Navigation/Id System	Project (Number/Name) 0253 / Nav & Electro-Optical Supt
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Nav & Electro-Optical Supt				
Major Milestones: ISIS Technology Insertion: ISIS Technology Insertion Fielding (TI-16)	4	2017	4	2017
Major Milestones: ISIS Technology Insertion: ISIS Technology Insertion Fielding (TI-18)	3	2019	3	2019
Major Milestones: ISIS Technology Insertion: ISIS Technology Insertion Fielding (TI-20)	3	2021	3	2021
Major Milestones: LPPM: Contract Award	3	2015	3	2015
Major Milestones: TOTIM: Contract Award	1	2018	1	2018
Developments: ISIS APB Development: Development: ISIS TI-14	1	2015	1	2015
Developments: ISIS APB Development: Development: ISIS TI-16	4	2015	1	2017
Developments: ISIS APB Development: Development: ISIS TI-18	4	2017	1	2019
Developments: ISIS APB Development: Development: ISIS TI-20	4	2019	1	2021
Developments: ISIS/LPPM Integration: ISIS/LPPM Integration	1	2015	3	2015
Developments: LPPM Prototypes: LPPM Protoypes	1	2015	1	2015
Developments: LPPM Production: LPPM Production	3	2015	4	2016
Developments: TOTIM: TOTIM	4	2018	2	2020
Mast Procurement: LPPM (Buy): CCM, POR 1 & 2	3	2015	3	2015
Mast Procurement: LPPM (Buy): POR 3	2	2016	2	2016
Mast Procurement: LPPM (Buy): Spare 1	2	2018	2	2018
Mast Procurement: LPPM (Buy): Spare 2 - 4	2	2019	2	2019
Mast Procurement: TOTIM (Buy): CCM, POR 1 & 2	2	2020	2	2020
Mast Procurement: TOTIM (Buy): POR 3 & 4	2	2021	2	2021
Test & Evaluation: ISIS (TI/APB): Test & Evaluation - ISIS TI-14/APB 13 688 DT	3	2016	3	2016

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604777N / <i>Navigation/Id System</i>	Project (Number/Name) 0253 / <i>Nav & Electro-Optical Supt</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Test & Evaluation: ISIS (TI/APB): Test & Evaluation - ISIS TI-14/APB 13 VA OT	3	2017	3	2017
Test & Evaluation: ISIS (TI/APB): Test & Evaluation - ISIS TI-16/APB 15 VA DT	3	2019	3	2019
Test & Evaluation: ISIS (TI/APB): Test & Evaluation - ISIS TI-18/APB 17 688 DT	3	2020	3	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604777N / Navigation/Id System				Project (Number/Name) 0676 / Improve ID Development			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
0676: <i>Improve ID Development</i>	32.235	1.612	5.404	4.914	-	4.914	2.499	2.488	2.419	2.469	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Reliable and secure navigation and positive identification (ID) systems are essential elements of battle management in the naval environment. In addition to providing platform identification for weapons employment, the Navy requires secure, jam resistant Identification Friend or Foe (IFF) systems for battle group air defense management and Air Traffic Control. The Improved ID Development project addresses the Mark XIIA Mode 5 and Mode S upgrades to the existing AN/UPX-29(V) Mark XII family of systems that is Joint and North Atlantic Treaty Organization interoperable. The AN/UPX-29(V) Interrogator System is comprised of the Interrogator Set AN/UPX-24(V), OE-120()/UPX Antenna Group, and Mark XII or Mark XIIA equipment such as AN/UPX-37, AN/UPX-41(C) or AN/UPX-45(C) Digital Interrogators and associated equipment. Additionally the Improved ID Development project may include product improvements designed to be installed through upgrade and deficiency correction studies, which in turn become engineering changes to other IFF solutions.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: AN/UPX-29 (V) - OE-120()/UPX Antenna Tech Refresh	1.310	5.025	4.602	0.000	4.602
Articles:	-	-	-	-	-
<p>Description: Engineering and integration development for antenna group OE-120()/UPX antenna tech refresh. Develop design studies and Analysis of Alternatives, draft specifications, and perform system development and integration efforts and support mission requirements, to include engineering investigations and Engineering Change Proposal (ECP) development to support mission readiness for IFF systems.</p> <p>FY 2015 Accomplishments: Awarded OE-120 Tech Refresh ECP to BAE Nashua. Completed integration and testing of OE-120 power divider module and completed preliminary design review of the phase shifter module.</p> <p>FY 2016 Plans: Continue preliminary design, trade studies, and identify and order long lead items. Initiate and complete detailed design. Initiate unit development and software coding. Initiate procurement of non-long lead items. Initiate test equipment design and update. Initiate Integration and Test (I&T) qualification plan. Conduct range tests for Phase Shifter and Power Divider assemblies. Planned System Engineering Technical Review events include the Preliminary and Critical Design Reviews.</p> <p>FY 2017 Base Plans: Complete software coding and development testing. Complete procurement of non-long lead items. Complete test equipment design and update. Complete I&T qualification plan. Build and conduct unit level I&T activities</p>					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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on OE-120()/UPX Tech Refresh Engineering and Development Model. Initiate system level Integration and Test and qualification testing activities. Planned event is the Test Readiness Review.

FY 2017 OCO Plans:
N/A

Title: Mark XIIA Mode 5 and Mode S Improvement for AN/UPX-29(V)	0.244	0.000	0.000	0.000	0.000
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Articles:

Description: Engineering, development, and integration of improvements to Mark XIIA Shipboard Identification Friend or Foe (IFF) Systems, including, but not limited to the AN/UPX-29(V) Interrogator System, which is comprised of the Interrogator Set AN/UPX-24, OE-120()/UPX Antenna Group, and Mark XII or Mark XIIA equipment such as AN/UPX-37, AN/UPX-41 or AN/UPX-45 Digital Interrogators. Funds development and integration of Mark XIIA Mode 5 and Mode Select (S) Improvements to the AN/UPX-29(V) systems on CG47, DDG51, LHD1, LPD17, LHA6, and CVN68, CVN78, and future ship classes. Correct software and performance deficiencies from Integrated Test and Operational Test, Aegis, and other Combat System Integration events to support Combat System integration with Aegis Weapon Systems (AWS), Ship Self Defense System (SSDS), Advanced Combat Direction System (ACDS), or Air Traffic Control Systems using Mark XIIA equipment to include engineering investigations, Engineering Change Proposal development, and testing. Provides core Integrated Logistics Support documentation; formalizes hardware/software configuration: finalizes technical/ design data, resolves testing anomalies, and integrates with shipboard training systems.

FY 2015 Accomplishments:
Conducted engineering investigation for AN/UPX-24(V) Software Version 2.1.3 Aegis Integration Event Test Observation report. Subsequently received Combat System certification to deploy AN/UPX-24(V) Software Version 2.1.3 with various Aegis, ACDS and SSDS baselines.

FY 2016 Plans:
N/A

FY 2017 Base Plans:
N/A

FY 2017 OCO Plans:
N/A

Title: AN/UPX-29(V) Management Support	0.058	0.379	0.312	0.000	0.312
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Articles:

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Description: Engineering and Program Management of the AN/UPX 29 (V). Perform system integration efforts.</p> <p>FY 2015 Accomplishments: Supported award of the OE-120 Tech Refresh Engineering Change Proposal (ECP). Managed engineering assessments/evaluations/development efforts that provide resolution to engineering investigations and obsolescence issues.</p> <p>FY 2016 Plans: Support Systems Engineering Technical Reviews for OE-120/UPX according to the tech refresh ECP schedule. Planned events include the Preliminary and Critical Design Reviews (PDR/CDR).</p> <p>FY 2017 Base Plans: Support Systems Engineering Technical Reviews for OE-120/UPX according to the tech refresh ECP schedule. Monitor progress from CDR to EDM delivery in preparation for production line updates.</p> <p>FY 2017 OCO Plans: N/A</p>					
Accomplishments/Planned Programs Subtotals	1.612	5.404	4.914	0.000	4.914

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPN/2851: ID Systems	28.085	29.676	22.177	-	22.177	26.711	28.650	29.272	29.888	Continuing	Continuing

Remarks

D. Acquisition Strategy

The acquisition strategy is to develop Mode 5 Engineering Change Proposals for modern Mark XII Identification Friend or Foe (IFF) equipment and integrate into all Navy Combat Weapons systems platforms and augment the Navy's Cooperative Identification Capability to include Mode 5.

E. Performance Metrics

Achieve Full Rate Production Decision and Initial Operational Capability.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary Hardware Development	WR	NAWCAD : St Inigoes, MD	8.895	0.113	Nov 2014	0.212	Nov 2015	0.049	Nov 2016	-		0.049	Continuing	Continuing	Continuing
Ship Integration	WR	NAWCAD : St Inigoes, MD	2.462	0.000		0.000		0.000		-		0.000	0.000	2.462	2.462
Systems Engineering	WR	NAWCAD : St Inigoes, MD	5.985	0.244	Nov 2014	0.000		0.000		-		0.000	0.000	6.229	6.229
OE-120 Tech Refresh	SS/FFP	BAE : Nashua, NY	0.000	1.197	May 2015	4.563	Nov 2015	4.553	Nov 2016	-		4.553	7.800	18.113	18.113
Subtotal			17.342	1.554		4.775		4.602		-		4.602	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Configuration Management	WR	NAWCAD : St Inigoes, MD	0.169	0.000		0.000		0.000		-		0.000	0.000	0.169	0.169
ILS	WR	NAWCAD : St Inigoes, MD	2.547	0.000		0.000		0.000		-		0.000	0.000	2.547	2.547
Software Development	WR	NAWCAD : St Inigoes, MD	5.535	0.000		0.000		0.000		-		0.000	0.000	5.535	5.535
Technical Data	WR	NAWCAD : St Inigoes, MD	1.874	0.000		0.000		0.000		-		0.000	0.000	1.874	1.874
Training	WR	NAWCAD : St Inigoes, MD	0.200	0.000		0.000		0.000		-		0.000	0.000	0.200	0.200
Engineering	WR	NAWCAD : PAX River, MD	0.244	0.000		0.250	Nov 2015	0.000		-		0.000	0.000	0.494	0.494
Subtotal			10.569	0.000		0.250		0.000		-		0.000	0.000	10.819	10.819

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental Test & Evaluation	WR	NAWCAD : St Inigoes, MD	0.500	0.000		0.000		0.000		-		0.000	0.000	0.500	0.500
Operational Test & Evaluation	WR	NAWCAD : St Inigoes, MD	1.328	0.000		0.000		0.000		-		0.000	0.000	1.328	1.328
Test Assets	WR	NAWCAD : St Inigoes, MD	0.731	0.000		0.000		0.000		-		0.000	0.000	0.731	0.731
Subtotal			2.559	0.000		0.000		0.000		-		0.000	0.000	2.559	2.559

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support	C/CPFF	American Electronics : California, MD	1.765	0.058	Nov 2014	0.379	Nov 2015	0.312	Nov 2016	-		0.312	0.000	2.514	2.514
Subtotal			1.765	0.058		0.379		0.312		-		0.312	0.000	2.514	2.514

Project Cost Totals			32.235	1.612		5.404		4.914		-		4.914	-	-	-
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Remarks

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604777N / Navigation/Id System	Project (Number/Name) 0676 / Improve ID Development
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Mode 5 Improv Identification Dev				
Test & Evaluation Milestones: IT Events for additional platforms	1	2015	3	2021
Deliveries: Mode 5 - Production Line Insertion	1	2015	4	2021
Deliveries: Mode 5 - Prepare and Evaluate ECPs/SCDs	1	2015	4	2021
Deliveries: Mode 5 - Host Platform Integrations	1	2015	4	2021
Deliveries: Mode 5 - FRP Deliveries	1	2015	4	2021
System Development: First Article Modernization of Phase Shifter	1	2015	1	2016
System Development: OE-120 Tech Refresh Award	3	2015	3	2015
System Development: SSR	4	2015	4	2015
System Development: PDR	1	2016	1	2016
System Development: CDR	4	2016	4	2016
System Development: TRR	2	2017	2	2017
System Development: Retrofit Kit	1	2018	3	2018
System Development: Qual Test	1	2018	3	2018
System Development: OE-120 Tech Refresh First Article Delivery	3	2018	3	2018

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604777N / <i>Navigation/Id System</i>				Project (Number/Name) 0921 / <i>NAVSTAR GPS Equipment</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
0921: <i>NAVSTAR GPS Equipment</i>	1,016.101	17.703	17.156	26.965	-	26.965	58.187	54.188	56.057	19.354	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Navigation Satellite Timing & Ranging (NAVSTAR) Global Positioning System (GPS) project (0921) is a space-based Positioning, Navigation, and Timing (PNT) system that provides authorized users with secure, worldwide, all weather, three dimensional position, velocity, and precise time data. This project is comprised of four distinct efforts: Air and Sea Navigation Warfare (NAVWAR), GPS-based PNT Service (GPNTS), and GPS Modernization. Research, Development, Testing and Evaluation (RDT&E) funds are used to perform all the non-recurring GPS Surface Ship, Submarine and Aircraft Development, Integration, and Testing efforts in support of NAVSTAR GPS.

The Air and Sea Navigation Warfare (NAVWAR) programs were established to provide continued access to GPS information in a denied or impeded electronic environment. The Sea NAVWAR program is executed in two increments: Increment 1 is GPS Antenna System (GAS-1); Increment 2 is Advanced Digital Antenna Production (ADAP). The purpose of Increments 1 and 2 is to integrate Anti-Jam (AJ) antennas on surface platforms. The Sea NAVWAR program will continue research of viability and development of a smaller ADAP variant referred to as the Multi-Platform Anti-Jam GPS Navigation Antenna (MAGNA) for surface ships. The program continues to support the Submarine Anti-Jam GPS Enhancement (SAGE) antenna development integrating AJ capability on submarines for the OE-538 Increment 2 Mast program. The Air NAVWAR program is a single increment with GAS-1, ADAP, and other continuing efforts. RDT&E continues to support platform integration requirements, Developmental Test/Operational Test (DT/OT), the Navy's development of a smaller Anti-Jam (AJ) antenna and a conformal low-observable AJ antenna for aircraft with unique requirements, and new technology AJ solutions for submarines.

The GPS-based PNT Service (GPNTS) system is being developed to serve as the primary PNT system for the Navy to ensure to ensure reliable PNT capability and interoperability insertion in GPS receivers and associated Command, Control, Computers, Communications and Intelligence (C4I) and combat system in a denied environment. GPNTS provides precise PNT data required for many combat, weapons, command, control, communications, navigation, and other systems, as well as providing the time synchronization critical to the network environments. GPNTS will backfit current PNT/GPS systems as well as serve as a forward fit for new platforms. GPNTS will host the GPS Directorate-developed MGUE card, allowing access to the new more accurate and secure GPS Military-Code (M-Code) signal. GPNTS will provide more robust and secure GPS/PNT capabilities than is currently in the Fleet. The system will provide the capability to migrate non-real time GPS data toward a Common Computing Environment (CCE) such as Consolidated Afloat Networks Enterprise Services (CANES), and provide a path for the integration of advanced navigation systems and sensors. GPNTS supports Anti-Access/Area of Denial (A2AD) by providing Assured-PNT (A-PNT) capability to C4ISR and combat systems in standalone and networked architectures throughout the air and maritime domains. GPNTS will support and provide input to Joint Aerial Layer Network-Maritime (JALN-M). JALN-M is the Navy implementation of the JALN architecture which provides assured communications in any environment, especially A2AD.

GPS continues to be integrated in all DoD platforms and the development of enhanced and protected GPS is a national security priority. The acceleration of GPS Modernization addresses the Navy's future integration of GPS Directorate Military GPS User Equipment (MGUE) products being developed that will provide Naval platforms improved access to GPS signals in challenged and jamming environments. Modernized GPS receivers to utilize the new M-Code GPS Signal in Space,

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incorporate enhanced cryptology, deliver greater position and time accuracy, and provide improved protection against signal spoofing as compared to legacy receivers. Additionally, GPS Modernization delivers increased GPS anti-jam protection and enables blue force GPS electronic attack. Because of the number and diversity of all of the Navy's air, surface, subsurface, and weapons platforms, this project will consist of multiple parallel efforts across many program offices with central coordination of funding and priorities. This effort supports Navy compliance with Public Law 111-383 which prohibits spending funds on non M-Code GPS receivers after FY17.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Title: Air Navigation Warfare (NAVWAR)</p> <p align="right">Articles:</p> <p>Description: Overall program efforts include investigation of emerging and mature technologies through study, development and associated testing for feasibility of program insertion to include Global Positioning System (GPS) Protective measures such as receiver modernization, miniaturization and anti-jam integration.</p> <p>FY 2015 Accomplishments: Assisted other air platforms with integration of anti-jam (AJ) capability to include Unmanned Air Systems (UAS), early warning platforms (E-2D), H-1 helicopters, and weapons.</p> <p>Led Air Assured Positioning, Navigation, and Timing (A-PNT) efforts by working with Navy Air platforms on determining navigation requirements, key performance parameters (KPP), precise timing, and Capability Development Document (CDD) development. Coordinated with surface Navy platforms to leverage synergies gained through their A-PNT efforts.</p> <p>Provided GPS Modernization Navy unique requirements to GPS Directorate. Developed initial comprehensive roadmap for Military-Code (M-Code) integration into Naval Aviation Platforms. Assisted the Fleet with GPS Enterprise Selective Availability/Anti-Spoofing Module (SAASM) and Architecture Evolution Plan (AEP) developments, providing subject matter expertise to NAVAIR platforms for SAASM integration.</p> <p>Participated in joint NAVWAR Memorandum of Understanding (MOU) initiatives and foreign competitive testing with Canada, United Kingdom and Australia to meet OSD initiatives.</p> <p>FY 2016 Plans: Continue to assist other air platforms with integration of AJ capability to include UAS, E-2D, AH-1Z/UH-1Y helicopters, and weapons. Continue work to mature small form factor AJ solutions for UAS platforms and assisting E-2D platforms with AJ capabilities tied to refueling upgrades. Conducting demonstrations of small AJ variants on multiple platforms.</p>	2.820	2.788	2.208	0.000	2.208
Articles:	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Continue to lead Air A-PNT efforts by working with Navy Air platforms on defining navigation requirements, Navy unique KPPs, precise timing, and CDD development to ensure reliable A-PNT capability and interoperability insertion in GPS receivers and associated C4I and combat systems in a denied environment.</p> <p>Continue supporting accelerated AJ efforts with H-1 helicopters including a Foreign Comparative Test (FCT) effort. Coordinating H-1/UAS vulnerability testing. Continue to assist the Fleet with GPS Enterprise SAASM and AEP developments, providing subject matter expertise to NAVAIR platforms for SAASM integration.</p> <p>Continue to participate in joint NAVWAR MOU initiatives and foreign competitive testing with Canada, United Kingdom and Australia to meet OSD initiatives.</p> <p>FY 2017 Base Plans: Continue to assist other air platforms with integration of AJ capability to include UAS, E-2D, AH-1Z/UH-1Y helicopters, and weapons. Conduct integration and testing of small form factor AJ solution for UAS and H-1 platforms. Complete efforts to assist E-2D platforms with AJ capabilities tied to refueling upgrades.</p> <p>Continue to lead Air A-PNT efforts by working with Navy Air platforms on navigation requirements and coordinating with surface Navy platforms to leverage synergies. Continue efforts to support CDD development, including development of Navy unique KPPs and requirements, in order to ensure reliable A-PNT capability and interoperability insertion in GPS receivers and associated C4I and combat system in a denied environment, to include precise timing.</p> <p>Continue to participate in joint NAVWAR MOU initiatives and foreign competitive testing with Canada, United Kingdom and Australia to meet OSD initiatives.</p> <p>FY 2017 OCO Plans: N/A.</p>					
<p>Title: Sea Navigation Warfare (NAVWAR)</p> <p align="right">Articles:</p> <p>Description: Overall program efforts include investigation of emerging and mature technologies through study, development and associated testing for feasibility of program insertion to include Global Positioning System (GPS) Protective measures such as receiver modernization, miniaturization and anti-jam (AJ) integration.</p> <p>FY 2015 Accomplishments:</p>	2.431	6.750	7.659	0.000	7.659
	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Continued Submarine Anti-Jam (AJ) Global Positioning System (GPS) Enhancement (SAGE) Developmental Testing (DT) to resolve prior inconclusive test results. Continued GPS AJ programmatic and technical support of SAGE efforts.</p> <p>Commenced the SAGE Production Representative Article (PRA) design, development, testing, and integration into the submarine Multi-Function Mast (OE-538B) Antenna System PRA. Commenced government oversight, system engineering, logistics, contracts and programmatic support for the OE-538B antenna system PRA.</p> <p>Researched technology advancements to advise for technology insertion of a smaller Advanced Digital Antenna Production (ADAP) variant, Multi-Platform Anti-Jam GPS Navigation Antenna (MAGNA). Initiated acquisition efforts in support of the development and testing of MAGNA. Completed Technical Requirements Document (TRD).</p> <p>Participated in joint NAVWAR Memorandum of Understanding (MOU) initiatives and foreign competitive testing with Canada, United Kingdom and Australia to meet OSD initiatives.</p> <p>FY 2016 Plans: Complete Submarine Anti-Jam (AJ) Global Positioning System (GPS) Enhancement (SAGE) Developmental Testing (DT).</p> <p>Develop process for design changes required to integrate SAGE and Military Code (M-Code) into the submarine Multi-Function Mast (OE-538B) antenna system production representative article (PRA).</p> <p>Continue the design, development, testing, and integration of SAGE PRA into the OE-538B antenna system PRA in support of the Preliminary Design Review(PDR)and Critical Design Review(CDR). Continue government oversight, system engineering, logistics, contracts, and programmatic support of the OE-538B antenna system PRA.</p> <p>Receive MAGNA Production Ready Articles (PRA) as a result of the Rapid Innovation Fund (RIF) technology advancement contract. Continue acquisition efforts in support of Development Test/Operational Test (DT/OT) to include: development of acquisition documentation; review and develop project and test documentation; initiate test preparation activities in support of PRA DT.</p>					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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<p>Initiate efforts in preparation to award a Small Business Innovation Research (SBIR) Phase III contract for MAGNA.</p> <p>Continue to participate in joint NAVWAR MOU initiatives and foreign competitive testing with Canada, United Kingdom and Australia to meet OSD initiatives.</p> <p>FY 2017 Base Plans: Continue the design, development, testing, and integration of SAGE Production Representative Article (PRA) into the submarine Multi-Function Mast (OE-538B) antenna system PRA in support the CDR and the Test Readiness Review(TRR). Continue government oversight, system engineering, logistics, contracts, and programmatic support of the OE-538B antenna system. Commence efforts in preparation for the OE-538B Mast Functional Configuration Audit and PRA delivery. Commence preparation for developmental testing and first article testing of OE-538B PRA.</p> <p>Complete contracting efforts in support of the MAGNA SBIR Phase III contract.</p> <p>Continue to participate in joint NAVWAR MOU initiatives and foreign competitive testing with Canada, United Kingdom and Australia to meet OSD initiatives.</p> <p>FY 2017 OCO Plans: N/A.</p>					
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<p>Title: Global Positioning System (GPS) Modernization</p> <p align="right">Articles:</p> <p>Description: GPS Modernization efforts support providing Naval platforms improved access to Global Positioning System (GPS) signals in challenged and jamming environments. Modernized GPS receivers will utilize the new Military Code (M-Code) GPS Signal in Space, incorporate enhanced cryptology, deliver greater position and time accuracy, and provide improved protection against signal spoofing as compared to legacy SAASM receivers. Additionally, GPS Modernization delivers increased GPS anti-jam protection and enables blue force GPS electronic attack. Operationalizes risk reduction efforts currently underway by the Air Force and integrates it into Naval ships, submarines, aircraft, weapons systems, and GPS enabled systems imbedded on those platforms.</p> <p>FY 2015 Accomplishments:</p>	0.000 -	0.000 -	11.091 -	0.000 -	11.091 -
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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<p>N/A.</p> <p>FY 2016 Plans: N/A.</p> <p>FY 2017 Base Plans: Establish and begin execution of a plan for multiple concurrent projects to integrate and test Military-Code (M-Code) capability on Navy ships, submarines, aircraft, weapons systems, and GPS enabled systems imbedded on those platforms. Provide engineering support to the M-code receiver development programs outside this project to ensure Navy platform performance and integration requirements are supported. Conduct initial requirements development and system engineering for integration of Tier 0 Priority platforms and Tier 1 current production Platforms. Procure production representative M-Code receivers from various platforms' vendors for follow-on integration risk reduction efforts and Navy qualification testing. Initiate contracting efforts with platform vendors for M-Code receiver integration engineering and testing.</p> <p>FY 2017 OCO Plans: N/A.</p>					
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<p>Title: Global Positioning System (GPS) - Based Positioning, Navigation and Timing (PNT) Service (GPNTS) Articles:</p> <p>Description: Overall program efforts include investigation of emerging and mature technologies through study, development and associated testing for feasibility of program insertion to include GPS Protective measures such as receiver modernization, miniaturization and anti-jam integration.</p> <p>FY 2015 Accomplishments: Completed Government witnessing of the contractor's Functional Configuration Audit (FCA) and Factory Acceptance Testing (FAT) on the Engineering Development Models (EDM). Received delivery of first of two GPNTS EDMs. Completed staff training on EDM.</p> <p>Finalized laboratory preparations for the conduct of Independent Verification and Validation (IV&V) and initiated efforts to prepare for Developmental Testing (DT). Completed requests and received laboratory certification from COMOPTEVFOR. Completed a program Test Readiness Review (TRR) for IV&V and DT events. Completed test report for initial IV&V events.</p> <p>Completed the program's Provisioning Conference with Naval Inventory Control Point (NAVICP).</p>	12.452 2	7.618 -	6.007 -	0.000 -	6.007 -
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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604777N / <i>Navigation/Id System</i>	Project (Number/Name) 0921 / <i>NAVSTAR GPS Equipment</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Continued update of all statutory and regulatory acquisition documentation, including the Test and Evaluation Master Plan (TEMP), Capabilities Production Document (CPD), and Acquisition Strategy (AS), in support of a Milestone (MS) C decision. Continued installation Readiness Drawings (IRD) for all configurations in preparation for a MS C decision.</p> <p>Continued to conduct monthly Earned Value Management (EVM) analysis and reporting.</p> <p>Supported development of Positioning, Navigation and Timing (PNT) requirements in support of a Joint Aerial Layer Network-Maritime (JALN-M) demonstration in FY18.</p> <p>FY 2016 Plans: Conduct Final Acceptance of GPNTS EDM 1 and 2 and receive delivery of second EDM at government lab facilities. Continue efforts in support of Government Developmental Testing (DT) and Operational Acceptance; to include staff training, Government witnessing of events, and reporting; preparing laboratory, developing test plans, and installing EDMs in laboratory; continuing development of installation documentation including updating IRDs test configuration, Ship Installation Drawings (SIDs), and Engineering Change Orders (ECOs).</p> <p>Continue efforts to complete function and performance IV&V and conduct PNT Performance Testing on GPNTS EDMs. Developing test reports. Providing efforts to complete developmental test with COMOPTVFOR and complete Mission Readiness Assessment testing. Initiate efforts for Environmental Qualification Testing and AEGIS integration.</p> <p>Providing support efforts to obtain required Information Assurance documentation in order to conduct testing and evaluation events.</p> <p>Continue update of all statutory and regulatory acquisition documentation including the TEMP, CPD, and AS, in support of a MS C decision. Initiate the Independent Logistics Assessment (ILA) in support of a MS C decision.</p> <p>FY 2017 Base Plans: Complete Operational Acceptance, AEGIS integration, and receive AEGIS Certification. Continue Environmental Qualification Testing. Commence follow on test efforts for Navy Certification, Technical Evaluation, Combat Systems Certification and Initial Operational Test and Evaluation (IOT&E) activities.</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604777N / Navigation/Id System	Project (Number/Name) 0921 / NAVSTAR GPS Equipment

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Complete development of GPNTS installation documentation based on finalized configurations, such as Ship Change Documentation (SCD), Enterprise Change Requests (ECR) and IRDs for EDMs in support of IOT&E activities.					
Complete all statutory and regulatory acquisition documentation including the TEMP, CPD, and AS, in support of a MS C decision. Complete ILA in support of a MS C decision.					
Receive MS C decision from the Milestone Decision Authority (MDA) for approval of GPNTS Low Rate Initial Production (LRIP).					
FY 2017 OCO Plans: N/A.					
Accomplishments/Planned Programs Subtotals	17.703	17.156	26.965	0.000	26.965

C. Other Program Funding Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPN/2657: NAVSTAR GPS Receivers (Space)	15.232	12.359	12.752	-	12.752	15.803	17.577	21.224	21.655	Continuing	Continuing
• APN/0577: Common Avionics Changes	2.060	6.699	7.091	-	7.091	7.439	7.529	10.305	35.404	Continuing	Continuing
• APN/0544: E-2 Series	0.000	0.000	0.000	-	0.000	0.000	1.300	3.800	10.400	Continuing	Continuing

Remarks

D. Acquisition Strategy

Navigation Warfare (NAVWAR): The SeaNAVWAR program is executed in two increments and supports integration of the Submarine Anti-Jam (AJ) GPS Enhancement (SAGE). Increment 1 has been completed. Increment 2 is Advanced Digital Antenna Production (ADAP). The purpose of Increments 1 and 2 is to integrate AJ antennas on surface platforms. In support of accelerated Global Positioning System (GPS) modernization and AJ efforts, the Sea NAVWAR program will continue to support the SAGE antenna development integrating AJ capability on submarines for the OE-538B antenna and continue research and development of a small form factor Multi-Platform AJ GPS Navigation Antenna for surface ships. The Air NAVWAR program is executed in a single increment to integrate AJ capability on air platforms and develop a smaller AJ antenna and a conformal low-observable AJ antenna for aircraft with unique requirements in support of GPS modernization efforts in support of accelerated GPS Modernization and AJ efforts.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604777N / <i>Navigation/Id System</i>	Project (Number/Name) 0921 / <i>NAVSTAR GPS Equipment</i>
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GPS-based Positioning, Navigation, and Timing (PNT) Service (GPNTS): The GPNTS program will develop, acquire, and field the GPNTS, a scalable Selective Availability/Anti-Spoofing Module (SAASM) GPS-based service oriented architecture PNT system that will provide an open, extensible, modernized replacement for the current fleet PNT systems, while targeting Common Computing Environments (CCE). GPNTS will also integrate Military GPS User Equipment (MGUE) that will allow the U.S. Navy to leverage current and future technology development provided by the GPS Wing, formerly known as the GPS Directorate. GPNTS will operate at the UNCLASSIFIED level and can provide the PNT data to higher classified systems.

GPS Modernization will fund the non-recurring engineering required to conduct systems engineering, integration and test of Air Force developed Military GPS User Equipment (MGUE) receivers to implement Military-Code (M-CODE) on Naval air, surface, subsurface, and weapons platforms as well as other GPS systems imbedded in those platforms. Navy will use a tiered approach for implementing M-Code starting with specified priority platforms (Tier 0), then platforms currently in production to comply with Public Law 111-383 (Tier 1), followed by back fit of existing platforms (Tier 2). For Navy Air Platforms the current platform contracts will be utilized in a multi-increment approach for integration and test.

E. Performance Metrics

The primary metric used for the Air NAVWAR Program is acceptable system performance in a GPS denied environment which is defined by classified values of jamming to signal ratio (J/S) identified in the Enhanced GPS User Equipment (UE) Operational Requirements Document (ORD) 562-06-00 of 7 June 2000. The performance goal is met if acceptable system performance is achieved in the threshold J/S environment cited in the classified appendix.

The primary metric used for the Sea NAVWAR is acceptable system performance in a GPS denial environment defined by classified values of jamming to signal ratio (J/S) identified in the Sea NAVWAR Increment 2 Capabilities Production Document (CPD) (12/08). The performance goal is met if acceptable system performance is achieved in the threshold J/S environment cited in the CPD.

The primary metrics used for the GPNTS is successful completion of the system development as outlined in the GPNTS Technical Requirements Document (TRD).

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604777N / Navigation/Id System	Project (Number/Name) 0921 / NAVSTAR GPS Equipment
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	WR	SSC PAC : San Diego	73.088	0.680	Dec 2014	0.684	Dec 2015	0.500	Dec 2016	-		0.500	Continuing	Continuing	Continuing
Systems Engineering	WR	Govt/Contractor : San Diego, Newport	21.428	0.302	Nov 2014	0.304	Nov 2015	0.150	Nov 2016	-		0.150	Continuing	Continuing	Continuing
Product Development	C/CPIF	Raytheon : San Diego	27.283	5.926	Oct 2014	1.501	Jan 2016	2.024	Nov 2016	-		2.024	Continuing	Continuing	Continuing
Product Development	C/CPIF	Lockheed : Marion, MA	0.000	1.860	Sep 2015	4.882	Dec 2015	6.500	Dec 2016	-		6.500	Continuing	Continuing	Continuing
Product Development	Various	Various : Various	730.116	0.000		0.000		0.000		-		0.000	0.000	730.116	-
Subtotal			851.915	8.768		7.371		9.174		-		9.174	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	WR	SSC PAC/NAWC : San Diego/Pax River/ China Lake	14.393	2.424	Dec 2014	2.437	Dec 2015	3.000	Dec 2016	-		3.000	Continuing	Continuing	Continuing
Software Development	WR	SSC PAC/NAWC : San Diego/Pax River/ China Lake	10.450	0.000		0.000		0.314	Nov 2016	-		0.314	Continuing	Continuing	Continuing
Integrated Logistics Support	WR	SSC PAC/NAWC : San Diego/Pax River	8.202	0.209	Dec 2014	0.210	Dec 2015	0.677	Dec 2016	-		0.677	Continuing	Continuing	Continuing
Contract Engineering Services	C/FPAF	BAH : San Diego, Pax River, China Lake	0.000	1.516	Nov 2014	1.899	Nov 2015	0.472	Nov 2016	-		0.472	Continuing	Continuing	Continuing
Government Engineering Services	WR	SSC PAC, NAWC : San Diego, China Lake, Pax River	0.000	1.405	Dec 2014	1.413	Dec 2015	9.000	Dec 2016	-		9.000	Continuing	Continuing	Continuing
Training Development	WR	SSC PAC/NAWC : San Diego/Pax River	5.450	0.054	Dec 2014	0.054	Dec 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Technical Data	WR	SSC PAC : San Diego	2.070	0.021	Dec 2014	0.021	Dec 2015	0.000		-		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
1319 / 5				PE 0604777N / Navigation/Id System				0921 / NAVSTAR GPS Equipment								
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Technical Data	WR	NAWC : Pax River	0.862	0.378	Dec 2014	0.380	Dec 2015	0.000		-		0.000	Continuing	Continuing	Continuing	
Support	Various	Various : Various	5.396	0.000		0.000		0.000		-		0.000	0.000	5.396	-	
Subtotal			46.823	6.007		6.414		13.463		-		13.463	-	-	-	
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Test & Evaluation	WR	SSC PAC/NAWC PAX : San Diego/Pax River	32.507	1.526	Nov 2014	1.946	Nov 2015	1.633	Nov 2016	-		1.633	Continuing	Continuing	Continuing	
Test & Evaluation	Various	Various : Various	48.855	0.000		0.000		0.000		-		0.000	0.000	48.855	-	
Subtotal			81.362	1.526		1.946		1.633		-		1.633	-	-	-	
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Program Management Support	C/CPAF	BAH : San Diego, Pax River, China Lake	4.667	1.402	Nov 2014	1.425	Nov 2015	2.695	Nov 2016	-		2.695	Continuing	Continuing	Continuing	
Management Services	Various	Various : Various	31.334	0.000		0.000		0.000		-		0.000	0.000	31.334	-	
Subtotal			36.001	1.402		1.425		2.695		-		2.695	-	-	-	
Project Cost Totals			1,016.101	17.703		17.156		26.965		-		26.965	-	-	-	
Remarks																

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604777N / Navigation/Id System	Project (Number/Name) 0921 / NAVSTAR GPS Equipment
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Air NAVWAR

Fiscal Year	FY15				FY16				FY17				FY18				FY19				FY20				FY21							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Air Navigation Warfare (NAVWAR) Acquisition M/S *						▲				▲				▲				▲				▲				▲				▲		
						▲				▲				▲				▲				▲				▲				▲		
Air Navigation Warfare (NAVWAR) Test																																
Air Navigation Warfare (NAVWAR) Platform Installation																																

* ADAP (Advanced Digital Antenna Production), C-CRPA (Conformal Controlled Reception Pattern Antenna).

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604777N / Navigation/Id System	Project (Number/Name) 0921 / NAVSTAR GPS Equipment
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Sea NAVWAR																														
Fiscal Year	FY15				FY16				FY17				FY18				FY19				FY20				FY21					
Quarter	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4		
Sea Navigation Warfare (NAVWAR)																														
Acquisition M/S																														
Sea Increment 2 (ADAP)*																														
MAGNA**	Pre Acquisition																				OTRR				Fielding Decision					
Sea Navigation Warfare (NAVWAR)																														
Contracting Activities	SAGE PRA Contracting																													
SAS/SAGE***	██████████																													
MAGNA					RFP				Contract Award								1st Production Units Delivery				Production Options (FFP)									
Sea Navigation Warfare (NAVWAR)																														
System Development																														
SAS/SAGE																														
MAGNA													MAGNA Development																	
Sea Navigation Warfare (NAVWAR)																														
Platform T&E M/S																														
Sea Increment 2 (ADAP)	SAGE DT																													
SAS/SAGE	(Initiated Mar14)				Integrate SAGE in OE-538B																									
MAGNA																	Test Prep				PRA DT				IOT&E					
Sea Navigation Warfare (NAVWAR)																														
Platform Installation																														
Sea Increment 2 (ADAP)	██████████				ADAP: LCAC, MCM, LSD, CVN, DDG, CG, LSD, WHEC, WMSL																									
MAGNA																							MAGNA: TBD							

*ADAP is the Advanced Digital Antenna Production program
 **MAGNA is the Multi-Platform Anti-Jam GPS Navigation Antenna. It is the proposed engineering change to the ADAP variant for swap constrained platforms.
 ***SAS/SAGE is the Navy's development of a Small Antenna System (SAS)/Submarine Anti-jam GPS Enhancement (SAGE): Per MDA Merger Decision dated 24 July 2012 , the Sea NAVWAR Increment 3 SAGE transitioned to the OE-538 Increment 2 program. Per updated APB of 7 March 2013 Increment 3 cost, schedule, and performance requirements has been removed from the APB. Sea NAVWAR remains as the Technical Authority for SAGE and is responsible for prototype development.

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604777N / Navigation/Id System	Project (Number/Name) 0921 / NAVSTAR GPS Equipment
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GPNTS

Fiscal Year	FY15				FY16				FY17				FY18				FY19				FY20				FY21			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Global Positioning System (GPS) - Based Positioning, Navigation and Timing (PNT) Service (GPNTS)* Milestone/Acquisition Increment 1 **					Acquisition Documents				△ MS C								△ IOC △ FRP DR				Deployment							
GPNTS Contracts	▲ EDM #1 Delivery				▲ EDM #2 Delivery				△ LRIP Buy #1				△ LRIP Buy #2				△ LRIP Buy #3				△ FRP Option							
GPNTS Test & Evaluation Increment 1 **	IV&V Activities								Technical Eval/Navigation Cert				Environmental Qual ification Testing				△ OTRR											
					Operational Assessment				IOT&E				JITC Testing															
									Combat Sys Cert																			

* Global Positioning System (GPS) Positioning, Navigation, Timing (PNT) Service (GPNTS) will be a single Program of Record (POR), which will receive, process, and distribute three dimensional position, velocity, acceleration, time, and frequency in the formats required by shipboard user systems. GPNTS will be scalable to accommodate back fit of current legacy PNT systems as well as forward fit of new platforms.

** Increment 1 will develop, acquire, and field a baseline GPNTS integrating current Selective Availability Anti-Spoof Module (SAASM) GPS receiver. GPNTS will be based on

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604777N / Navigation/Id System	Project (Number/Name) 0921 / NAVSTAR GPS Equipment
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GPS Modernization

Fiscal Year	FY15				FY16				FY17				FY18				FY19				FY20				FY21			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
GPS Modernization	Receiver MGUE integration Eng Supp																											
	Platform Requirements Development & Systems Eng.																											
	Platform integration																											
	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>◇ Public Law 111-383 compliance required</p> <p><i>Tier 0 platforms</i> △ DT Start</p> </div> <div style="text-align: center;"> <p>△ OT</p> </div> </div>																											
	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p><i>Tier 1 platforms</i> △ DT Start</p> </div> <div style="text-align: center;"> <p>△ OT</p> </div> </div>																											
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>△ Install Val/Ver</p> </div> <div style="text-align: center;"> <p>△ Install Start</p> </div> </div>																												
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>△ Install Val/Ver</p> </div> <div style="text-align: center;"> <p>△ Install Start</p> </div> </div>																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604777N / Navigation/Id System	Project (Number/Name) 0921 / NAVSTAR GPS Equipment

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 0921				
Air NAVWAR: Air Navigation AJ Demonstrations	1	2016	4	2016
Air NAVWAR: Air Navigation KPP & Requirements Development	1	2015	2	2018
Air NAVWAR: Air Navigation GPS Mod and A-PNT/AJ Integration/Test Efforts	1	2015	4	2021
Air NAVWAR: Air Navigation ADAP Option 2016	2	2016	2	2016
Air NAVWAR: Air Navigation C-CRPA Option 2016	2	2016	2	2016
Air NAVWAR: Air Navigation C-CRPA 2017 New Contract	1	2017	1	2017
Air NAVWAR: Air Navigation ADAP Option 2017	2	2017	2	2017
Air NAVWAR: Air Navigation C-CRPA Option 2018	1	2018	1	2018
Air NAVWAR: Air Navigation ADAP 2018 New Contract	2	2018	2	2018
Air NAVWAR: Air Navigation C-CRPA Option 2019	1	2019	1	2019
Air NAVWAR: Air Navigation ADAP Option 2019	2	2019	2	2019
Air NAVWAR: Air Navigation C-CRPA Option 2020	1	2020	1	2020
Air NAVWAR: Air Navigation ADAP Option 2020	2	2020	2	2020
Air NAVWAR: Air Navigation C-CRPA Option 2021	1	2021	1	2021
Air NAVWAR: Air Navigation ADAP Option 2021	2	2021	2	2021
Air NAVWAR: Air Navigation Installations	1	2015	4	2021
Sea NAVWAR: Sea Navigation MAGNA Pre-Acquisition	4	2015	4	2017
Sea NAVWAR: Sea Navigation MAGNA OTRR	1	2021	1	2021
Sea NAVWAR: Sea Navigation MAGNA Fielding Decision	1	2021	1	2021
Sea NAVWAR: Sea Navigation (SUB) SAGE PRA Contracting	1	2015	4	2015
Sea NAVWAR: Sea Navigation MAGNA RFP	1	2017	1	2017
Sea NAVWAR: Sea Navigation MAGNA Contract Award	4	2017	4	2017

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604777N / Navigation/Id System	Project (Number/Name) 0921 / NAVSTAR GPS Equipment
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Sea NAVWAR: Sea Navigation MAGNA 1st Unit Delivery	1	2020	1	2020
Sea NAVWAR: Sea Navigation MAGNA Production Options (FFP)	1	2020	4	2021
Sea NAVWAR: Sea Navigation MAGNA Development	1	2018	1	2020
Sea NAVWAR: Sea Navigation (SUB) SAGE DT	1	2015	2	2016
Sea NAVWAR: Sea Navigation (SUB) Integrate SAGE to OE-538B	4	2015	1	2018
Sea NAVWAR: Sea Navigation MAGNA Test Preparation Efforts	2	2019	3	2020
Sea NAVWAR: Sea Navigation MAGNA PRA DT	3	2020	3	2020
Sea NAVWAR: Sea Navigation MAGNA IOT&E	1	2021	1	2021
Sea NAVWAR: Sea Navigation (SUB) SAGE/ADAP Installations	1	2015	4	2021
Sea NAVWAR: Sea Navigation MAGNA Installations	1	2021	4	2021
GPS-based PNT Service (GPNTS): GPNTS Acquisition Documents	1	2015	2	2017
GPS-based PNT Service (GPNTS): GPNTS MS C	3	2017	3	2017
GPS-based PNT Service (GPNTS): GPNTS IOC	2	2020	2	2020
GPS-based PNT Service (GPNTS): GPNTS FRP DR	3	2020	3	2020
GPS-based PNT Service (GPNTS): GPNTS Deployment	2	2020	4	2021
GPS-based PNT Service (GPNTS): GPNTS EDM Delivery #1	2	2015	2	2015
GPS-based PNT Service (GPNTS): GPNTS EDM Delivery #2	1	2016	1	2016
GPS-based PNT Service (GPNTS): GPNTS LRIP Option 1	3	2017	3	2017
GPS-based PNT Service (GPNTS): GPNTS LRIP Option 2	2	2018	2	2018
GPS-based PNT Service (GPNTS): GPNTS LRIP Option 3	2	2019	2	2019
GPS-based PNT Service (GPNTS): GPNTS FRP Option	3	2020	3	2020
GPS-based PNT Service (GPNTS): GPNTS IV&V Activities	1	2015	4	2016
GPS-based PNT Service (GPNTS): GPNTS Operational Assessment	1	2015	3	2017
GPS-based PNT Service (GPNTS): GPNTS Environmental Qualification Testing	2	2016	2	2018
GPS-based PNT Service (GPNTS): GPNTS Tech Eval / Nav Cert	3	2017	2	2019
GPS-based PNT Service (GPNTS): GPNTS IOT&E Activities	3	2017	3	2019

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604777N / <i>Navigation/Id System</i>	Project (Number/Name) 0921 / <i>NAVSTAR GPS Equipment</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
GPS-based PNT Service (GPNTS): GPNTS Combat Cert	3	2017	2	2018
GPS-based PNT Service (GPNTS): GPNTS OTRR	2	2019	2	2019
GPS-based PNT Service (GPNTS): GPNTS JITC Testing	3	2019	3	2019
GPS Modernization: GPS Modernization MGUE Integration Engineering Support	1	2017	2	2019
GPS Modernization: GPS Modernization Requirements Development & System Engineering	2	2017	2	2020
GPS Modernization: GPS Modernization Platform Integration	2	2018	4	2020
GPS Modernization: GPS Modernization Public Law 111-383 Compliance Required	1	2018	1	2018
GPS Modernization: GPS Modernization Tier 0 Development Testing Start	4	2018	4	2018
GPS Modernization: GPS Modernization Tier 0 Development Operational Testing	2	2020	2	2020
GPS Modernization: GPS Modernization Tier 0 Install Validation & Verification	2	2021	2	2021
GPS Modernization: GPS Modernization Tier 0 Installation Start	3	2021	3	2021
GPS Modernization: GPS Modernization Tier 1 Development Testing Start	1	2019	1	2019
GPS Modernization: GPS Modernization Tier 1 Development Operational Testing	3	2020	3	2020
GPS Modernization: GPS Modernization Tier 1 Install Validation & Verification	2	2021	2	2021
GPS Modernization: GPS Modernization Tier 1 Installation Start	3	2021	3	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604777N / Navigation/Id System				Project (Number/Name) 1253 / Combat Ident System			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
1253: <i>Combat Ident System</i>	177.905	3.200	2.645	3.852	-	3.852	2.556	2.056	1.953	1.996	Continuing	Continuing
Quantity of RDT&E Articles	81	1	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

MK XIIA Mode 5 provides improved secure cooperative combat identification via Identification Friend or Foe (IFF). Mode 5 is developed in cooperation with North Atlantic Treaty Organization, with the DoD implementation governed by AIMS 03-1000A and USN requirements defined in ORD # 577-06-01. IFF product improvements are designed to be installed through upgrade and deficiency correction studies, which in turn, become engineering changes to IFF interrogators and transponders and their associated cryptographic material.

The Navy Mark XIIA Mode 5 program was approved for entry in Systems Development and Demonstration phase in August 2003 and into the Production and Deployment Phase and Low Rate Initial Production in July 2006, and Full Rate Production July 2012. Achieved Navy Mode 5 Initial Operational Capability (IOC) in 2012 in accordance with ORD. Fielded Mode 5 capable equipment in USN/USMC platforms in accordance with Joint Requirements Oversight Council Memorandums (047-07, 122-08 and 108-13) in support of Joint Mode 5 IOC in 2014. Expect to meet Joint Full Operational Capability in FY2020.

RDT&E articles include Mode 5 cryptographic modules and associated hardware and software changes for IFF interrogators and transponders, including, but not limited to: AN/APX-123, AN/APX-119, and AN/APX-111 equipment. RDT&E units are required for government and contractor labs to support aircraft and ship integrations, test sites and test aircraft.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Mode 5 prototype hardware, cryptographic module	0.397	0.890	2.272	0.000	2.272
Articles:	-	-	-	-	-
Description: Develop kits for installation into existing fleet assets including AN/APX-118/123 Common Digital Transponder, and AN/APX-111 Combined Interrogator Transponder or other interrogator/transponder equipment. Repair and correct deficiencies identified during integration and test. Procure IFF interrogators and transponders, including but not limited to: AN/APX-123, AN/APX-119, AN/APX-111, cryptographic modules and Mode 5 modification kits to support platform integration and testing. Perform platform integration efforts of Mode 5 equipment for various Type/ Model/Series aircraft.					
FY 2015 Accomplishments: Finalized integration of the Mode 5 AN/APX-111 CIT in the F/A-18E/F and EA-18G aircraft.					
FY 2016 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604777N / Navigation/Id System	Project (Number/Name) 1253 / Combat Ident System
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Begin platform integration design and development for incorporation of Mode 5 capability in CH-53K aircraft.</p> <p>FY 2017 Base Plans: Complete integration of Mode 5 capability in the CH-53K aircraft, including laboratory verification testing of the functionality prior to FY2018 T&E efforts.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Mode 5 Systems Engineering and Integrated Logistics Support (ILS)</p> <p align="right">Articles:</p> <p>Description: Performed systems engineering and analysis in support of Mode 5 hardware/software development and engineering change proposals on Identification Friend or Foe interrogators and transponders, including but not limited to: AN/UPX-41C Interrogator, AN/APX-123 Common Digital Transponder, AN/APX-119 Transponder, AN/APX-111 Combined Interrogator Transponder, Cryptographic Modules, Mode 5 Engineering Test Equipment, and Mode 5 support equipment.</p> <p>FY 2015 Accomplishments: Continue systems engineering and logistics efforts for various platforms (including KC-130J aircraft).</p> <p>FY 2016 Plans: Continue systems engineering integration design and development and logistics planning efforts for various platforms. Continue integration efforts of Mode 5 capability in CH-53K and KC-130J aircraft platforms.</p> <p>FY 2017 Base Plans: Continue systems engineering efforts for integration of Mode 5 capability in aircraft platforms, to include CH-53K and KC-130J. Perform logistics efforts to develop fleet pubs, training and retrofit Engineering Change Proposals for achieving Mode 5 capability in CH-53K and KC-130J.</p> <p>FY 2017 OCO Plans: N/A</p>	1.122	0.366	0.412	0.000	0.412
	-	-	-	-	-
<p>Title: Mode 5 Upgrade Developmental Test & Operational Test</p> <p align="right">Articles:</p> <p>Description: Perform Mode 5 integrated and operational test phases for AN/UPX-41C Interrogator, AN/APX-123 Common Transponder, AN/APX-119 Transponder, and AN/APX-111 Combined Interrogator Transponder.</p>	1.681	1.389	1.168	0.000	1.168
	1	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604777N / Navigation/Id System	Project (Number/Name) 1253 / Combat Ident System
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p><i>FY 2015 Accomplishments:</i> Procure APX-119 and cryptographic module for the Navy's KC-130J test aircraft and planned for testing. Coordinate and planned for multiple platform integrated testing. Planned and conducted platform integrated testing for Mode 5 equipment upgrades on multiple platforms. Conducted operational testing on the F/A-18E/F and EA-18G of the Mode 5 AN/APX-111 equipment and platform H10 Mission Computer integration software.</p> <p><i>FY 2016 Plans:</i> Continue testing of Mode 5 modified equipment including cryptological devices. Perform F/A-18E/F and EA-18G Mode 5 AN/APX-111 and H10 testing for verification and correction of deficiencies identified as a result of integrated and operational testing.</p> <p><i>FY 2017 Base Plans:</i> Continue testing of Mode 5 modified equipment including cryptological devices. Perform test planning and execution in support of Mode 5 APX-119 integration on KC-130J aircraft and Mode 5 APX-123 integration on CH-53K platform.</p> <p><i>FY 2017 OCO Plans:</i> N/A</p>					
Accomplishments/Planned Programs Subtotals	3.200	2.645	3.852	0.000	3.852

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPN/2851: ID Systems	28.085	29.676	22.177	-	22.177	26.711	28.650	29.272	29.888	Continuing	Continuing
• APN/0582: ID Sys	38.880	41.063	45.768	-	45.768	49.374	46.199	47.146	48.112	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Acquisition Strategy is to develop Mode 5 Engineering Change Proposals to modernize Mark XII Identification Friend or Foe (IFF) equipment or insert Mode 5 into other existing equipment. After integration into all Navy Combat Weapons systems platforms, the Navy will transition Cooperative Identification Capability to Mode 5.

E. Performance Metrics

Continue Full Rate Production and assist in achieving Joint Full Operational Capability in FY2020. Perform studies and analysis for future road mapping of IFF capability.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604777N / Navigation/Id System	Project (Number/Name) 1253 / Combat Ident System
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Prior Year Prod Dev Services costs no longer funded in FYDP	Various	Various : Various	43.213	0.000		0.000		0.000		-		0.000	0.000	43.213	43.213
Primary Hardware Development	WR	NAWCWD : China Lake, CA	16.821	0.397	Jan 2015	0.000		0.000		-		0.000	0.294	17.512	17.512
Primary Hardware Development	Various	Boeing : St Louis, MO	30.426	0.000		0.000		0.000		-		0.000	4.551	34.977	34.977
Systems Engineering	WR	NAWCAD : PAX River, MD	14.514	0.643	Nov 2014	0.216	Nov 2015	0.248	Nov 2016	-		0.248	Continuing	Continuing	Continuing
Systems Engineering	WR	NAWCAD : St Inigoes, MD	14.312	0.394	Nov 2014	0.045	Nov 2015	0.051	Nov 2016	-		0.051	Continuing	Continuing	Continuing
Primary Hardware Development	Various	L-3 : Waco, TX	0.000	0.000		0.000		0.032	Jan 2017	-		0.032	0.224	0.256	0.256
Primary Hardware Development	Various	Sikorsky : Stratford, CT	0.000	0.000		0.890	Jan 2016	2.240	Jan 2017	-		2.240	4.386	7.516	7.516
Subtotal			119.286	1.434		1.151		2.571		-		2.571	-	-	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ILS	Various	Various : Various	4.737	0.085	Nov 2014	0.105	Nov 2015	0.113	Nov 2016	-		0.113	Continuing	Continuing	Continuing
Prior Year Support Services costs no longer funded in FYDP	Various	Various : Various	2.761	0.000		0.000		0.000		-		0.000	0.000	2.761	2.761
Subtotal			7.498	0.085		0.105		0.113		-		0.113	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604777N / Navigation/Id System	Project (Number/Name) 1253 / Combat Ident System
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental T & E	WR	NAWCAD : PAX River, MD	26.415	1.621	Nov 2014	1.389	Nov 2015	1.168	Nov 2016	-		1.168	7.705	38.298	38.298
Develop/Operational T & E	WR	COMOPTEVFOR : Norfolk, VA	0.291	0.000		0.000		0.000		-		0.000	0.000	0.291	0.291
Operational T & E	WR	NAWCAD : PAX River, MD	16.623	0.000		0.000		0.000		-		0.000	0.000	16.623	16.623
Test Assets	Various	Various : Various	3.396	0.060	Mar 2015	0.000		0.000		-		0.000	0.000	3.456	3.456
Subtotal			46.725	1.681		1.389		1.168		-		1.168	7.705	58.668	58.668

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Prior Year Mgmt Services costs no longer funded in FYDP	Various	Various : Various	4.396	0.000		0.000		0.000		-		0.000	0.000	4.396	4.396
Subtotal			4.396	0.000		0.000		0.000		-		0.000	0.000	4.396	4.396

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	177.905	3.200	2.645	3.852	-	3.852	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy

Date: February 2016

Appropriation/Budget Activity
1319 / 5

R-1 Program Element (Number/Name)
PE 0604777N / Navigation/Id System

Project (Number/Name)
1253 / Combat Ident System

Combat Identification Systems	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestones																												
Milestones																												
Systems Development																												
Hardware Development																												
Software Development Integration																												
Test and Evaluation																												
Technical Evaluation																												
Operational Evaluation																												
Production Milestones																												
Contract Awards																												
Deliveries																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604777N / <i>Navigation/Id System</i>	Project (Number/Name) 1253 / <i>Combat Ident System</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Combat Identification Systems				
Acquisition Milestones: Milestones: Mode 5 JFOC	4	2020	4	2020
Systems Development: Hardware Development: Prepare & Evaluate ECPs/SCDs	1	2015	3	2021
Systems Development: Software Development Integration: Platform Intg	1	2015	2	2015
Systems Development: Software Development Integration: KC-130J	1	2016	4	2017
Systems Development: Software Development Integration: CH-53K	2	2016	1	2018
Test and Evaluation: Technical Evaluation: F/A-18E/F & EA-18G	2	2015	1	2016
Test and Evaluation: Technical Evaluation: CH-53K	1	2019	4	2019
Test and Evaluation: Technical Evaluation: KC-130J	1	2018	3	2018
Test and Evaluation: Technical Evaluation: F/A-18E/F Verification	3	2016	1	2017
Test and Evaluation: Operational Evaluation: Follow-on Test and Evaluation	3	2016	4	2021
Deliveries: FRP Deliveries	1	2015	4	2019

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604800M / (U) <i>Joint Strike Fighter (JSF) - EMD</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	46,068.873	487.939	537.901	531.426	-	531.426	99.841	9.649	5.842	3.858	0.000	47,745.329
2262: <i>Joint Strike Fighter EMD STOVL</i>	46,010.955	476.350	505.949	507.078	-	507.078	88.414	9.649	5.842	3.858	0.000	47,608.095
3350: <i>F-35B Sustainment/ Capability Enhancements</i>	57.918	11.589	31.952	24.348	-	24.348	11.427	0.000	0.000	0.000	0.000	137.234

Program MDAP/MAIS Code: 198

A. Mission Description and Budget Item Justification

The F-35 Joint Strike Fighter (JSF) Program will develop and field an affordable, highly common family of next generation strike aircraft for the USN, USAF, USMC and allies. The three variants are the F-35A Conventional Takeoff and Landing; F-35B Short Takeoff and Vertical Landing; and the F-35C Aircraft Carrier Suitable Variant. The F-35A will be a stealthy multi-role aircraft, primary air-to-ground for the Air Force to replace the F-16 and A-10 and complement the F-22. The F-35B variant will be a multi-role strike fighter aircraft to replace the AV-8B and F/A-18 for the Marine Corps, replace the Sea Harrier and GR 7 for the United Kingdom, and replace the AV-8 currently employed by the Italian Navy. The F-35C will provide the Department of the Navy a multi-role, stealthy strike fighter aircraft to complement the F/A-18E/F. FY2016 F-35 Block 4 activity supports development of Follow-on Development Increment 1 Capability Development Document (CDD). Follow-on Development will provide capability enhancements, required systems upgrades and cost improvements through an incremental acquisition approach.

The United Kingdom, other International Partner nations, and Foreign Military Sales customers are also participants in the JSF program. The program shown here reflects USN, USMC, USAF, and International Partner funding.

Funding at the accomplishment/planned program level is reported as the total of all services and partners as these activities support all aircraft variants.

The System Development and Demonstration (SDD) budget funds a total quantity of 20 RDT&E test articles to include 6 ground test articles and 14 flight test articles for USN, USMC, and USAF use.

- FY07: 1 F-35A flight test article
- FY08: 1 F-35B flight test article; 1 F-35B ground test article
- FY09: 1 F-35B flight test article; 2 F-35A ground test articles
- FY10: 6 flight test articles: 3 F-35A, 2 F-35B, 1 F-35C; 3 ground test articles: 1 F-35B, 2 F-35C
- FY11: 4 flight test articles: 1 F-35A, 1 F-35B, 2 F-35C
- FY13: 1 F-35C flight test article

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy I BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604800M I (U) <i>Joint Strike Fighter (JSF) - EMD</i>
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JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under SDD because it includes those projects that have passed Milestone B approval and are conducting engineering and manufacturing development tasks aimed at meeting validated requirement prior to full-rate production decision.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	499.048	537.901	398.976	-	398.976
Current President's Budget	487.939	537.901	531.426	-	531.426
Total Adjustments	-11.109	0.000	132.450	-	132.450
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-11.108	0.000			
• Program Adjustments	0.000	0.000	131.000	-	131.000
• Rate/Misc Adjustments	-0.001	0.000	1.450	-	1.450

Change Summary Explanation

FY2017 Increase: +\$106.600M was for the modification of F-35B operational test aircraft. +\$24.400M was for Deployability & Suitability Enhancements.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604800M / (U)Joint Strike Fighter (JSF) - EMD				Project (Number/Name) 2262 / Joint Strike Fighter EMD STOVL			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2262: Joint Strike Fighter EMD STOVL	46,010.955	476.350	505.949	507.078	-	507.078	88.414	9.649	5.842	3.858	0.000	47,608.095
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Total cost including United States Navy (USN), United States Marine Corps (USMC), International partner contributions and United States Air Force (USAF) funding are: FY15 \$1,496.239M, FY16 \$1,506.200M, and FY17 \$1,436.880M R-2 data reflects variant unique funding only.

R-2A(section B)/R-3 displays total combined program (i.e. not Service specific), including International partners.

F-35 EMD Includes:

- USAF PE 0604800F BPAC 653831
- USN PE 0604800N Project Unit 2261
- USMC PE 0604800M Project Unit 2262

D&S Includes:

- USAF PE 0604800F BPAC 653832
- USN PE 0604800N Project Unit 3352
- USMC PE 0604800M Project Unit 3350

A. Mission Description and Budget Item Justification

The F-35 Joint Strike Fighter (JSF) Program will develop and field an affordable, highly common family of next generation strike aircraft for the USN, USAF, USMC and allies. The three variants are the F-35A Conventional Takeoff and Landing; F-35B Short Takeoff and Vertical Landing; and the F-35C Aircraft Carrier Suitable Variant. The F-35A will be a stealthy multi-role aircraft, primary air-to-ground for the Air Force to replace the F-16 and A-10 and complement the F-22. The F-35B variant will be a multi-role strike fighter aircraft to replace the AV-8B and F/A-18 for the Marine Corps, replace the Sea Harrier and GR 7 for the United Kingdom, and replace the AV-8 currently employed by the Italian Navy. The Carrier Variant F-35C will provide the Department of the Navy a multi-role, stealthy strike fighter aircraft to complement the F/A-18E/F.

The United Kingdom, other International Partner nations, and Foreign Military Sales customers are also participants in the Joint Strike Fighter program. The program shown here reflects United States Navy (USN), United States Marine Corps, United States Air Force (USAF), and International Partner funding.

The top-line Program Element reflects the unique variant for each Service. Funding at the accomplishment/planned program level is reported as the total of all services and partners as these activities support all aircraft variants.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800M / (U)Joint Strike Fighter (JSF) - EMD	Project (Number/Name) 2262 / Joint Strike Fighter EMD STOVL

The System Development and Demonstration (SDD) budget funds a total quantity of 20 RDT&E test articles to include 6 ground test articles and 14 flight test articles for USN, USMC and USAF use.

- FY07: 1 F-35A flight test article
- FY08: 1 F-35B flight test article; 1 F-35B ground test article
- FY09: 1 F-35B flight test article; 2 F-35A ground test articles
- FY10: 6 flight test articles: 3 F-35A, 2 F-35B, 1 F-35C; 3 ground test articles: 1 F-35B, 2 F-35C
- FY11: 4 flight test articles: 1 F-35A, 1 F-35B, 2 F-35C
- FY13: 1 F-35C flight test article

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Title: System Development and Demonstration (SDD)</p> <p align="right">Articles:</p> <p>Description: SDD execution of the Air System (Lockheed Martin) including International Commonality Efforts; includes airframe, vehicle and mission systems, autonomic logistics, systems engineering & test efforts.</p> <p>FY 2015 Accomplishments: Continue SDD execution of Air System Lockheed Martin, including International Commonality Effort which include, airframe vehicle systems, mission systems, autonomic logistics, systems engineering, and integrated test efforts. Activity aligned to IMS in accordance with variant IOC.</p> <p>FY 2016 Plans: Continue SDD execution of Air System Lockheed Martin, including International Commonality Effort which include, airframe, vehicle systems, mission systems, autonomic logistics, systems engineering, and integrated test efforts including modifications to Operational Testing. Activity aligned to IMS in accordance with variant IOC.</p> <p>FY 2017 Base Plans: Continue SDD execution of Air System Lockheed Martin, including International Commonality Effort which includes, airframe, vehicle systems, mission systems, autonomic logistics, systems engineering, and integrated test efforts. Activity aligned to Integrated Master Schedule (IMS) in accordance with variant Initial Operational Capability (IOC).</p> <p>FY 2017 OCO Plans: N/A</p>	798.385	766.918	988.704	0.000	988.704
	-	-	-	-	-
Title: F135 Propulsion System	200.220	174.733	55.381	0.000	55.381

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800M / (U)Joint Strike Fighter (JSF) - EMD	Project (Number/Name) 2262 / Joint Strike Fighter EMD STOVL

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p align="right">Articles:</p> <p>Description: SDD execution of the F135 Propulsion System (Pratt & Whitney) including International Commonality Effort; includes testing, autonomic logistics, integration & performing technology maturation efforts.</p> <p>FY 2015 Accomplishments: Continue SDD execution of Air System Lockheed Martin, including International Commonality Effort which include, airframe vehicle systems, mission systems, autonomic logistics, systems engineering, and integrated test efforts. Activity aligned to IMS in accordance with variant IOC.</p> <p>FY 2016 Plans: Continue SDD execution of the F135 Propulsion System with Pratt & Whitney that includes engine testing, autonomic logistics, integration and performing technology maturation efforts.</p> <p>FY 2017 Base Plans: Continue SDD execution of the F135 Propulsion System with Pratt & Whitney that includes engine testing, autonomic logistics, integration and performing technology maturation efforts.</p> <p>FY 2017 OCO Plans: N/A</p>	-	-	-	-	-
<p>Title: Systems Engineering (SE)</p> <p align="right">Articles:</p> <p>Description: SDD SE including systems operations requirements analysis, program integration, requirements integration, and interoperability support.</p> <p>FY 2015 Accomplishments: Continue SDD SE, including systems operations requirements analysis, program integration, requirements integration, and interoperability support.</p> <p>FY 2016 Plans: Continue SDD SE, including systems operations requirements analysis, program integration, requirements integration, and interoperability support.</p> <p>FY 2017 Base Plans: Continue SDD SE, including systems operations requirements analysis, program integration, requirements</p>	27.628	25.383	10.198	0.000	10.198
	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
integration, and interoperability FY 2017 OCO Plans: N/A					
Title: Development Test and Evaluation (DT&E) Articles: Description: Government DT&E/Operational Testing (OT) in support of first flight of test aircraft. Elements of DT&E include preparation for flight testing and weapons integration testing. FY 2015 Accomplishments: Continue government DT&E/OT in support of test aircraft. Continue flight sciences testing of CTOL, STOVL, and CV variants to expand air vehicle envelope and support mission systems testing. Elements of DT&E include flight testing, weapons integration testing, and component capabilities testing. FY 2016 Plans: Continue government DT&E/OT in support of test aircraft. Continue flight sciences testing of CTOL, STOVL, and CV variants to expand air vehicle envelope and support mission systems testing. Elements of DT&E include flight testing, weapons integration testing, and component capabilities testing. FY 2017 Base Plans: Continue execution of government DT&E and OT activities in support of test aircraft. Continue flight sciences testing of F-35A, F-35B, and F-35C variants to expand air vehicle envelope and support mission systems testing. Elements of DT&E include flight testing, weapons integration testing, and component capabilities testing. FY 2017 OCO Plans: N/A	303.555	390.040	301.176	0.000	301.176
	-	-	-	-	-
Title: Development Support Articles: Description: SDD Support efforts for airframe, air vehicle systems, mission systems, weapons integration, mission support, and autonomic logistics development activities. FY 2015 Accomplishments:	130.710	116.360	50.415	0.000	50.415
	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Continue SDD support efforts for airframe, air vehicle systems, mission systems, weapons integration, mission support, and autonomic logistics development activities.</p> <p>FY 2016 Plans: Continue SDD support efforts for airframe, air vehicle systems, mission systems, weapons integration, mission support, and autonomic logistics development activities.</p> <p>FY 2017 Base Plans: Continue SDD support efforts for airframe, air vehicle systems, mission systems, weapons integration, mission support, and autonomic logistics development activities.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Autonomic Logistics Information System (ALIS)</p> <p align="right">Articles:</p> <p>Description: SDD execution of Autonomic Logistics Information System (ALIS) develops the information infrastructure used to transmit health and maintenance action information for the aircraft to the appropriate users. This is not a New Start. Funding has been broken out for transparency.</p> <p>FY 2015 Accomplishments: Continue SDD execution of ALIS to develop the information infrastructure used to transmit health and maintenance action information for the aircraft to the appropriate users.</p> <p>FY 2016 Plans: Continue SDD execution of ALIS to develop the information infrastructure used to transmit health and maintenance action information for the aircraft to the appropriate users.</p> <p>FY 2017 Base Plans: Continue SDD execution of ALIS to develop the information infrastructure used to transmit health and maintenance action information for the aircraft to the appropriate users.</p> <p>FY 2017 OCO Plans: N/A</p>	35.741	32.766	31.006	0.000	31.006
	-	-	-	-	-
Accomplishments/Planned Programs Subtotals	1,496.239	1,506.200	1,436.880	0.000	1,436.880
Joint Strike Fighter 0604800N	470.545	467.759	504.296	-	504.296

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
	Joint Strike Fighter 0604800F	534.344	515.492	403.506	-
International Partner	15.000	17.000	22.000	-	22.000
Navy Subtotals	476.350	505.949	507.078	0.000	507.078

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• RDT&E/0604800F: <i>F-35A Joint Strike Fighter</i>	534.344	515.492	403.506	-	403.506	113.567	5.327	5.392	5.497	0.000	22,091.967
• International: <i>International Partner (SDD)</i>	15.000	17.000	22.000	-	22.000	27.450	0.000	0.000	0.000	0.000	5,000.750
• APAF/0207142F BP10: <i>F-35A USAF CTOL</i>	3,542.842	5,259.812	4,401.894	-	4,401.894	4,988.701	4,712.256	4,838.591	5,801.997	138,652.940	190,239.288
• RDT&E/0604800N/2261: <i>F-35C Joint Strike Fighter (JSF) - EMD</i>	470.545	467.759	504.296	-	504.296	43.816	0.000	0.000	0.000	0.000	47,497.371
• APN/0605B: <i>F-35B Joint Strike Fighter STOVL Spares</i>	64.194	111.569	123.252	-	123.252	26.159	88.434	160.150	140.989	Continuing	Continuing
• APN/0605C: <i>F-35C Joint Strike Fighter CV Spares</i>	28.386	59.914	26.076	-	26.076	76.886	41.847	52.858	303.608	Continuing	Continuing
• MILCON 0207142F: <i>USAF MILCON Operations</i>	66.700	132.850	305.700	-	305.700	80.000	27.500	0.000	0.000	1,312.100	2,511.350
• APAF/0207142F BP11: <i>USAF Modification Funding</i>	187.646	70.167	175.811	-	175.811	385.931	237.349	232.017	237.273	Continuing	Continuing
• FOD/0207142F: <i>USAF Follow-on Development (FoD)</i>	23.660	48.954	127.302	-	127.302	321.658	340.950	339.209	345.223	Continuing	Continuing
• 0207142F/USAF BP16: <i>USAF Joint Strike Fighter Initial Spares</i>	231.847	229.582	267.792	-	267.792	315.478	353.602	354.622	355.591	10,311.851	13,420.134
• USAF/OPAF 0207142F: <i>USAF OPAF</i>	4.463	3.858	2.333	-	2.333	2.374	2.415	0.000	0.000	Continuing	Continuing
• APN/0592: <i>F-35B STOVL Series</i>	215.819	204.464	34.928	-	34.928	158.277	89.352	64.963	79.077	Continuing	Continuing
• APN/0593: <i>F-35C CV Series</i>	20.502	48.527	26.004	-	26.004	49.848	20.721	12.929	13.192	Continuing	Continuing

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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017	FY 2017	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Cost To	
			Base	OCO	Total					Complete	Total Cost
• RDT&E/0604800N/3352: <i>F-35C Sustainment/ Capability Enhancements</i>	16.433	36.977	24.420	-	24.420	11.802	0.000	0.000	0.000	0.000	147.550
• USAF SDD BP 653832: <i>JSF Deployability and Suitability Enhancements</i>	32.593	71.461	46.962	-	46.962	23.795	0.000	0.000	0.000	0.000	199.978
• PAF/0207142F BP10: <i>F-35A JSF CTOL Advance Procurement</i>	418.880	460.260	404.500	-	404.500	391.263	406.750	424.230	424.230	16,880.950	21,689.492
• DCA/0207142F 676011: <i>Dual Capable Aircraft (DCA)</i>	15.615	4.967	25.743	-	25.743	27.731	37.637	49.554	50.433	Continuing	Continuing
• APN/0147: <i>F-35C Joint Strike Fighter CV</i>	927.568	1,062.542	939.280	-	939.280	1,031.960	1,766.145	2,333.863	2,974.122	30,649.190	54,091.144
• APN/0152C: <i>F-35B Joint Strike Fighter STOVL AP</i>	143.885	203.060	233.648	-	233.648	370.472	227.562	231.003	220.000	2,452.774	5,025.035
• APN/0152: <i>F-35B Joint Strike Fighter STOVL</i>	1,287.605	2,291.599	2,240.828	-	2,240.828	2,853.972	2,758.152	2,787.591	2,868.001	22,845.941	44,735.221
• DoN MILCON: <i>DoN JSF MILCON</i>	131.904	94.420	230.900	-	230.900	64.660	121.990	119.800	0.000	Continuing	Continuing
• International 2: <i>Intl Production/ Reprogramming Lab</i>	3,350.860	4,211.698	5,377.274	-	5,377.274	7,420.782	7,893.177	9,050.299	8,092.207	Continuing	Continuing
• OPN/4268: <i>Logistics Information System (ALIS)</i>	47.105	49.773	39.099	-	39.099	35.574	40.367	60.537	60.928	Continuing	Continuing
• MC/0207597F: <i>USAF MILCON Training</i>	0.000	65.400	20.000	-	20.000	21.000	34.000	15.900	0.000	0.000	156.300
• International 3: <i>International R&D FoD/D&S</i>	21.086	79.318	128.965	-	128.965	157.602	169.315	171.636	68.599	Continuing	Continuing
• OPN 902010 S8JC: <i>Aviation Support Equipment (ALIS)</i>	0.730	2.946	0.881	-	0.881	2.297	2.321	0.139	1.977	Continuing	Continuing
• USAF O&M: <i>USAF O&M</i>	217.556	302.952	360.107	-	360.107	452.906	555.687	858.671	0.000	Continuing	Continuing
• USAF MILCON 0502635F: <i>USAF MILCON Air National Guard</i>	0.000	0.000	15.100	-	15.100	0.000	0.000	0.000	0.000	0.000	15.100
• USN 3194: <i>USN USRL</i>	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	147.205

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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017	FY 2017	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Cost To	
			Base	OCO	Total					Complete	Total Cost
• USN 2936: F-35C Follow-on Development (CV)	10.302	21.200	63.387	-	63.387	133.686	144.003	147.646	150.902	Continuing	Continuing
• USN C260: F-35C RDTE FoD CDD	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1.500
• International Unique: Intl Unique (SDD/PSFD)	81.681	39.852	39.608	-	39.608	11.474	22.812	29.409	5.357	0.000	969.741

Remarks

D. Acquisition Strategy

The SDD program consists of a cost-reimbursement contract awarded to Lockheed Martin Aeronautics Company to develop the F-35 Air System, consisting of three aircraft variants and its associated logistics support system, for the U.S. Services and international participants. Similarly, a cost-reimbursement contract was awarded to Pratt & Whitney to develop the F135 propulsion system. Ground and flight testing will be conducted during development to accomplish validation and verification, with the extensive use of modeling and simulation to offset the risk of this large, complex, and concurrent lifecycle program. A comprehensive logistics support environment, including an integrated training system for aircrew, maintenance, and support personnel, is also being developed.

On 25 April 2011, the Department of Defense terminated the development of the General Electric Rolls-Royce Fighter Engine Team F136 propulsion system.

The F-35 Program has made international involvement a key element of the acquisition strategy. This includes international partnership in the development, production, and sustainment phases of the lifecycle. Additional international participation includes Foreign Military Sales arrangements.

In Fiscal Year 2007, separate cost-type contracts were awarded to Lockheed Martin Aeronautics Company and Pratt & Whitney to begin low rate initial production for F-35 air vehicles, propulsion systems, and sustainment for the fielded systems. Transition to fixed-price-type procurement contracts occurred with the fourth low rate lot. To provide logistics support for delivered aircraft, Performance-Based Logistics cost-type contracts will be awarded to Lockheed Martin Aeronautics Company and Pratt & Whitney.

At the completion of Low Rate Initial Production, a Defense Acquisition Board review, and Milestone Decision Authority approval, the F-35 Program will enter Full Rate Production. Fixed-price procurement contracts will be awarded for F-35 air vehicles and propulsion systems for the U.S. Services and international participants. Multiyear procurement authority for the F-35 Air System will be requested for Full Rate Production. Concurrently, a fixed-price-type Performance Based Logistics contracts for sustainment will be requested to support multi-Service and multi-national requirements.

E. Performance Metrics

The following are the key performance parameters from the F-35 Selected Acquisition Report:

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Performance Metrics reflect Key Program Performance data.

Combat Radius

F-35A Meets/Exceeds Tripwire Requirement

F-35B Meets/Exceeds Tripwire Requirement

F-35C Meets/Exceeds Tripwire Requirement

F-35B Performance

Flat Deck (High-High-High Profile Fuel) Meets Requirement In Tripwire Band

Ski Jump (High-Medium-Medium-High Profile Fuel) Meets Requirement In Tripwire Band

Vertical Landing Bring Back Meets Requirement In Tripwire Band

F-35C Recovery

Maximum Approach Speed Meets Requirement In Tripwire Band

Interoperability

Net Ready Criteria- Meets Requirement In Tripwire Band

Radio Frequency Signature Meets/Exceeds Tripwire Requirement

Force Protection

CB Pilot Protection (New Key Performance Parameters Per CN3) - Meets/Exceeds Tripwire Requirement

Mission Reliability

F-35A Meets/Exceeds Tripwire Requirement

F-35B United States Marine Corps (USMC) Meets/Exceeds Tripwire Requirement

F-35B United Kingdom (UK) Meets/Exceeds Tripwire Requirement

F-35C Exceeds Operational Requirements Document Objective

Sortie Generation Rate

F-35A Meets/Exceeds Tripwire Requirement

F-35B USMC Meets/Exceeds Tripwire Requirement

F-35B UK Meets/Exceeds Tripwire Requirement

F-35C Meets/Exceeds Tripwire Requirement

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Logistics Footprints F-35A Meets/Exceeds Tripwire Requirement F-35B USMC Meets/Exceeds Tripwire Requirement Logistics Footprint- Volume F-35B USMC Exceeds ORD Objective F-35B UK Meets/Exceeds Tripwire Requirement F-35C Exceeds Operational Requirements Document (ORD) Objective Logistics Footprint-Weight F-35B USMC Exceeds ORD Objective F-35B UK Meets/Exceeds Tripwire Requirement F-35C Exceeds ORD Objective		

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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary Hardware Development - SDD	C/CPAF	Lockheed Martin : Ft. Worth, TX	29,697.347	679.854	Dec 2014	577.567	Dec 2015	866.126	Dec 2016	-		866.126	124.343	31,945.237	31,945.237
Primary Hardware Development - Award Fee	C/CPAF	Lockheed Martin : Ft. Worth, TX	1,650.792	54.705	Dec 2014	70.093	Dec 2015	97.632	Dec 2016	-		97.632	20.000	1,893.222	1,893.222
Primary Hardware Development - ALIS	C/CPAF	Lockheed Martin : Ft. Worth, TX	460.979	35.459	Dec 2014	32.512	Dec 2015	31.006	Dec 2016	-		31.006	0.000	559.956	559.956
Primary Hardware Development -D-0005	C/CPFF	Lockheed Martin : Ft. Worth, TX	3.289	0.509	Dec 2014	0.000		0.000		-		0.000	0.000	3.798	3.798
Primary Hardware Development - LRIP 0003	C/CPFF	Lockheed Martin : Ft. Worth, TX	0.000	1.027	Dec 2014	0.000		0.000		-		0.000	0.000	1.027	1.027
Primary Hardware Development -BOA	C/CPFF	Lockheed Martin : Ft. Worth, TX	0.000	0.337	Dec 2014	0.000		0.000		-		0.000	0.000	0.337	0.337
Primary Hardware Development - 0020	C/CPFF	Lockheed Martin : Ft. Worth, TX	0.022	46.908	Dec 2014	119.258	Dec 2015	24.946	Dec 2016	-		24.946	15.273	206.407	206.407
Primary Hardware Development	C/CPFF	Lockheed Martin : Ft. Worth, TX	0.000	15.045	Dec 2014	0.000		0.000		-		0.000	0.000	15.045	15.045
Primary Hardware Development - SDD	C/CPAF	Pratt and Whitney : Hartford, CT	6,999.951	180.329	Dec 2014	154.665	Dec 2015	55.381	Dec 2016	-		55.381	0.000	7,390.326	7,390.326
Primary Hardware Development - Award Fee	C/CPAF	Pratt and Whitney : Hartford, CT	653.919	16.294	Dec 2014	20.068	Dec 2015	0.000		-		0.000	0.000	690.281	690.281
Primary Hardware Development - D-0022	C/CPAF	Pratt and Whitney : Hartford, CT	14.115	0.282	Dec 2014	0.254	Dec 2015	0.000		-		0.000	0.000	14.651	14.651
Primary Hardware Development - C-0026	C/CPFF	Pratt and Whitney : Hartford, CT	0.000	3.597	Dec 2014	0.000		0.000		-		0.000	0.000	3.597	3.597
Systems Engineering	Various	Various : Various	396.332	22.984	Nov 2014	29.919	Nov 2015	8.490	Nov 2016	-		8.490	7.063	464.788	464.788
Prior Year No Longer Funded in FYDP	Various	Various : Various	2,871.004	0.000		0.000		0.000		-		0.000	0.000	2,871.004	2,871.004
Subtotal			42,747.750	1,057.330		1,004.336		1,083.581		-		1,083.581	166.679	46,059.676	46,059.676

Remarks
 Cumulative Award Fee earned in prior years for Lockheed Martin is 86%.
 Cumulative Award Fee earned in prior years for Pratt and Whitney is 94%.

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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Development Support - AFFTC/Eglin	Various	Eglin AFB : Eglin, FL	121.714	12.231	Nov 2014	6.446	Nov 2015	3.347	Nov 2016	-		3.347	0.064	143.802	-
Development Support - AFLCMC/AFRL	Various	AFLCMC/AFRL : Various	62.865	2.247	Nov 2014	8.325	Nov 2015	0.897	Nov 2016	-		0.897	0.020	74.354	-
Engine Test and Evaluation Support - AEDC/Fuel	Various	Various : Various	170.046	22.242	Nov 2014	17.701	Nov 2015	0.075	Nov 2016	-		0.075	0.000	210.064	-
Development Support - Miscellaneous	Various	Various : Various	97.242	14.946	Nov 2014	18.387	Nov 2015	8.692	Nov 2016	-		8.692	1.346	140.613	-
Software Development Support	Various	NAWC WD : China Lake, CA	137.888	15.614	Nov 2014	12.305	Nov 2015	9.436	Nov 2016	-		9.436	0.000	175.243	-
Development Support	Various	NAWC AD : Patuxent, MD	368.385	41.758	Nov 2014	31.299	Nov 2015	19.998	Nov 2016	-		19.998	0.235	461.675	-
Prior Year No Longer Funded in FYDP	Various	Various : Various	77.076	0.000		0.000		0.000		-		0.000	0.000	77.076	-
Subtotal			1,035.216	109.038		94.463		42.445		-		42.445	1.665	1,282.827	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental Test and Evaluation	Various	NAWC WD : China Lake, CA	37.253	1.923	Nov 2014	2.173	Nov 2015	2.173	Nov 2016	-		2.173	0.000	43.522	-
Developmental Test and Evaluation	Various	NAWC AD : Patuxent River, MD	581.256	83.797	Nov 2014	120.284	Nov 2015	65.847	Nov 2016	-		65.847	0.000	851.184	-
Developmental Test and Evaluation	Various	Edwards AFB : Edwards AFB, CA	548.835	69.774	Nov 2014	71.235	Nov 2015	53.426	Nov 2016	-		53.426	0.000	743.270	-
Developmental Test and Evaluation - Other (including Classified PIDs)	Various	Various : Various	158.522	53.548	Nov 2014	56.526	Nov 2015	18.132	Nov 2016	-		18.132	2.500	289.228	-

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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Operational Test and Evaluation Support	Various	WEPS/Eglin : Various	27.829	0.000		0.000		0.000		-		0.000	0.000	27.829	-
Operational Test and Evaluation Support	Various	OT-AFOTEC/ AFFTC : Kirkland AFB, NM/Eglin AFB, FL	156.615	23.079	Nov 2014	32.243	Nov 2015	78.792	Nov 2016	-		78.792	95.940	386.669	-
Operational Test and Evaluation Support	Various	OT-JITC/OPTEC : Various	16.329	20.350	Nov 2014	32.966	Nov 2015	35.554	Nov 2016	-		35.554	29.461	134.660	-
Operational Test and Evaluation Support	Various	OT-CHLK : China Lake, CA	0.000	0.000		10.874	Nov 2015	0.000		-		0.000	0.000	10.874	-
Subtotal			1,526.639	252.471		326.301		253.924		-		253.924	127.901	2,487.236	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Security Mantech	C/FP	Mantech : Arlington, VA	74.899	8.300	Dec 2014	8.400	Dec 2015	0.000	Dec 2016	-		0.000	0.000	91.599	91.599
Program Engineering Support	C/CPFF	First Principles : Arlington, VA	8.759	1.900	Dec 2014	0.000		0.000		-		0.000	0.000	10.659	10.659
AFLCMC Civilian Pay	Various	AFLCMC CIVPAY : Wright Patterson, AFB, OH	62.834	32.310	Oct 2014	32.500	Oct 2015	12.225	Oct 2016	-		12.225	0.000	139.869	-
Program Management Support	C/CPFF	Allutiiq : Arlington, VA	1.417	0.518	Dec 2014	0.536	Dec 2015	0.552	Dec 2016	-		0.552	1.153	4.176	4.176
Facilities BOSS	WR	Various : Various	17.751	8.356	Dec 2014	9.091	Dec 2015	7.736	Dec 2016	-		7.736	8.340	51.274	-
IT Support	Various	Various : Various	6.702	2.677	Dec 2014	4.743	Dec 2015	6.050	Dec 2016	-		6.050	1.401	21.573	-
Travel	Various	Various : Various	18.834	2.015	Oct 2014	1.831	Oct 2015	1.948	Oct 2016	-		1.948	1.403	26.031	-
Program Management Support	Various	Jacobs BOSS : Arlington, VA	6.208	19.695	Dec 2014	20.489	Nov 2015	25.000	Nov 2016	-		25.000	0.000	71.392	-
OPS - Cost/FM/EV ACT-I	Various	OPS - Cost/FM/EV : Arlington, VA	2.000	1.494	Dec 2014	3.375	Nov 2015	3.284	Nov 2016	-		3.284	0.000	10.153	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800M / (U)Joint Strike Fighter (JSF) - EMD	Project (Number/Name) 2262 / Joint Strike Fighter EMD STOVL
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support	Various	Andrews AFB : Camp Springs, MD	0.135	0.135	Dec 2014	0.135	Nov 2015	0.135	Nov 2016	-		0.135	0.270	0.810	-
Prior Year No Longer Funded in FYDP	Various	Various : Various	501.811	0.000		0.000		0.000		-		0.000	0.000	501.811	-
Subtotal			701.350	77.400		81.100		56.930		-		56.930	12.567	929.347	-

Remarks
Cumulative Award Fee earned in prior years for Stanley is 99%.

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Subtotals	46,010.955	1,496.239	1,506.200	1,436.880	-	1,436.880	308.812	50,759.086	-
Joint Strike Fighter 0604800N	-	470.545	467.759	504.296	-	504.296			-
Joint Strike Fighter 0604800F	-	534.344	515.492	403.506	-	403.506			-
International Partner	-	15.000	17.000	22.000	-	22.000			-
Project Cost Totals	46,010.955	476.350	505.949	507.078	-	507.078	308.812	50,759.086	-

Remarks
NOTE 1: Prior Years reflect \$20,508.842M USAF/\$18,387.781M USN/\$2,195.032M USMC /\$4,919.300M International/Total \$46,010.955M
FY 2015 reflects \$534.344M USAF/\$470.545M USN/\$476.350M USMC/\$15.000M International/Total \$1,496.239M
FY 2016 reflects \$515.492M USAF/\$467.759M USN/\$505.949M USMC/\$17.000M International/Total \$1,506.200M
FY 2017 reflects \$403.506M USAF/\$504.296M USN/\$507.078M USMC/\$22.000M International/Total \$1,436.880M

JSF EMD Includes:
USAF PE 0604800F BPAC 653831
USN PE 0604800N Project Unit 2261
USMC PE 0604800M Project Unit 2262

D&S Includes:
USAF PE 0604800F BPAC 653832
USN PE 0604800N Project Unit 3352
USMC PE 0604800M Project Unit 3350

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800M / (U)Joint Strike Fighter (JSF) - EMD	Project (Number/Name) 2262 / Joint Strike Fighter EMD STOVL
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JSF Variants - CV, STOVL & CTOL	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021															
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q												
Acquisition Milestones				F-35B IOC ▲				F-35A IOC ▲								F-35C IOC ▲																								
Test & Evaluation	Block 3I DT&E/Cert				Block 3F DT&E/Cert								Initial Operational Test and Evaluation (IOT&E)																											
Defense Acquisition Reviews			IPR ■				IPR ■				IPR ■					IPR ■					IPR ■					IPR ■														
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft)	LRIP 8 (AF 19, USN 4, USMC 6)												LRIP 9 (AF 28, USN 4, USMC 6)				LRIP 10 (AF 47, USN 6, USMC 15)				LRIP 11 (AF 43, USN 4, USMC 16)				LRIP 12 (AF 44, USN 6, USMC 20)				LRIP 13 (AF 48, USN 12, USMC 20)				LRIP 14 (AF 48, USN 18, USMC 20)				LRIP 15 (AF 60, USN 24, USMC 21)			

2017PB - 0604800M - 2262

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800M / (U)Joint Strike Fighter (JSF) - EMD	Project (Number/Name) 2262 / Joint Strike Fighter EMD STOVL

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
JSF Variants - CV, STOVL & CTOL				
Acquisition Milestones: F-35A Initial Operational Capability	4	2016	4	2016
Acquisition Milestones: F-35B Initial Operational Capability	4	2015	4	2015
Acquisition Milestones: F-35C Initial Operational Capability	4	2018	4	2018
Test & Evaluation: Test and Evaluation: Block 3I DT&E/Cert	1	2015	4	2015
Test & Evaluation: Test and Evaluation: Block 3F DT&E/Cert	1	2015	4	2017
Test & Evaluation: Test and Evaluation: Initial Operational Test and Evaluation (IOT&E)	2	2015	4	2018
Defense Acquisition Reviews: System Development Reviews: Interim Program Review (IPR) FY-15	4	2015	4	2015
Defense Acquisition Reviews: System Development Reviews: Interim Program Review (IPR) FY-16	4	2016	4	2016
Defense Acquisition Reviews: System Development Reviews: Interim Program Review (IPR) FY-17	4	2017	4	2017
Defense Acquisition Reviews: System Development Reviews: Interim Program Review (IPR) FY-18	4	2018	4	2018
Defense Acquisition Reviews: System Development Reviews: Interim Program Review (IPR) FY-19	4	2019	4	2019
Defense Acquisition Reviews: System Development Reviews: Interim Program Review (IPR) FY-20	4	2020	4	2020
Defense Acquisition Reviews: System Development Reviews: Interim Program Review (IPR) FY-21	4	2021	4	2021
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LRIP 8 Full Funding / Production / Delivery	1	2015	4	2017

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800M / (U)Joint Strike Fighter (JSF) - EMD	Project (Number/Name) 2262 / Joint Strike Fighter EMD STOVL
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LRIP 9 Full Funding / Production / Delivery	2	2016	3	2018
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LRIP 10 Full Funding / Production / Delivery	2	2016	4	2019
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LRIP 11 Full Funding / Production / Delivery	2	2017	2	2020
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LRIP 12 Full Funding / Production / Delivery	2	2018	2	2021
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LRIP 13 Full Funding / Production / Delivery	2	2019	4	2021
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LRIP 14 Full Funding / Production / Delivery	2	2020	4	2021
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LRIP 15 Full Funding / Production / Delivery	2	2021	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604800M I (U)Joint Strike Fighter (JSF) - EMD				Project (Number/Name) 3350 I F-35B Sustainment/Capability Enhancements			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3350: F-35B Sustainment/ Capability Enhancements	57.918	11.589	31.952	24.348	-	24.348	11.427	0.000	0.000	0.000	0.000	137.234
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Total cost including United States Navy (USN), United States Marine Corps (USMC), United States Air Force (USAF) and International Partner contributions funding is: FY15 \$66.704M, FY16 \$189.726M and FY17 \$115.140M

R-2A table shown above reflect service funding only.

R-2A (section B)/R-3 displays total combined program (i.e. not Service-specific), including International partners.

D&S Includes:

USAF PE 64800F BPAC 653832

USN PE 0604800N Project Unit 3352

USMC PE 0604800M Project Unit 3350

A. Mission Description and Budget Item Justification

Funds enhancements to the deployability and suitability of the air system such as low observable (LO) maintenance enhancements, security architecture updates, redesign of obsolete items, and integrated training simulators. These enhancements will provide vital on-demand support to the war-fighter within a deployed environment and are not funded via the existing System Development and Demonstration (SDD) program or tied to Block 4 Operational Flight Program development. Funding will result in achieving targeted suitability, maintainability, and affordability returns employing the F-35 in deployed or austere locations.

-Funding at the accomplishment/planned program level is reported as the total of all services as these activities support all aircraft variants. By agreement, USN and USMC funding shares are approximately equal and when combined are equal to the USAF share.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Sustainment and Capability Enhancements	15.590	118.070	64.064	0.000	64.064
Articles:	-	-	-	-	-
Description: Apply disciplined systems engineering, refinement of requirements, develop and acquire suitability and maintainability of the air system such as decentralized maintenance capabilities, LO maintenance					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800M / (U)Joint Strike Fighter (JSF) - EMD	Project (Number/Name) 3350 / F-35B Sustainment/Capability Enhancements

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>enhancements, security architecture updates, redesign of obsolete items and integrated training simulators.</p> <p>FY 2015 Accomplishments: Continue to conduct systems engineering, technical maturation, integration and test planning for suitability and deployability enhancements.</p> <p>FY 2016 Plans: Continue to conduct systems engineering, technical maturation, integration and test planning for suitability and deployability enhancements. Increase is to perform sustaining engineering, development and test activities necessary to gain capacity, compatibility, and expansion in wiring, power, wing conduits, etc. in support of electronic warfare.</p> <p>FY 2017 Base Plans: Continue to conduct systems engineering, technical maturation, integration and test planning for suitability and deployability enhancements. Increase is to perform sustaining engineering, development and test activities necessary to gain capacity, compatibility, and expansion in wiring, power, wing conduits, etc. in support of electronic warfare. This includes funding for suitability enhancements such as Standard Operating Unit Version 2 and Band 2/5 efforts.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Development Support</p> <p align="right">Articles:</p> <p>Description: SDD support efforts for airframe, air vehicle systems, mission systems, weapons integration, mission support, and autonomic logistics development activities.</p> <p>FY 2015 Accomplishments: Continue to initiate development enhancement support for Deployable Autonomic Logistics Information System, decentralized maintenance capabilities, Low Observable maintenance enhancements, security architecture updates, redesign of obsolete items, and integrated training simulators.</p> <p>FY 2016 Plans:</p>	20.650	7.909	3.556	0.000	3.556
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800M / (U)Joint Strike Fighter (JSF) - EMD	Project (Number/Name) 3350 / F-35B Sustainment/Capability Enhancements

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Continue to initiate development enhancement support for Deployable Autonomic Logistics Information System, decentralized maintenance capabilities, Low Observable maintenance enhancements, security architecture updates, redesign of obsolete items, and integrated training simulators.</p> <p>FY 2017 Base Plans: Continue SDD support efforts for airframe, air vehicle systems, mission systems, weapons integration, mission support, and autonomic logistics development activities. Development Support decrease is due to across the board reduction between both services.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Development Test and Evaluation</p> <p align="right">Articles:</p> <p>Description: Verification and testing for deployability and suitability enhancements.</p> <p>FY 2015 Accomplishments: Continue to initiate government test and evaluation of capability enhancements for Deployable Autonomic Logistics Information system, and LO maintenance enhancements.</p> <p>FY 2016 Plans: Continue to initiate government test and evaluation of capability enhancements for Deployable Autonomic Logistics Information system, and LO maintenance enhancements.</p> <p>FY 2017 Base Plans: Continue to initiate government test and evaluation of capability enhancements for Deployable Autonomic Logistics Information System, and LO maintenance enhancements.</p> <p>FY 2017 OCO Plans: N/A</p>	0.636	1.841	1.440	0.000	1.440
	-	-	-	-	-
<p>Title: Autonomic Logistics Information System</p> <p align="right">Articles:</p> <p>Description: SDD execution of Autonomic Logistics Information System (ALIS) develops the information infrastructure used to transmit health and maintenance action information for the aircraft to the appropriate users.</p>	29.828	61.906	46.080	0.000	46.080
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800M / (U) Joint Strike Fighter (JSF) - EMD	Project (Number/Name) 3350 / F-35B Sustainment/Capability Enhancements

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<i>FY 2015 Accomplishments:</i> SDD execution of Autonomic Logistics Information System (ALIS) develops the information infrastructure used to transmit health and maintenance action information for the aircraft to the appropriate users.					
<i>FY 2016 Plans:</i> SDD execution of Autonomic Logistics Information System (ALIS) develops the information infrastructure used to transmit health and maintenance action information for the aircraft to the appropriate users.					
<i>FY 2017 Base Plans:</i> SDD execution of Autonomic Logistics Information System (ALIS) develops the information infrastructure used to transmit health and maintenance action information for the aircraft to the appropriate users.					
<i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	66.704	189.726	115.140	0.000	115.140
Joint Strike Fighter 0604800F	32.593	71.461	46.962	-	46.962
Joint Strike Fighter 0604800N	16.433	36.977	24.420	-	24.420
International Partner	6.089	49.336	19.410	-	19.410
Navy Subtotals	11.589	31.952	24.348	0.000	24.348

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• RDT&E/0604800F:	534.344	515.492	403.506	-	403.506	113.567	5.327	5.392	5.497	0.000	22,091.627
<i>F-35A Joint Strike Fighter</i>											
• International:	15.000	17.000	22.000	-	22.000	27.450	0.000	0.000	0.000	0.000	5,000.750
<i>International Partner (SDD)</i>											
• APAF/0207142F BP10:	3,542.842	5,259.812	4,401.894	-	4,401.894	4,988.701	4,712.256	4,838.591	5,801.997	138,652.940	190,239.288
<i>F-35A USAF CTOL</i>											
• RDT&E/0604800N/2261: <i>F-35C</i>	470.545	467.759	504.296	-	504.296	43.816	0.000	0.000	0.000	0.000	47,497.371
<i>Joint Strike Fighter (JSF) - EMD</i>											
• APN/0605B: <i>F-35B Joint</i>	64.194	111.569	82.418	-	82.418	30.016	98.676	168.451	97.667	1,518.093	2,497.913
<i>Strike Fighter STOVL Spares</i>											

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800M / (U)Joint Strike Fighter (JSF) - EMD	Project (Number/Name) 3350 / F-35B Sustainment/Capability Enhancements
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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APN/0605C: F-35C Joint Strike Fighter CV Spares	28.200	59.914	23.995	-	23.995	26.778	32.688	47.390	96.000	Continuing	Continuing
• MILCON 0207142F: USAF MILCON Operations	66.700	132.850	305.700	-	305.700	80.000	27.500	0.000	0.000	1,312.100	2,511.350
• APAF/0207142F BP11: USAF Modification Funding	187.646	70.167	175.811	-	175.811	385.931	237.349	232.017	237.273	Continuing	Continuing
• FOD/0207142F: USAF Follow-on Development (FoD)	23.660	48.954	127.302	-	127.302	321.658	340.950	339.209	345.223	Continuing	Continuing
• 0207142F/USAF BP16: USAF Joint Strike Fighter Initial Spares	231.847	229.582	267.792	-	267.792	315.478	353.602	354.622	355.591	10,311.851	13,420.134
• USAF/OPAF 0207142F: USAF OPAF	4.463	3.858	2.333	-	2.333	2.374	2.415	0.000	0.000	Continuing	Continuing
• APN/0592: F-35B STOVL Series	215.819	204.464	34.928	-	34.928	158.277	89.352	64.963	79.077	Continuing	Continuing
• APN/0593: F-35C CV Series	20.502	48.527	26.004	-	26.004	49.848	20.721	12.929	13.192	Continuing	Continuing
• RDT&E/0604800N/3352: F-35C Sustainment/Capability Enhancements	16.433	36.977	24.420	-	24.420	11.802	0.000	0.000	0.000	0.000	147.550
• USAF SDD BP 653832: Deployability and Suitability Enhancements	32.593	71.461	46.962	-	46.962	23.795	0.000	0.000	0.000	0.000	199.978
• PAF/0207142F BP10: F-35A JSF CTOL Advance Procurement	418.880	460.260	404.500	-	404.500	391.263	406.750	424.230	424.230	16,880.950	21,689.492
• DCA/0207142F 676011: Dual Capable Aircraft (DCA)	15.615	4.967	25.743	-	25.743	27.731	37.637	49.554	50.433	Continuing	Continuing
• APN/0147: F-35C Joint Strike Fighter CV	927.568	1,062.542	939.280	-	939.280	1,031.960	1,766.145	2,333.863	2,974.122	30,649.190	54,091.144
• APN/0152C: F-35B Joint Strike Fighter STOVL AP	143.885	203.060	233.648	-	233.648	370.472	227.562	231.003	220.000	2,452.774	5,025.035
• APN/0152: F-35B Joint Strike Fighter STOVL	1,287.605	2,291.599	2,240.828	-	2,240.828	2,853.972	2,758.152	2,787.591	2,868.001	22,845.941	44,735.221
• DoN MILCON: DoN JSF MILCON	60.200	72.460	11.800	-	11.800	0.000	0.000	0.000	0.000	0.000	144.460

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800M / (U)Joint Strike Fighter (JSF) - EMD	Project (Number/Name) 3350 / F-35B Sustainment/Capability Enhancements

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• International 2: <i>International Production/Reprogramming Lab</i>	3,350.860	4,211.698	5,377.274	-	5,377.274	7,420.782	7,893.177	9,050.299	8,092.207	Continuing	Continuing
• OPN/4268: <i>Logistics Information System (ALIS)</i>	47.105	49.773	39.099	-	39.099	35.574	40.367	60.537	60.928	Continuing	Continuing
• MC/0207597F: <i>USAF MILCON Training</i>	0.000	65.400	20.000	-	20.000	21.000	34.000	15.900	0.000	0.000	156.300
• International 3: <i>International R&D FoD/D&S</i>	21.086	79.318	128.965	-	128.965	157.602	169.315	171.636	68.599	Continuing	Continuing
• OPN 902010 S8JC: <i>Aviation Support Equipment (ALIS)</i>	0.730	2.946	0.881	-	0.881	2.297	2.321	0.139	1.977	Continuing	Continuing
• USAF O&M: <i>USAF O&M</i>	217.556	302.952	360.107	-	360.107	452.906	555.687	858.671	0.000	Continuing	Continuing
• USAF MILCON 0502635F: <i>USAF MILCON Air National Guard</i>	0.000	0.000	15.100	-	15.100	0.000	0.000	0.000	0.000	0.000	15.100
• USN 3194: <i>USN USRL</i>	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	147.205
• USN 2936: <i>F-35C Follow-on Development (CV)</i>	10.302	21.200	63.387	-	63.387	133.686	144.003	147.646	150.902	Continuing	Continuing
• USN C260: <i>F-35C RDT&E FoD CDD</i>	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1.500
• International Unique: <i>Intl Unique (SDD/PSFD)</i>	81.681	39.852	39.608	-	39.608	11.474	22.812	29.409	5.357	0.000	969.741

Remarks

D. Acquisition Strategy

Implement JSF Joint Executive Steering Board/Configuration Steering Board approved enhancements to existing capabilities through existing contracts using the engineering change proposal process. When appropriate, new cost type contracts may be established.

E. Performance Metrics

The following are the key performance parameters from the F-35 Selected Acquisition Report:

Performance Metrics reflect Key Program Performance data.

Combat Radius

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800M / (U)Joint Strike Fighter (JSF) - EMD	Project (Number/Name) 3350 / F-35B Sustainment/Capability Enhancements
<p>F-35A Meets/Exceeds Tripwire Requirement F-35B Meets/Exceeds Tripwire Requirement F-35C Meets/Exceeds Tripwire Requirement</p> <p>F-35B Performance Flat Deck (High-High-High Profile Fuel) Meets Requirement In Tripwire Band Ski Jump (High-Medium-Medium-High Profile Fuel) Meets Requirement In Tripwire Band Vertical Landing Bring Back Meets Requirement In Tripwire Band</p> <p>F-35C Recovery Maximum Approach Speed Meets Requirement In Tripwire Band</p> <p>Interoperability Net Ready Criteria- Meets Requirement In Tripwire Band</p> <p>Radio Frequency Signature Meets/Exceeds Tripwire Requirement</p> <p>Force Protection CB Pilot Protection (New Key Performance Parameters Per CN3) - Meets/Exceeds Tripwire Requirement</p> <p>Mission Reliability F-35A Meets/Exceeds Tripwire Requirement F-35B United States Marine Corps (USMC) Meets/Exceeds Tripwire Requirement F-35B United Kingdom (UK) Meets/Exceeds Tripwire Requirement F-35C Exceeds Operational Requirements Document Objective</p> <p>Sortie Generation Rate F-35A Meets/Exceeds Tripwire Requirement F-35B USMC Meets/Exceeds Tripwire Requirement F-35B UK Meets/Exceeds Tripwire Requirement F-35C Meets/Exceeds Tripwire Requirement</p> <p>Logistics Footprints F-35A Meets/Exceeds Tripwire Requirement F-35B USMC Meets/Exceeds Tripwire Requirement</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy Date: February 2016

Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
1319 / 5	PE 0604800M / (U)Joint Strike Fighter (JSF) - EMD	3350 / F-35B Sustainment/Capability Enhancements

Logistics Footprint- Volume
F-35B USMC Exceeds ORD Objective
F-35B UK Meets/Exceeds Tripwire Requirement
F-35C Exceeds Operational Requirements Document (ORD) Objective

Logistics Footprint-Weight
F-35B USMC Exceeds ORD Objective
F-35B UK Meets/Exceeds Tripwire Requirement
F-35C Exceeds ORD Objective

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800M / (U)Joint Strike Fighter (JSF) - EMD	Project (Number/Name) 3350 / F-35B Sustainment/Capability Enhancements
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary Hardware Development - 3002 SDD	C/CPFF	Lockheed Martin : Fort Worth, TX	0.000	0.000		41.330	Mar 2016	35.844	Mar 2017	-		35.844	21.213	98.387	98.387
Primary Hardware Development - 3002 ALIS	C/CPFF	Lockheed Martin : Fort Worth, TX	46.210	29.828	Mar 2015	61.906	Mar 2016	46.080	Mar 2017	-		46.080	33.740	217.764	217.764
Primary Hardware Development -14-C-002 Band 2/5	C/CPFF	Lockheed Martin : Fort Worth, TX	0.000	15.590	Mar 2015	76.740	Mar 2016	28.220	Mar 2017	-		28.220	0.000	120.550	120.550
Subtotal			46.210	45.418		179.976		110.144		-		110.144	54.953	436.701	436.701

Remarks
Cumulative Award Fee earned for Lockheed Martin 0%.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Development Support	Various	AFLCMC : Eglin AFB	4.040	15.680	Mar 2015	2.910	Mar 2016	0.000		-		0.000	0.000	22.630	-
Development Support	Various	Various : Various	7.668	4.000	Mar 2015	3.120	Mar 2016	2.410	Mar 2017	-		2.410	0.000	17.198	-
Subtotal			11.708	19.680		6.030		2.410		-		2.410	0.000	39.828	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental Test & Evaluation	WR	Various : Various	0.000	0.606	Jun 2015	1.404	Jun 2016	0.976	Jun 2017	-		0.976	0.000	2.986	-
Subtotal			0.000	0.606		1.404		0.976		-		0.976	0.000	2.986	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800M / (U)Joint Strike Fighter (JSF) - EMD	Project (Number/Name) 3350 / F-35B Sustainment/Capability Enhancements
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Support	Various	Various : Various	0.000	1.000	Dec 2014	2.316	Dec 2015	1.610	Dec 2016	-		1.610	0.000	4.926	-
Subtotal			0.000	1.000		2.316		1.610		-		1.610	0.000	4.926	-
Cost Category Subtotals			57.918	66.704		189.726		115.140		-		115.140	54.953	484.441	-
Joint Strike Fighter 0604800F			-	32.593		71.461		46.962		-		46.962			-
Joint Strike Fighter 0604800N			-	16.433		36.977		24.420		-		24.420			-
International Partner			-	6.089		49.336		19.410		-		19.410			-
Project Cost Totals			57.918	11.589		31.952		24.348		-		24.348	54.953	484.441	-

Remarks
 NOTE: Prior Years reflect \$25.167M USAF/\$16.332M USN/\$16.419M USMC/ Total \$57.918M

 FY 2015 reflects \$32.593M USAF/\$16.433M USN/\$11.589M USMC/\$6.089M International/Total \$66.704M

 FY 2016 reflects \$71.461M USAF/\$36.977M USN/\$31.952M USMC/\$49.336M International/Total \$189.726M

 FY 2017 reflects \$46.962M USAF/\$24.420M USN/\$24.348M USMC/\$19.410M International/Total \$115.140M

 R-2A (section B)/R-3 displays total combined program (i.e. not Service-specific), including International partners.

 JSF EMD Includes:
 USAF PE 0604800F BPAC 653831
 USN PE 0604800N Project Unit 2261
 USMC PE 0604800M Project Unit 2262

 D&S Includes:
 USAF PE 0604800F BPAC 653832
 USN PE 0604800N Project Unit 3352
 USMC PE 0604800M Project Unit 3350

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800M / (U)Joint Strike Fighter (JSF) - EMD	Project (Number/Name) 3350 / F-35B Sustainment/Capability Enhancements
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Proj 3350	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
D&S																																
					SOUv2																											
									Band 2/5																							
									Security Architecture																							
									OMS																							
									DMT/DMO																							

2017DON - 0604800M - 3350

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800M / (U)Joint Strike Fighter (JSF) - EMD	Project (Number/Name) 3350 / F-35B Sustainment/Capability Enhancements

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3350				
D&S: Standard Operating Unit (SOUv2)	1	2015	1	2017
D&S: Band 2/5	3	2015	3	2018
D&S: Security Architecture	1	2016	3	2018
D&S: Offboard Mission Support (OMS) Redesign	1	2016	4	2018
D&S: Distributed Mission Training/Distributed Mission Operations (DMT/DMO)	1	2016	4	2018

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604800N / <i>JT Strike Fighter (JSF) - EMD</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	46,068.873	486.978	504.736	528.716	-	528.716	55.618	0.000	0.000	0.000	0.000	47,644.921
2261: <i>Joint Strike Fighter EMD</i>	46,010.955	470.545	467.759	504.296	-	504.296	43.816	0.000	0.000	0.000	0.000	47,497.371
3352: <i>F-35C Sustainment/ Capability Enhancements</i>	57.918	16.433	36.977	24.420	-	24.420	11.802	0.000	0.000	0.000	0.000	147.550

Program MDAP/MAIS Code: 198

A. Mission Description and Budget Item Justification

Decrease in JT STRIKE FIGHTER (JSF) - EMD by \$17.932M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

The F-35 Joint Strike Fighter (JSF) Program will develop and field an affordable, highly common family of next generation strike aircraft for the USN, USAF, USMC and allies. The three variants are the F-35A Conventional Takeoff and Landing; F-35B Short Takeoff and Vertical Landing; and the F-35C Aircraft Carrier Suitable Variant. The F-35A will be a stealthy multi-role aircraft, primary air-to-ground for the Air Force to replace the F-16 and A-10 and complement the F-22. The F-35B variant will be a multi-role strike fighter aircraft to replace the AV-8B and F/A-18 for the Marine Corps, replace the Sea Harrier and GR 7 for the United Kingdom, and replace the AV-8 currently employed by the Italian Navy. The F-35C will provide the Department of the Navy a multi-role, stealthy strike fighter aircraft to complement the F/A-18E/F. FY2016 F-35 Block 4 activity supports development of Follow-on Development Increment 1 Capability Development Document (CDD). Follow-on Development will provide capability enhancements, required systems upgrades and cost improvements through an incremental acquisition approach.

The United Kingdom, other International Partner nations, and Foreign Military Sales customers are also participants in the JSF program. The program shown here reflects USN, USMC, USAF, and International Partner funding.

Funding at the accomplishment/planned program level is reported as the total of all services and partners as these activities support all aircraft variants.

The System Development and Demonstration (SDD) budget funds a total quantity of 20 RDT&E test articles to include 6 ground test articles and 14 flight test articles for USN, USMC, and USAF use.

- FY07: 1 F-35A flight test article
- FY08: 1 F-35B flight test article; 1 F-35B ground test article
- FY09: 1 F-35B flight test article; 2 F-35A ground test articles
- FY10: 6 flight test articles: 3 F-35A, 2 F-35B, 1 F-35C; 3 ground test articles: 1 F-35B, 2 F-35C
- FY11: 4 flight test articles: 1 F-35A, 1 F-35B, 2 F-35C
- FY13: 1 F-35C flight test article

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604800N / <i>JT Strike Fighter (JSF) - EMD</i>
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JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under SDD because it includes those projects that have passed Milestone B approval and are conducting engineering and manufacturing development tasks aimed at meeting validated requirement prior to full-rate production decision.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	502.260	504.736	443.185	-	443.185
Current President's Budget	486.978	504.736	528.716	-	528.716
Total Adjustments	-15.282	0.000	85.531	-	85.531
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-15.282	0.000			
• Program Adjustments	0.000	0.000	83.898	-	83.898
• Rate/Misc Adjustments	0.000	0.000	1.633	-	1.633

Change Summary Explanation

FY2017 Increase: +\$61.000M was for the modification of F-35C operational test aircraft. +\$24.400M was for Deployability & Suitability Enhancements.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800N / JT Strike Fighter (JSF) - EMD	Project (Number/Name) 2261 / Joint Strike Fighter EMD
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2261: Joint Strike Fighter EMD	46,010.955	470.545	467.759	504.296	-	504.296	43.816	0.000	0.000	0.000	0.000	47,497.371
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Total cost including United States Navy (USN), United States Marine Corps (USMC), International partner contributions and United States Air Force (USAF) funding are: FY15 \$1,496.239M, FY16 \$1,506.200M, and FY17 \$1,436.880M R-2 data reflects variant unique funding only.

R-2A(section B)/R-3 displays total combined Program (i.e. not Service specific), including International partners.

JSF EMD Includes:

- USAF PE 0604800F BPAC 653831
- USN PE 0604800N Project Unit 2261
- USMC PE 0604800M Project Unit 2262

D&S Includes:

- USAF PE 0604800F BPAC 653832
- USN PE 0604800N Project Unit 3352
- USMC PE 0604800M Project Unit 3350

A. Mission Description and Budget Item Justification

The F-35 Joint Strike Fighter (JSF) Program will develop and field an affordable, highly common family of next generation strike aircraft for the USN, USAF, USMC and allies. The three variants are the F-35A conventional takeoff and landing; F-35B short takeoff and vertical landing; and the F-35C Aircraft Carrier suitable variant. The F-35A will be a stealthy multi-role aircraft, primary air-to-ground for the Air Force to replace the F-16 and A-10 and complement the F-22. The F-35B variant will be a multirole strike fighter aircraft to replace the AV-8B and F/A-18 for the Marine Corps, replace the Sea Harrier and GR 7 for the United Kingdom, and replace the AV-8 currently employed by the Italian Navy. The F-35C will provide the Department of the Navy a multi-role, stealthy strike fighter aircraft to complement the F/A-18E/F.

The United Kingdom, Italy, Netherlands, Turkey, Canada, Australia, Denmark, Norway, and Foreign Military Sales customers are also participants in the JSF program. The program shown here reflects USN, USMC, USAF, and International Partner funding.

Funding at the accomplishment/planned program level is reported as the total of all services and partners as these activities support all aircraft variants.

The System Development and Demonstration (SDD) budget funds a total quantity of 20 RDT&E test articles to include 6 ground test articles and 14 flight test articles for USN, USAF, and USMC use.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016		
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800N / JT Strike Fighter (JSF) - EMD	Project (Number/Name) 2261 / Joint Strike Fighter EMD			
<p>FY07: 1 F-35A flight test article FY08: 1 F-35B flight test article; 1 F-35B ground test article FY09: 1 F-35B flight test article; 2 F-35A ground test articles FY10: 6 flight test articles: 3 F-35A, 2 F-35B, 1 F-35C; 3 ground test articles: 1 F-35B, 2 F-35C FY11: 4 flight test articles: 1 F-35A, 1 F-35B, 2 F-35C FY13: 1 F-35C flight test article</p>					
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)					
Title: System Development and Demonstration (SDD)					
Articles:					
Description: SDD execution of the Air System (Lockheed Martin) including International Commonality Efforts; includes airframe, vehicle and mission systems, autonomic logistics, systems engineering & test efforts.					
FY 2015 Accomplishments: Continue SDD execution of Air System Lockheed Martin, including International Commonality Effort which include, airframe, vehicle systems, mission systems, autonomic logistics, systems engineering, and integrated test efforts. Activity aligned to IMS in accordance with variant IOC.					
FY 2016 Plans: Continue SDD execution of Air System Lockheed Martin, including International Commonality Effort which include, airframe, vehicle systems, mission systems, autonomic logistics, systems engineering, and integrated test efforts. Activity aligned to IMS in accordance with variant IOC.					
FY 2017 Base Plans: Continue SDD execution of Air System Lockheed Martin, including International Commonality Effort which includes, airframe, vehicle systems, mission systems, autonomic logistics, systems engineering, and integrated test efforts. Activity aligned to Integrated Master Schedule (IMS) in accordance with variant Initial Operational Capability (IOC).					
FY 2017 OCO Plans: N/A					
Title: F135 Propulsion System					
Articles:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800N / JT Strike Fighter (JSF) - EMD	Project (Number/Name) 2261 / Joint Strike Fighter EMD

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Description: SDD execution of the F135 Propulsion System (Pratt & Whitney) including International Commonality Efforts; includes testing, autonomic logistics, integration & performing technology maturation efforts.</p> <p>FY 2015 Accomplishments: Continue SDD execution of the F135 Propulsion System with Pratt & Whitney that includes engine testing, autonomic logistics, integration and performing technology maturation efforts.</p> <p>FY 2016 Plans: Continue SDD execution of the F135 Propulsion System with Pratt & Whitney that includes engine testing, autonomic logistics, integration and performing technology maturation efforts.</p> <p>FY 2017 Base Plans: Continue SDD execution of the F135 Propulsion System with Pratt & Whitney that includes engine testing, autonomic logistics, integration and performing technology maturation efforts.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Systems Engineering (SE)</p> <p align="right">Articles:</p> <p>Description: SDD SE including systems operations requirements analysis, program integration, requirements integration, and interoperability support.</p> <p>FY 2015 Accomplishments: Continue SDD SE, including systems operations requirements analysis, program integration, requirements integration, and interoperability support.</p> <p>FY 2016 Plans: Continue SDD SE, including systems operations requirements analysis, program integration, requirements integration, and interoperability support.</p> <p>FY 2017 Base Plans:</p>	27.628	25.383	10.198	0.000	10.198
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800N / JT Strike Fighter (JSF) - EMD	Project (Number/Name) 2261 / Joint Strike Fighter EMD

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Continue SDD SE, including systems operations requirements analysis, program integration, requirements integration, and interoperability support. FY 2017 OCO Plans: N/A					
Title: Development Test and Evaluation (DT&E) Articles: Description: Execution of government DT&E/Operational Testing (OT). Elements of DT&E include flight testing and weapons integration testing. FY 2015 Accomplishments: Continue government DT&E in support of test aircraft. Continue flight sciences testing of CTOL, STOVL, and CV variants to expand air vehicle envelope and support mission systems testing. Elements of DT&E include flight testing, weapons integration testing, and component capabilities testing. FY 2016 Plans: Government DT&E/Operational Testing (OT) in support of first flight of test aircraft. Elements of DT&E include preparation for flight testing and weapons integration testing. FY 2017 Base Plans: Continue execution of government DT&E and OT activities in support of test aircraft. Continue flight sciences testing of F-35A, F-35B, and F-35C variants to expand air vehicle envelope and support mission systems testing. Elements of DT&E include flight testing, weapons integration testing, and component capabilities testing. FY 2017 OCO Plans: N/A	303.555	390.040	301.176	0.000	301.176
	-	-	-	-	-
Title: Development Support Articles: Description: SDD Support efforts for airframe, air vehicle systems, mission systems, weapons integration, mission support, and autonomic logistics development activities. FY 2015 Accomplishments:	130.710	116.360	50.415	0.000	50.415
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016			
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800N / JT Strike Fighter (JSF) - EMD	Project (Number/Name) 2261 / Joint Strike Fighter EMD				
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)						
		FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Continue SDD support efforts for airframe, air vehicle systems, mission systems, weapons integration, mission support, and autonomic logistics development activities.						
FY 2016 Plans: Continue SDD support efforts for airframe, air vehicle systems, mission systems, weapons integration, mission support, and autonomic logistics development activities.						
FY 2017 Base Plans: Continue SDD support efforts for airframe, air vehicle systems, mission systems, weapons integration, mission support, and autonomic logistics development activities.						
FY 2017 OCO Plans: N/A						
Title: Autonomic Logistics Information System (ALIS)		35.741	32.766	31.006	0.000	31.006
Articles:		-	-	-	-	-
Description: SDD execution of Autonomic Logistics Information System (ALIS) develops the information infrastructure used to transmit health and maintenance action information for the aircraft to the appropriate users. This is not a New Start. Funding has been broken out for transparency.						
FY 2015 Accomplishments: Continue SDD execution of ALIS to develop the information infrastructure used to transmit health and maintenance action information for the aircraft to the appropriate users.						
FY 2016 Plans: Continue SDD execution of ALIS to develop the information infrastructure used to transmit health and maintenance action information for the aircraft to the appropriate users.						
FY 2017 Base Plans: Continue SDD execution of ALIS to develop the information infrastructure used to transmit health and maintenance action information for the aircraft to the appropriate users.						
FY 2017 OCO Plans: N/A						
Accomplishments/Planned Programs Subtotals		1,496.239	1,506.200	1,436.880	0.000	1,436.880
Joint Strike Fighter 0604800M		476.350	505.949	507.078	-	507.078

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800N / JT Strike Fighter (JSF) - EMD	Project (Number/Name) 2261 / Joint Strike Fighter EMD

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
	Joint Strike Fighter 0604800F	534.344	515.492	403.506	-
International Partner	15.000	17.000	22.000	-	22.000
Navy Subtotals	470.545	467.759	504.296	0.000	504.296

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• RDT&E/0604800F: F-35A Joint Strike Fighter SDD	534.344	515.492	403.506	-	403.506	113.567	5.327	5.392	5.497	0.000	22,091.967
• International: International Partner (SDD)	15.000	17.000	22.000	-	22.000	27.450	0.000	0.000	0.000	0.000	5,000.750
• APAF/0207142F BP10: F-35A USAF CTOL	3,542.842	5,259.812	4,401.894	-	4,401.894	4,988.701	4,712.526	4,838.591	5,801.997	138,652.940	190,239.558
• RDT&E/0604800M/2262: F-35B JT Strike Fighter (JSF) - EMD	476.350	505.949	507.078	-	507.078	88.414	9.649	5.842	3.858	0.000	47,608.095
• APN/0605B: F-35B Joint Strike Fighter STOVL Spares	64.194	111.569	123.252	-	123.252	26.159	88.434	160.150	140.989	Continuing	Continuing
• APN/0605C: F-35C Joint Strike Fighter CV Spares	28.386	59.914	26.076	-	26.076	76.886	41.847	52.858	303.608	Continuing	Continuing
• MILCON 0207142F: USAF MILCON Operations	66.700	132.850	305.700	-	305.700	80.000	27.500	0.000	0.000	1,312.100	2,511.350
• APAF/0207142F BP11: USAF Modification Funding	187.646	70.167	175.811	-	175.811	385.931	237.349	232.017	237.273	Continuing	Continuing
• FOD/0207142F: USAF Follow-on-Development (FoD)	23.660	48.954	127.302	-	127.302	321.658	340.950	339.209	345.223	Continuing	Continuing
• 0207142F/USAF BP16: USAF Joint Strike Fighter Initial Spares	231.847	229.582	267.792	-	267.792	315.478	353.602	354.622	355.591	10,311.851	13,420.134
• USAF/OPAF 0207142F: USAF OPAF	4.463	3.858	2.333	-	2.333	2.374	2.415	0.000	0.000	Continuing	Continuing
• APN/0592: F-35B STOVL Serious	215.819	204.464	34.928	-	34.928	158.277	89.352	64.963	79.077	Continuing	Continuing
• APN/0593: F-35C CV Serious	20.502	48.527	26.004	-	26.004	49.848	20.721	12.929	13.192	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800N / JT Strike Fighter (JSF) - EMD	Project (Number/Name) 2261 / Joint Strike Fighter EMD
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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• RDT&E/0604800M/3350: F-35B Sustainment/ Capability Enhancements	11.589	31.952	24.348	-	24.348	11.427	0.000	0.000	0.000	0.000	137.234
• USAF SDD BP 653832: Deployability and Suitability Enhancements	32.593	71.461	46.962	-	46.962	23.795	0.000	0.000	0.000	0.000	199.978
• PAF/0207142F BP10: F-35A JSF CTOL Advance Procurement	418.880	460.260	404.500	-	404.500	391.263	406.750	424.230	424.230	16,880.950	21,689.492
• DCA/0207142F 676011: Dual Capable Aircraft (DCA)	15.615	4.967	25.743	-	25.743	27.731	37.637	49.554	50.433	Continuing	Continuing
• APN/0147: F-35C Joint Strike Fighter CV	927.568	1,062.542	939.280	-	939.280	1,031.960	1,766.145	2,333.863	2,974.122	30,649.190	54,091.144
• APN/0152C: F-35B Joint Strike Fighter STOVL AP	143.885	203.060	233.648	-	233.648	370.472	227.562	231.003	220.000	2,452.774	5,025.035
• APN/0152: F-35B Joint Strike Fighter STOVL	1,287.605	2,291.599	2,240.828	-	2,240.828	2,853.972	2,758.152	2,787.591	2,868.001	22,845.941	44,735.221
• DoN MILCON: DoN JSF MILCON	131.904	94.420	230.900	-	230.900	64.660	121.990	119.800	0.000	Continuing	Continuing
• International 2: International Production/Reprogramming Lab	3,350.860	4,211.698	5,377.274	-	5,377.274	7,420.782	7,893.177	9,050.299	8,092.207	Continuing	Continuing
• OPN/4268: Logistics Information System (ALIS)	47.105	49.773	39.099	-	39.099	35.574	40.367	60.537	60.928	Continuing	Continuing
• MC/27597F: USAF MILCON Training	0.000	65.400	20.000	-	20.000	21.000	34.000	15.900	0.000	0.000	156.300
• International 3: International FoD/D&S	21.086	79.318	128.965	-	128.965	157.602	169.315	171.636	68.599	Continuing	Continuing
• OPN 902010 S8JC: Aviation Support Equipment (ALIS)	0.730	2.946	0.881	-	0.881	2.297	2.321	0.139	1.977	Continuing	Continuing
• USAF O&M: USAF O&M	217.556	302.952	360.107	-	360.107	452.906	555.687	858.671	0.000	Continuing	Continuing
• USAF MILCON 52635F: USAF MILCON Air National Guard	0.000	0.000	15.100	-	15.100	0.000	0.000	0.000	0.000	0.000	15.100
• USN 3194: USN USRL	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	147.205

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017	FY 2017	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Cost To	
			Base	OCO	Total					Complete	Total Cost
• USN 2936: F-35C <i>Follow-on-Development</i>	10.302	21.200	63.387	-	63.387	133.686	144.003	147.646	150.902	Continuing	Continuing
• USN C260: F-35C <i>RDT&E FoD CDD</i>	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1.500
• International Unique: <i>International Unique (SDD/PSFD)</i>	81.681	39.852	39.608	-	39.608	11.474	22.812	29.409	5.357	0.000	969.741

Remarks

D. Acquisition Strategy

The SDD program consists of a cost-reimbursement contract awarded to Lockheed Martin Aeronautics Company to develop the F-35 Air System, consisting of three aircraft variants and its associated logistics support system, for the U.S. Services and international participants. Similarly, a cost-reimbursement contract was awarded to Pratt & Whitney to develop the F135 propulsion system. Ground and flight testing will be conducted during development to accomplish validation and verification, with the extensive use of modeling and simulation to offset the risk of this large, complex, and concurrent lifecycle program. A comprehensive logistics support environment, including an integrated training system for aircrew, maintenance, and support personnel, is also being developed.

On 25 April 2011, the Department of Defense terminated the development of the General Electric Rolls-Royce Fighter Engine Team F136 propulsion system.

The F-35 Program has made international involvement a key element of the acquisition strategy. This includes international partnership in the development, production, and sustainment phases of the lifecycle. Additional international participation includes Foreign Military Sales arrangements.

In Fiscal Year 2007, separate cost-type contracts were awarded to Lockheed Martin Aeronautics Company and Pratt & Whitney to begin low rate initial production for F-35 air vehicles, propulsion systems, and sustainment for the fielded systems. Transition to fixed-price-type procurement contracts occurred with the fourth low rate lot. To provide logistics support for delivered aircraft, Performance-Based Logistics cost-type contracts will be awarded to Lockheed Martin Aeronautics Company and Pratt & Whitney.

At the completion of Low Rate Initial Production, a Defense Acquisition Board review, and Milestone Decision Authority approval, the F-35 Program will enter Full Rate Production. Fixed-price procurement contracts will be awarded for F-35 air vehicles and propulsion systems for the U.S. Services and international participants. Multiyear procurement authority for the F-35 Air System will be requested for Full Rate Production. Concurrently, a fixed-price-type Performance Based Logistics contracts for sustainment will be requested to support multi-Service and multi-national requirements.

E. Performance Metrics

The following are the key performance parameters from the F-35 Selected Acquisition Report:

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Performance Metrics reflect Key Program Performance data.

Combat Radius

- F-35A Meets/Exceeds Tripwire Requirement
- F-35B Meets/Exceeds Tripwire Requirement
- F-35C Meets/Exceeds Tripwire Requirement

F-35B Performance

- Flat Deck (High-High-High Profile Fuel) Meets Requirement In Tripwire Band
- Ski Jump (High-Medium-Medium-High Profile Fuel) Meets Requirement In Tripwire Band
- Vertical Landing Bring Back Meets Requirement In Tripwire Band

F-35C Recovery

- Maximum Approach Speed Meets Requirement In Tripwire Band

Interoperability

- Net Ready Criteria- Meets Requirement In Tripwire Band

Radio Frequency Signature Meets/Exceeds Tripwire Requirement

Force Protection

- CB Pilot Protection (New Key Performance Parameters Per CN3) - Meets/Exceeds Tripwire Requirement

Mission Reliability

- F-35A Meets/Exceeds Tripwire Requirement
- F-35B United States Marine Corps (USMC) Meets/Exceeds Tripwire Requirement
- F-35B United Kingdom (UK) Meets/Exceeds Tripwire Requirement
- F-35C Exceeds Operational Requirements Document Objective

Sortie Generation Rate

- F-35A Meets/Exceeds Tripwire Requirement
- F-35B USMC Meets/Exceeds Tripwire Requirement
- F-35B UK Meets/Exceeds Tripwire Requirement
- F-35C Meets/Exceeds Tripwire Requirement

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<p>Logistics Footprints F-35A Meets/Exceeds Tripwire Requirement F-35B USMC Meets/Exceeds Tripwire Requirement</p> <p>Logistics Footprint- Volume F-35B USMC Exceeds ORD Objective F-35B UK Meets/Exceeds Tripwire Requirement F-35C Exceeds Operational Requirements Document (ORD) Objective</p> <p>Logistics Footprint-Weight F-35B USMC Exceeds ORD Objective F-35B UK Meets/Exceeds Tripwire Requirement F-35C Exceeds ORD Objective</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy											Date: February 2016				
Appropriation/Budget Activity 1319 / 5						R-1 Program Element (Number/Name) PE 0604800N / JT Strike Fighter (JSF) - EMD					Project (Number/Name) 2261 / Joint Strike Fighter EMD				

Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development - SDD	C/CPAF	Lockheed Martin : Ft. Worth, TX	29,697.347	679.854	Dec 2014	577.567	Dec 2015	866.126	Dec 2016	-		866.126	124.343	31,945.237	31,945.237
Primary Hardware Development - Award Fee	C/CPAF	Lockheed Martin : Ft. Worth, TX	1,650.792	54.705	Dec 2014	70.093	Dec 2015	97.632	Dec 2016	-		97.632	20.000	1,893.222	1,893.222
Primary Hardware Development - ALIS	C/CPAF	Lockheed Martin : Ft. Worth, TX	460.979	35.459	Dec 2014	32.512	Dec 2015	31.006	Dec 2016	-		31.006	0.000	559.956	559.956
Primary Hardware Development -D-0005	C/CPFF	Lockheed Martin : Ft. Worth, TX	3.289	0.509	Dec 2014	0.000		0.000		-		0.000	0.000	3.798	3.798
Primary Hardware Development - LRIP 0083	C/CPFF	Lockheed Martin : Ft. Worth, TX	0.000	1.027	Dec 2014	0.000		0.000		-		0.000	0.000	1.027	1.027
Primary Hardware Development - 0031	C/CPFF	Lockheed Martin : Ft. Worth, TX	0.000	0.337	Dec 2014	0.000		0.000		-		0.000	0.000	0.337	0.337
Primary Hardware Development - 0020	C/CPFF	Lockheed Martin : Ft. Worth, TX	0.022	46.908	Dec 2014	119.258	Dec 2015	24.946	Dec 2016	-		24.946	15.273	206.407	206.407
Primary Hardware Development - 0016	C/CPFF	Lockheed Martin : Ft. Worth, TX	0.000	15.045	Dec 2014	0.000		0.000		-		0.000	0.000	15.045	15.045
Primary Hardware Development - SDD	C/CPAF	Pratt and Whitney : Hartford, CT	6,999.951	180.329	Dec 2014	154.665	Dec 2015	55.381	Dec 2016	-		55.381	0.000	7,390.326	7,390.326
Primary Hardware Development - Award Fee	C/CPAF	Pratt and Whitney : Hartford, CT	653.919	16.294	Dec 2014	20.068	Dec 2015	0.000		-		0.000	0.000	690.281	690.281
Primary Hardware Development - ALIS	C/CPAF	Pratt and Whitney : Hartford, CT	14.115	0.282	Dec 2014	0.254	Dec 2015	0.000		-		0.000	0.000	14.651	14.651
Primary Hardware Development - C-0026	C/CPFF	Pratt and Whitney : Hartford, CT	0.000	3.597	Dec 2014	0.000		0.000		-		0.000	0.000	3.597	3.597
Systems Engineering	Various	Various : Various	396.332	22.984	Nov 2014	29.919	Nov 2015	8.490	Nov 2016	-		8.490	7.063	464.788	467.788
Prior Year No Longer Funded in FYDP	Various	Various : Various	2,871.004	0.000		0.000		0.000		-		0.000	0.000	2,871.004	2,871.004
Subtotal			42,747.750	1,057.330		1,004.336		1,083.581		-		1,083.581	166.679	46,059.676	46,062.676

Remarks

Cumulative Award Fee earned in prior years for Lockheed Martin is 86%.
 Cumulative Award Fee earned in prior years for Pratt and Whitney is 94%.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Development Support - AFFTC/Eglin	Various	Eglin AFB : Eglin, FL	121.714	12.231	Nov 2014	6.446	Nov 2015	3.347	Nov 2016	-		3.347	0.064	143.802	-
Development Support - AFLCMC/AFRL	Various	AFLCMC/AFRL : Various	62.865	2.247	Nov 2014	8.325	Nov 2015	0.897	Nov 2016	-		0.897	0.020	74.354	-
Engine Test and Evaluation Support - AEDC/Fuel	Various	Various : Various	170.046	22.242	Nov 2014	17.701	Nov 2015	0.075	Nov 2016	-		0.075	0.000	210.064	-
Development Support - Miscellaneous	Various	Various : Various	97.242	14.946	Nov 2014	18.387	Nov 2015	8.692	Nov 2016	-		8.692	1.346	140.613	-
Software Development Support	Various	NAWC WD : China Lake, CA	137.888	15.614	Nov 2014	12.305	Nov 2015	9.436	Nov 2016	-		9.436	0.000	175.243	-
Development Support	Various	NAWC AD : Patuxent River, MD	368.385	41.758	Nov 2014	31.299	Nov 2015	19.998	Nov 2016	-		19.998	0.235	461.675	-
Prior Year No Longer Funded in FYDP	Various	Various : Various	77.076	0.000		0.000		0.000		-		0.000	0.000	77.076	-
Subtotal			1,035.216	109.038		94.463		42.445		-		42.445	1.665	1,282.827	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental Test and Evaluation	Various	NAWC WD : China Lake, CA	37.253	1.923	Nov 2014	2.173	Nov 2015	2.173	Nov 2016	-		2.173	0.000	43.522	-
Developmental Test and Evaluation	Various	NAWC AD : Patuxent River, MD	581.256	83.797	Nov 2014	120.284	Nov 2015	65.847	Nov 2016	-		65.847	0.000	851.184	-
Developmental Test and Evaluation	Various	Edwards AFB : Edwards AFB, CA	548.835	69.774	Nov 2014	71.235	Nov 2015	53.426	Nov 2016	-		53.426	0.000	743.270	-
Developmental Test and Evaluation - Other (including Classified PIDs)	Various	Various : Various	158.522	53.548	Nov 2014	56.526	Nov 2015	18.132	Nov 2016	-		18.132	2.500	289.228	-
Operational Test and Evaluation Support	Various	WEPS/Eglin : Various	27.829	0.000		0.000		0.000		-		0.000	0.000	27.829	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Operational Test and Evaluation Support	Various	OT-AFOTEC/ AFFTC : Kirkland AFB, NM/Eglin AFB, FL	156.615	23.079	Nov 2014	32.243	Nov 2015	78.792	Nov 2016	-		78.792	95.940	386.669	-
Operational Test and Evaluation Support	Various	OT-JITC/OPTEC : Various	16.329	20.350	Nov 2014	32.966	Nov 2015	35.554	Nov 2016	-		35.554	29.461	134.660	-
Operational Test and Evaluation Support	Various	OT-CHLK : China Lake, CA	0.000	0.000		10.874	Nov 2015	0.000		-		0.000	0.000	10.874	-
Subtotal			1,526.639	252.471		326.301		253.924		-		253.924	127.901	2,487.236	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Security Mantech	C/FP	Mantech : Arlington, VA	74.899	8.300	Dec 2014	8.400	Dec 2015	0.000	Dec 2016	-		0.000	0.000	91.599	91.599
Program Engineering Support	C/CPFF	First Principles : Arlington, VA	8.759	1.900	Dec 2014	0.000		0.000		-		0.000	0.000	10.659	10.659
AFLCMC Civilian Pay	Various	AFLCMC CIVPAY : Wright Patterson, AFB, OH	62.834	32.310	Oct 2014	32.500	Oct 2015	12.225	Oct 2016	-		12.225	0.000	139.869	-
Program Management Support	C/CPFF	Allutiiq : Arlington, VA	1.417	0.518	Dec 2014	0.536	Dec 2015	0.552	Dec 2016	-		0.552	1.153	4.176	4.176
Facilities BOSS	WR	Various : Various	17.751	8.356	Dec 2014	9.091	Dec 2015	7.736	Dec 2016	-		7.736	8.340	51.274	-
IT Support	Various	Various : Various	6.702	2.677	Dec 2014	4.743	Dec 2015	6.050	Dec 2016	-		6.050	1.401	21.573	-
Travel	Various	Various : Various	18.834	2.015	Oct 2014	1.831	Oct 2015	1.948	Oct 2016	-		1.948	1.403	26.031	-
Program Management Support	Various	Jacobs BOSS : Arlington, VA	6.208	19.695	Dec 2014	20.489	Dec 2015	25.000	Dec 2016	-		25.000	0.000	71.392	-
OPS - Cost/FM/EV ACT-I	Various	OPS - Cost/FM/EV : Arlington, VA	2.000	1.494	Dec 2014	3.375	Dec 2015	3.284	Dec 2016	-		3.284	0.000	10.153	-
Program Management Support	Various	Andrews AFB : Camp Springs, MD	0.135	0.135	Dec 2014	0.135	Dec 2015	0.135	Dec 2016	-		0.135	0.270	0.810	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Prior Year No Longer Funded in FYDP	Various	Various : Various	501.811	0.000		0.000		0.000		-		0.000	0.000	501.811	-
Subtotal			701.350	77.400		81.100		56.930		-		56.930	12.567	929.347	-

Remarks
Cumulative Award Fee earned in prior years for Stanley is 99%.

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Subtotals	46,010.955	1,496.239	1,506.200	1,436.880	-	1,436.880	308.812	50,759.086	-
Joint Strike Fighter 0604800M	-	476.350	505.949	507.078	-	507.078			-
Joint Strike Fighter 0604800F	-	534.344	515.492	403.506	-	403.506			-
International Partner	-	15.000	17.000	22.000	-	22.000			-
Project Cost Totals	46,010.955	470.545	467.759	504.296	-	504.296	308.812	50,759.086	-

Remarks
NOTE 1: Prior Years reflect \$20,508.842M USAF/\$18,387.781M USN/\$2,195.032M USMC /\$4,919.300M International/Total \$46,010.955M
FY 2015 reflects \$534.344M USAF/\$470.545M USN/\$476.350M USMC/\$15.000M International/Total \$1,496.239M
FY 2016 reflects \$515.492M USAF/\$467.759M USN/\$505.949M USMC/\$17.000M International/Total \$1,506.200M
FY 2017 reflects \$403.506M USAF/\$504.296M USN/\$507.078M USMC/\$22.000M International/Total \$1,436.880M

JSF EMD Includes:
USAF PE 0604800F BPAC 653831
USN PE 0604800N Project Unit 2261
USMC PE 0604800M Project Unit 2262

D&S Includes:
USAF PE 0604800F BPAC 653832
USN PE 0604800N Project Unit 3352
USMC PE 0604800M Project Unit 3350

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

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JSF Variants - CV, STOVL & CTOL	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
Acquisition Milestones				F-25B IOC ▲				F-35A IOC ▲								F-35C IOC ▲																
Test & Evaluation	Block 3I DT&E/Cert				Block 3F DT&E/Cert								Initial Operational Test and Evaluation (IOT&E)																			
Defense Acquisition Reviews			IPR ■				IPR ■				IPR ■				IPR ■				IPR ■				IPR ■				IPR ■					
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft)	LRIP 8 (AF 19, USN 4, USMC 6)				LRIP 9 (AF 28, USN 4, USMC 6)				LRIP 10 (AF 47, USN 6, USMC 15)				LRIP 11 (AF 43, USN 4, USMC 16)				LRIP 12 (AF 44, USN 6, USMC 20)				LRIP 13 (AF 48, USN 12, USMC 20)				LRIP 14 (AF 48, USN 18, USMC 20)				LRIP 15 (AF 60, USN 24, USMC 21)			

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
JSF Variants - CV, STOVL & CTOL				
Acquisition Milestones: F-35A Initial Operational Capability	4	2016	4	2016
Acquisition Milestones: F-35B Initial Operational Capability	4	2015	4	2015
Acquisition Milestones: F-35C Initial Operational Capability	4	2018	4	2018
Test & Evaluation: Test and Evaluation: Block 3I DT&E/Cert	1	2015	4	2015
Test & Evaluation: Test and Evaluation: Block 3F DT&E/Cert	1	2015	4	2017
Test & Evaluation: Test and Evaluation: Initial Operational Test and Evaluation (IOT&E)	2	2015	4	2018
Defense Acquisition Reviews: System Development Reviews: Interim Program Review (IPR) FY-15	4	2015	4	2015
Defense Acquisition Reviews: System Development Reviews: Interim Program Review (IPR) FY-16	4	2016	4	2016
Defense Acquisition Reviews: System Development Reviews: Interim Program Review (IPR) FY-17	4	2017	4	2017
Defense Acquisition Reviews: System Development Reviews: Interim Program Review (IPR) FY-18	4	2018	4	2018
Defense Acquisition Reviews: System Development Reviews: Interim Program Review (IPR) FY-19	4	2019	4	2019
Defense Acquisition Reviews: System Development Reviews: Interim Program Review (IPR) FY-20	4	2020	4	2020
Defense Acquisition Reviews: System Development Reviews: Interim Program Review (IPR) FY-21	4	2021	4	2021
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LRIP 8 Full Funding / Production / Delivery	1	2015	4	2017

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800N / JT Strike Fighter (JSF) - EMD	Project (Number/Name) 2261 / Joint Strike Fighter EMD
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LRIP 9 Full Funding / Production / Delivery	2	2016	3	2018
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LRIP 10 Full Funding / Production / Delivery	2	2016	4	2019
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LRIP 11 Full Funding / Production / Delivery	2	2017	2	2020
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LRIP 12 Full Funding / Production / Delivery	2	2018	2	2021
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LRIP 13 Full Funding / Production / Delivery	2	2019	4	2021
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LRIP 14 Full Funding / Production / Delivery	2	2020	4	2021
Production Lots (Full Funding / Production / Delivery: U.S. Aircraft): LRIP 15 Full Funding / Production / Delivery	2	2021	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604800N / JT Strike Fighter (JSF) - EMD				Project (Number/Name) 3352 / F-35C Sustainment/Capability Enhancements			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3352: F-35C Sustainment/Capability Enhancements	57.918	16.433	36.977	24.420	-	24.420	11.802	0.000	0.000	0.000	0.000	147.550
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Total cost including United States Navy (USN), United States Marine Corps (USMC), United States Air Force (USAF) and International Partner contributions funding is: FY15 \$66.704M, FY16 \$189.726M and FY17 \$115.140M

R-2A table shown above reflect service funding only.

R-2A (section B)/R-3 displays total combined program (i.e. not Service-specific), including International partners.

D&S Includes:

USAF PE 64800F BPAC 653832

USN PE 0604800N Project Unit 3352

USMC PE 0604800M Project Unit 3350

A. Mission Description and Budget Item Justification

Funds enhancements to the deployability and suitability of the air system such as low observable (LO) maintenance enhancements, security architecture updates, redesign of obsolete items, and integrated training simulators. These enhancements will provide vital on-demand support to the war-fighter within a deployed environment and are not funded via the existing System Development and Demonstration (SDD) program or tied to Block 4 Operational Flight Program development. Funding will result in achieving targeted suitability, maintainability, and affordability returns employing the F-35 in deployed or austere locations.

-Funding at the accomplishment/planned program level is reported as the total of all services as these activities support all aircraft variants. By agreement, USN and USMC funding shares are approximately equal and when combined are equal to the USAF share.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Sustainment and Capability Enhancements	15.590	118.070	64.064	0.000	64.064
Articles:	-	-	-	-	-
Description: Apply disciplined systems engineering, refinement of requirements, develop and acquire suitability and maintainability of the air system such as decentralized maintenance capabilities, LO maintenance					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016		
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800N / JT Strike Fighter (JSF) - EMD	Project (Number/Name) 3352 / F-35C Sustainment/Capability Enhancements			
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)					
enhancements, security architecture updates, redesign of obsolete items and integrated training simulators.					
FY 2015 Accomplishments: Continue to conduct systems engineering, technical maturation, integration and test planning for suitability and deployability enhancements.					
FY 2016 Plans: Continue to conduct systems engineering, technical maturation, integration and test planning for suitability and deployability enhancements. Increase is to perform sustaining engineering, development and test activities necessary to gain capacity, compatibility, and expansion in wiring, power, wing conduits, etc. in support of electronic warfare.					
FY 2017 Base Plans: Continue to conduct systems engineering, technical maturation, integration and test planning for suitability and deployability enhancements. Increase is to perform sustaining engineering, development and test activities necessary to gain capacity, compatibility, and expansion in wiring, power, wing conduits, etc. in support of electronic warfare. This includes funding for suitability enhancements such as Standard Operating Unit Version 2 and Band 2/5 efforts.					
FY 2017 OCO Plans: N/A					
Title: Development Support					
Articles:					
	20.650	7.909	3.556	0.000	3.556
	-	-	-	-	-
Description: SDD support efforts for airframe, air vehicle systems, mission systems, weapons integration, mission support, and autonomic logistics development activities.					
FY 2015 Accomplishments: Continue to initiate development enhancement support for Deployable Autonomic Logistics Information System, decentralized maintenance capabilities, Low Observable maintenance enhancements, security architecture updates, redesign of obsolete items, and integrated training simulators.					
FY 2016 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800N / JT Strike Fighter (JSF) - EMD	Project (Number/Name) 3352 / F-35C Sustainment/Capability Enhancements

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Continue to initiate development enhancement support for Deployable Autonomic Logistics Information System, decentralized maintenance capabilities, Low Observable maintenance enhancements, security architecture updates, redesign of obsolete items, and integrated training simulators.</p> <p>FY 2017 Base Plans: Continue SDD support efforts for airframe, air vehicle systems, mission systems, weapons integration, mission support, and autonomic logistics development activities.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Development Test and Evaluation</p> <p align="right">Articles:</p> <p>Description: Verification and testing for deployability and suitability enhancements.</p> <p>FY 2015 Accomplishments: Continue to initiate government test and evaluation of capability enhancements for Deployable Autonomic Logistics Information System, and LO maintenance enhancements.</p> <p>FY 2016 Plans: Continue to initiate government test and evaluation of capability enhancements for Deployable Autonomic Logistics Information System, and LO maintenance enhancements.</p> <p>FY 2017 Base Plans: Continue to initiate government test and evaluation of capability enhancements for Deployable Autonomic Logistics Information System, and LO maintenance enhancements.</p> <p>FY 2017 OCO Plans: N/A</p>	0.636	1.841	1.440	0.000	1.440
	-	-	-	-	-
<p>Title: Autonomic Logistics Information System</p> <p align="right">Articles:</p> <p>Description: SDD execution of Autonomic Logistics Information System (ALIS) develops the information infrastructure used to transmit health and maintenance action information for the aircraft to the appropriate users.</p>	29.828	61.906	46.080	0.000	46.080
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800N / JT Strike Fighter (JSF) - EMD	Project (Number/Name) 3352 / F-35C Sustainment/Capability Enhancements

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<i>FY 2015 Accomplishments:</i> SDD execution of Autonomic Logistics Information System (ALIS) develops the information infrastructure used to transmit health and maintenance action information for the aircraft to the appropriate users.					
<i>FY 2016 Plans:</i> SDD execution of Autonomic Logistics Information System (ALIS) develops the information infrastructure used to transmit health and maintenance action information for the aircraft to the appropriate users.					
<i>FY 2017 Base Plans:</i> SDD execution of Autonomic Logistics Information System (ALIS) develops the information infrastructure used to transmit health and maintenance action information for the aircraft to the appropriate users.					
<i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	66.704	189.726	115.140	0.000	115.140
Joint Strike Fighter 0604800F	32.593	71.461	46.962	-	46.962
Joint Strike Fighter 0604800M	11.589	31.952	24.348	-	24.348
International Partner	6.089	49.336	19.410	-	19.410
Navy Subtotals	16.433	36.977	24.420	0.000	24.420

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• RDT&E/0604800F: F-35A Joint Strike Fighter SDD	534.344	515.492	403.506	-	403.506	113.567	5.327	5.392	5.497	0.000	22,091.967
• International: International Partner (SDD/FOD)	15.000	17.000	22.000	-	22.000	27.450	0.000	0.000	0.000	0.000	5,000.750
• APAF/0207142F BP10: F-35A USAF CTOL	3,542.842	5,259.812	4,401.894	-	4,401.894	4,988.701	4,712.256	4,838.591	5,801.997	138,652.940	190,239.288
• RDT&E/0604800M/2262: F-35B JT Strike Fighter (JSF) - EMD	476.350	505.949	507.078	-	507.078	88.414	9.649	5.842	3.858	0.000	47,608.095
• APN/0605B: F-35B Joint Strike Fighter STOVL Spares	64.194	111.569	82.418	-	82.418	30.016	98.676	168.451	97.667	1,518.093	2,497.913

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800N / JT Strike Fighter (JSF) - EMD	Project (Number/Name) 3352 / F-35C Sustainment/Capability Enhancements
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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APN/0605C: F-35 Joint Strike Fighter CV Spares	28.200	59.914	23.995	-	23.995	26.778	32.688	47.390	96.000	Continuing	Continuing
• MILCON 0207142F: USAF MILCON Operations	66.700	132.850	305.700	-	305.700	80.000	27.500	0.000	0.000	1,312.100	2,511.350
• APAF/0207142F BP11: USAF Modification Funding	187.646	70.167	175.811	-	175.811	385.931	237.349	232.017	237.273	Continuing	Continuing
• FOD/0207142F: USAF Follow-on Development (FoD)	23.660	48.954	127.302	-	127.302	321.658	340.950	339.209	345.223	Continuing	Continuing
• 0207142F/USAF BP16: USAF Joint Strike Fighter Initial Spares	231.847	229.582	267.792	-	267.792	315.478	353.602	354.622	355.591	10,311.851	13,420.134
• USAF/OPAF 0207142F: USAF OPAF	4.463	3.858	2.333	-	2.333	2.374	2.415	0.000	0.000	Continuing	Continuing
• APN/0592: F-35B STOVL Series	215.819	204.464	34.928	-	34.928	158.277	89.352	64.963	79.077	Continuing	Continuing
• APN/0593: F-35C CV Series	20.502	48.527	26.004	-	26.004	49.848	20.721	12.929	13.192	Continuing	Continuing
• RDT&E/0604800M/3350: F-35B Sustainment/Capability Enhancements	11.589	31.952	24.348	-	24.348	11.427	0.000	0.000	0.000	0.000	137.234
• USAF SDD BP 653832: Deployability and Suitability Enhancements	32.593	71.461	46.962	-	46.962	23.795	0.000	0.000	0.000	0.000	199.978
• PAF/0207142F BP10: F-35A CTOL Advance Procurement	418.880	460.260	404.500	-	404.500	391.263	406.750	424.230	424.230	16,880.950	21,689.492
• DCA/0207142F 676011: Dual Capable Aircraft (DCA)	15.615	4.967	25.743	-	25.743	27.731	37.637	49.554	50.433	Continuing	Continuing
• APN/0147: F-35C Joint Strike Fighter CV	927.568	1,062.542	939.280	-	939.280	1,031.960	1,766.145	2,333.863	2,974.122	35,954.741	59,396.695
• APN/0152C: F-35B Joint Strike Fighter STOVL AP	143.885	203.060	233.648	-	233.648	370.472	227.562	231.003	220.000	2,452.774	5,025.035
• APN/0152: F-35B Joint Strike Fighter STOVL	1,287.605	2,291.599	2,240.828	-	2,240.828	2,853.972	2,758.152	2,787.591	2,868.001	24,583.736	46,473.016
• DoN MILCON: DoN JSF MILCON	60.200	72.460	11.800	-	11.800	0.000	0.000	0.000	0.000	0.000	144.460

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800N / JT Strike Fighter (JSF) - EMD	Project (Number/Name) 3352 / F-35C Sustainment/Capability Enhancements
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• International 2: <i>International Procduction/Reprogramming Lab</i>	3,350.860	4,211.698	5,377.274	-	5,377.274	7,420.782	7,893.177	9,050.299	8,092.207	Continuing	Continuing
• OPN/4268: <i>Logistics Information System (ALIS)</i>	47.105	49.773	39.099	-	39.099	35.574	40.367	60.537	60.928	Continuing	Continuing
• MC/0207597F: <i>USAF MILCON Training</i>	0.000	65.400	20.000	-	20.000	21.000	34.000	15.900	0.000	0.000	156.300
• International 3: <i>International FoD/D&S</i>	21.086	79.318	128.965	-	128.965	157.602	169.315	171.636	68.599	Continuing	Continuing
• OPN 902010 S8JC: <i>Aviation Support Equipment (ALIS)</i>	0.730	2.946	0.881	-	0.881	2.297	2.321	0.139	1.977	Continuing	Continuing
• USAF O&M: <i>USAF O&M</i>	217.556	302.952	360.107	-	360.107	452.906	555.687	858.671	0.000	Continuing	Continuing
• USAF MILCON 0502635F: <i>USAF MILCON Air National Guard</i>	0.000	0.000	15.100	-	15.100	0.000	0.000	0.000	0.000	0.000	15.100
• USN 3194: <i>USN USRL</i>	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	147.205
• USN 2936: <i>F-35C Follow-on Development (CV)</i>	10.302	21.200	63.387	-	63.387	133.686	144.003	147.646	150.902	Continuing	Continuing
• USN C260: <i>F-35C RDT&E FoD CDD</i>	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1.500
• International Unique: <i>Intl Unique (SDD/PSFD)</i>	81.681	39.852	0.000	39.608	39.608	11.474	22.812	29.409	5.357	0.000	969.741

Remarks

D. Acquisition Strategy

Implement Joint Strike Fighter Joint Executive Steering Board/Configuration Steering Board approved enhancements through existing contracts using the engineering change proposal process. When appropriate, new cost type contracts may be established.

E. Performance Metrics

The following are the key performance parameters from the F-35 Selected Acquisition Report:

Performance Metrics reflect Key Program Performance data.

Combat Radius

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800N / <i>JT Strike Fighter (JSF) - EMD</i>	Project (Number/Name) 3352 / <i>F-35C Sustainment/Capability Enhancements</i>
<p>F-35A Meets/Exceeds Tripwire Requirement F-35B Meets/Exceeds Tripwire Requirement F-35C Meets/Exceeds Tripwire Requirement</p> <p>F-35B Performance Flat Deck (High-High-High Profile Fuel) Meets Requirement In Tripwire Band Ski Jump (High-Medium-Medium-High Profile Fuel) Meets Requirement In Tripwire Band Vertical Landing Bring Back Meets Requirement In Tripwire Band</p> <p>F-35C Recovery Maximum Approach Speed Meets Requirement In Tripwire Band</p> <p>Interoperability Net Ready Criteria- Meets Requirement In Tripwire Band</p> <p>Radio Frequency Signature Meets/Exceeds Tripwire Requirement</p> <p>Force Protection CB Pilot Protection (New Key Performance Parameters Per CN3) - Meets/Exceeds Tripwire Requirement</p> <p>Mission Reliability F-35A Meets/Exceeds Tripwire Requirement F-35B United States Marine Corps (USMC) Meets/Exceeds Tripwire Requirement F-35B United Kingdom (UK) Meets/Exceeds Tripwire Requirement F-35C Exceeds Operational Requirements Document Objective</p> <p>Sortie Generation Rate F-35A Meets/Exceeds Tripwire Requirement F-35B USMC Meets/Exceeds Tripwire Requirement F-35B UK Meets/Exceeds Tripwire Requirement F-35C Meets/Exceeds Tripwire Requirement</p> <p>Logistics Footprints F-35A Meets/Exceeds Tripwire Requirement F-35B USMC Meets/Exceeds Tripwire Requirement</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800N / <i>JT Strike Fighter (JSF) - EMD</i>	Project (Number/Name) 3352 / <i>F-35C Sustainment/Capability Enhancements</i>
<p>Logistics Footprint- Volume F-35B USMC Exceeds ORD Objective F-35B UK Meets/Exceeds Tripwire Requirement F-35C Exceeds Operational Requirements Document (ORD) Objective</p> <p>Logistics Footprint-Weight F-35B USMC Exceeds ORD Objective F-35B UK Meets/Exceeds Tripwire Requirement F-35C Exceeds ORD Objective</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800N / JT Strike Fighter (JSF) - EMD	Project (Number/Name) 3352 / F-35C Sustainment/Capability Enhancements
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary Hardware Development - 3002 SDD	C/CPFF	Lockheed Martin : Fort Worth, TX	0.000	0.000		41.330	Mar 2016	35.844	Mar 2017	-		35.844	21.213	98.387	98.387
Primary Hardware Development - 3002 ALIS	C/CPFF	Lockheed Martin : Fort Worth, TX	46.210	29.828	Mar 2015	61.906	Mar 2016	46.080	Mar 2017	-		46.080	33.740	217.764	217.764
Primary Hardware Development -14-C-002 Band 2/5	C/CPFF	Lockheed Martin : Fort Worth, TX	0.000	15.590	Mar 2015	76.740	Mar 2016	28.220	Mar 2017	-		28.220	0.000	120.550	120.550
Subtotal			46.210	45.418		179.976		110.144		-		110.144	54.953	436.701	436.701

Remarks
Cumulative Award Fee earned for Lockheed Martin 0%.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Development Support	Various	AFLCMC : Eglin AFB	4.040	15.680	Mar 2015	2.910	Mar 2016	0.000		-		0.000	0.000	22.630	-
Development Support	Various	Various : Various	7.668	4.000	Mar 2015	3.120	Mar 2016	2.410	Mar 2017	-		2.410	0.000	17.198	-
Subtotal			11.708	19.680		6.030		2.410		-		2.410	0.000	39.828	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental Test & Evaluation	WR	Various : Various	0.000	0.606	Jun 2015	1.404	Jun 2016	0.976	Jun 2017	-		0.976	0.000	2.986	-
Subtotal			0.000	0.606		1.404		0.976		-		0.976	0.000	2.986	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800N / JT Strike Fighter (JSF) - EMD	Project (Number/Name) 3352 / F-35C Sustainment/Capability Enhancements
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Support	Various	Various : Various	0.000	1.000	Dec 2015	2.316	Dec 2016	1.610	Dec 2016	-		1.610	0.000	4.926	-
Subtotal			0.000	1.000		2.316		1.610		-		1.610	0.000	4.926	-
Cost Category Subtotals			57.918	66.704		189.726		115.140		-		115.140	54.953	484.441	-
Joint Strike Fighter 0604800F			-	32.593		71.461		46.962		-		46.962			-
Joint Strike Fighter 0604800M			-	11.589		31.952		24.348		-		24.348			-
International Partner			-	6.089		49.336		19.410		-		19.410			-
Project Cost Totals			57.918	16.433		36.977		24.420		-		24.420	54.953	484.441	-

Remarks
 NOTE: Prior Years reflect \$25.167M USAF/\$16.332M USN/\$16.419M USMC/ Total \$57.918M

 FY 2015 reflects \$32.593M USAF/\$16.433M USN/\$11.589M USMC/\$6.089M International/Total \$66.704M

 FY 2016 reflects \$71.461M USAF/\$36.977M USN/\$31.952M USMC/\$49.336M International/Total \$189.726M

 FY 2017 reflects \$46.962M USAF/\$24.420M USN/\$24.348M USMC/\$19.410M International/Total \$115.140M

 R-2A (section B)/R-3 displays total combined program (i.e. not Service-specific), including International partners.

 JSF EMD Includes:
 USAF PE 0604800F BPAC 653831
 USN PE 0604800N Project Unit 2261
 USMC PE 0604800M Project Unit 2262

 D&S Includes:
 USAF PE 0604800F BPAC 653832
 USN PE 0604800N Project Unit 3352
 USMC PE 0604800M Project Unit 3350

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800N / JT Strike Fighter (JSF) - EMD	Project (Number/Name) 3352 / F-35C Sustainment/Capability Enhancements
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Proj 3352	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
D&S																																
					SOUv2																											
									Band 2/5																							
									Security Architecture																							
									OMS																							
									DMT/DMO																							

2017DON - 0604800N - 3352

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604800N / <i>JT Strike Fighter (JSF) - EMD</i>	Project (Number/Name) 3352 / <i>F-35C Sustainment/Capability Enhancements</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3352				
D&S: Standard Operating Unit (SOUv2)	1	2015	1	2017
D&S: Band 2/5	3	2015	3	2018
D&S: Security Architecture	1	2016	3	2018
D&S: Offboard Mission Support (OMS) Redesign	1	2016	4	2018
D&S: Distributed Mission Training/Distributed Mission Operations (DMT/DMO)	1	2016	4	2018

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy I BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604810M I (U) <i>Joint Strike Fighter Follow On Develop - MC</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	6.000	10.086	20.798	74.227	-	74.227	154.047	164.276	168.433	172.040	Continuing	Continuing
2935: <i>JSF Follow On Development - Marine Corps</i>	6.000	10.086	20.798	74.227	-	74.227	154.047	164.276	168.433	172.040	Continuing	Continuing

Program MDAP/MAIS Code: 198

A. Mission Description and Budget Item Justification

The F-35 Joint Strike Fighter (JSF) Program will develop and field an affordable, highly common family of next generation strike aircraft for the United States Navy, Air Force, Marine Corps and allies. The three variants are the F-35A Conventional Takeoff and Landing; F-35B Short Take Off and Vertical Landing; and the F-35C Aircraft Carrier suitable variant. Maximum commonality among the variants, consistent with National Disclosure Policy, will minimize life cycle costs. As Initial Operational Capability (IOC) delivers for each variant during System Development and Demonstration (SDD), planning and initial systems engineering for the Follow-on Development (FoD) continues.

FoD capability requirements were initiated through ongoing Service-led operational analysis of warfighting gaps identified in the Fifth Generation Fighter Modernization Initial Capabilities Document (ICD), and through F-35 JSF Program Block 4 Mission Decomposition analysis completed in FY2014. These analyses serve as basis for the F-35 FoD Block 4 Capabilities Development Document (CDD), staffed through the Air Force Requirements Oversight Council (AFROC) and signed by the USAF Chief of Staff in January 2015. JROC approval of the CDD is expected in FY2016. Pre-modernization activities in FY2016 and FY2017 include systems engineering, risk reduction, and FoD facility upgrades to support an initial Block 4 fleet availability in 2020.

The United Kingdom, Italy, Netherlands, Turkey, Canada, Australia, Denmark and Norway are participants in F-35 modernization. The program shown here reflects USN, USMC, USAF, and International Partner funding. Funding at the accomplishment/planned program level is reported as the total of all service and partners as these activities support all aircraft variants. Foreign Military Sales are ongoing separately.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: Research, Development, Test & Evaluation, Navy I BA 5: System Development & Demonstration (SDD)	R-1 Program Element (Number/Name) PE 0604810M I (U)Joint Strike Fighter Follow On Develop - MC
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	10.399	59.265	120.028	-	120.028
Current President's Budget	10.086	20.798	74.227	-	74.227
Total Adjustments	-0.313	-38.467	-45.801	-	-45.801
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-38.467			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.313	0.000			
• Program Adjustments	0.000	0.000	-46.052	-	-46.052
• Rate/Misc Adjustments	0.000	0.000	0.251	-	0.251

Change Summary Explanation

Schedule changed to reflect direction resulting from Material Development Decision (MDD) and receipt of F-35 Lightning II Joint Strike Fighter Block 4 Acquisition Decision Memorandum (19 August 2015). As a result the schedule changes were:

Requirements: Final CDD (JROC) changed from 1st Quarter 2016 to 3rd Quarter 2016 start to end

Acquisition: EMD RFP Decision changed from 1st Quarter 2016 to 3rd Quarter 2016 start to end

Acquisition: EMD RFP Contract Decision changed from 2nd Quarter 2017 to 3rd Quarter 2017 start to end

Contracting: Pre-EMD Requirements Development (Phase 1) changed from 4th Quarter 2015 to 1st Quarter 2016

Contracting: Pre-EMD Requirements Development (Phase 2) changed from 1st Quarter 2016 to 2nd Quarter 2016

Systems Engineering: Initial Preliminary Design Review (PDR) changed from 1st Quarter 2017 to 3rd Quarter 2017

Systems Engineering: Initial Preliminary Design Review (PDR) changed from 1st Quarter 2017 to 3rd Quarter 2018

Systems Engineering: Initial Preliminary Design Review (SRR) changed from 2nd Quarter 2016 to 4th Quarter 2018

Test & Evaluation: 4.1 Test changed from 1st Quarter 2019 to 3rd Quarter 2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy I BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604810M I (U) <i>Joint Strike Fighter Follow On Develop - MC</i>	
Test & Evaluation: 4.2 Test changed from 1st Quarter 2021 to 4th Quarter 2021		
<p>Follow-on Development (FoD) Block 4 schedule updated to reflect incremental fielding strategy focused on software-focused fleet releases of capability every two years and software plus hardware-focused fleet releases of capability every four years. Based on direction provided in current Block 4 Acquisition Decision Memorandum, the Planning and Systems Engineering phase leading up to a Block 4 system Preliminary Design Review (PDR) was updated to 3rd Quarter FY2017. The Modernization Request for Proposal (RFP) Release Decision Point and Contract Award dates were also updated to account for the program planning, requirements decomposition and systems engineering activities leading up to successful completion of these events.</p> <p>Program Changes: FY2017 Decrease: -\$6.052M was to account for the availability of prior year execution balances. -\$40.000M was for proper program alignment and funding for higher USMC priorities.</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604810M I (U)Joint Strike Fighter Follow On Develop - MC					Project (Number/Name) 2935 I JSF Follow On Development - Marine Corps		
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2935: JSF Follow On Development - Marine Corps	6.000	10.086	20.798	74.227	-	74.227	154.047	164.276	168.433	172.040	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Total cost, including International partner contributions, USN, USMC, and USAF funding: FY2015 \$59.045M; FY2016 \$125.211M; FY2017 \$382.151M

R-2A table shown above reflects service funding only.

R-2A (section B)/R-3 displays combined program for JSF Follow-on Development (FoD)

JSF FoD Includes:

USAF PE 0207142F BPAC 675346

USN PE 0604810N Project Unit 2936

USMC PE 0604810M Project Unit 2935

USN PE 0604800N Project Unit 9999(FY14): \$1.500M

USMC PE 0604800M Project Unit 9999 (FY14): \$1.500M

International Partner Contributions

A. Mission Description and Budget Item Justification

F-35 FoD provides continuing incremental upgrades of the three F-35 variants and associated ground equipment. Upgrades are essential mission improvements for Air Interdiction and Strategic Attack, Close Air Support, Suppression and Destruction of Enemy Air Defenses, Offensive and Defensive Counter Air and expanded Surface Warfare. The Block 4 acquisition strategy is based upon incremental deliveries of capabilities in 4 sub-blocks. The strategy includes deliveries on a two year cycle with a focus on hardware and tech refresh change every four years. FoD capability planning includes an efficient transition from F-35 SDD to Follow-on Development. As SDD development activities ramp down, the FoD will assume responsibility for improvements and modernization efforts. Block 4 capability planning includes Block 4.1 through 4.4 modernization efforts with initial increment of capability available in 2020 and subsequent releases every two years.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Product Development	59.010	114.684	283.246	0.000	283.246
Articles:	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604810M / (U)Joint Strike Fighter Follow On Develop - MC	Project (Number/Name) 2935 / JSF Follow On Development - Marine Corps

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Description: Capability planning effort will focus on mission requirements analysis, early engineering, risk reduction and preparations leading to formal acquisition approval of Block 4. Program planning will consist of engineering and development support for defining, managing and the acquisition of capability enhancements required to address threats indicated in the Electronic Warfare Initial Capabilities Document (ICD) and the Fifth Generation Fighter Modernization ICD.</p> <p>FY 2015 Accomplishments: Requirements analysis and technical requirements development, systems engineering, and technical planning. A combined Systems Requirements Review and Systems Functional Review is planned followed by development of the Block 4 preliminary design.</p> <p>FY 2016 Plans: Requirements analysis and technical requirements development, systems engineering, and technical planning. A combined Systems Requirements Review and System Functional Review is planned followed by development of the Block 4 preliminary design.</p> <p>FY 2017 Base Plans: Continue requirements analysis and technical requirements development, systems engineering, and technical planning. A combined Systems Requirements Review and System Functional Review is planned, followed by development of the Block 4 preliminary design. Begin EMD Block 4 Modernization and complete Pre-EMD Phase 1 and Phase 2 activities.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Support Costs</p> <p align="right">Articles:</p> <p>Description: Technical and Analytical Support</p>	0.035	10.527	44.849	0.000	44.849
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604810M / (U)Joint Strike Fighter Follow On Develop - MC	Project (Number/Name) 2935 / JSF Follow On Development - Marine Corps

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p><i>FY 2015 Accomplishments:</i> Initiate development support for defining, managing and acquiring the F-35 capability enhancements identified in approved requirements documents.</p> <p><i>FY 2016 Plans:</i> Initiate development support for defining, managing and acquiring the F-35 capability enhancements identified in approved requirements documents.</p> <p><i>FY 2017 Base Plans:</i> Initiate development support for defining, managing and acquiring the F-35 capability enhancements identified in approved requirements documents.</p> <p><i>FY 2017 OCO Plans:</i> N/A</p>					
<p><i>Title:</i> Test and Evaluation</p> <p align="right"><i>Articles:</i></p> <p><i>Description:</i> Initiate Laboratory and Test Aircraft Upgrade and other test planning activities required for Block 4 and later development , integration, test and evaluation. Changes are needed to support development and evaluation of improvements driven by changes in threat and as identified in the Electronic Warfare ICD and the Fifth Generation Fighter Modernization ICD.</p> <p><i>FY 2015 Accomplishments:</i> N/A</p> <p><i>FY 2016 Plans:</i> N/A</p> <p><i>FY 2017 Base Plans:</i> Funding will support infrastructure investment planning and prioritization required to maintain future development capability. This includes planning for long-lead procurement for replacement of engines and other life limited components on Developmental Test aircraft that will be at end of life upon completion of SDD, as well as laboratory upgrades required to support development and verification of capabilities in a relevant threat.</p> <p><i>FY 2017 OCO Plans:</i></p>	0.000	0.000	54.056	0.000	54.056
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604810M / (U)Joint Strike Fighter Follow On Develop - MC	Project (Number/Name) 2935 / JSF Follow On Development - Marine Corps

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
Accomplishments/Planned Programs Subtotals	59.045	125.211	382.151	0.000	382.151
0207142F JSF FOLLOW ON DEVELOPMENT	23.660	48.954	127.302	-	127.302
International FoD	14.997	34.259	117.235	-	117.235
0604810N JSF FOLLOW ON DEVELOPMENT	10.302	21.200	63.387	-	63.387
Navy Subtotals	10.086	20.798	74.227	0.000	74.227

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• RDT&E/0604810N/2936: <i>F-35C Follow-on Development</i>	10.302	21.200	63.387	-	63.387	133.686	144.003	147.646	150.902	Continuing	Continuing
• USAF/FOD/0207142F: <i>USAF Follow-on Development</i>	23.660	48.954	127.302	-	127.302	321.658	340.950	339.209	345.223	Continuing	Continuing
• International: <i>International FoD</i>	14.997	34.259	117.235	-	117.235	151.021	162.381	165.592	162.255	Continuing	Continuing

Remarks

This is a joint program with no executive service. Service Acquisition Executive (SAE) authority alternates between the Department of the Navy and the Department of the Air Force and currently resides with the Navy. Program Element 0604800N/0604800M continues USN development efforts budgeted in 0603800N prior to FY2002. The United Kingdom, Italy, Netherlands, Turkey, Canada, Australia, Denmark, and Norway are participants in the SDD phase of JSF.

D. Acquisition Strategy

To enable the ability to adjust to potential discrepancies discovered during SDD Block 3 Test and Evaluation, the engineering and development planning support for FoD will be procured under a cost type contract. A fee provision will be used to target and motivate contractor performance. A separate Basic Ordering Agreement or Indefinite Delivery/Indefinite Quantity contract is planned to provide a long term approach to upgrading and maintaining laboratories and test aircraft. Both Development Support and Management Services will primarily use CPFF Delivery Orders.

E. Performance Metrics

Overall FoD Performance Metrics will reflect Key Performance Parameters established in the F-35 FoD Capability Development Document.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)					Project (Number/Name)						
1319 / 5				PE 0604810M / (U)Joint Strike Fighter Follow On Develop - MC					2935 / JSF Follow On Development - Marine Corps						
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Prime LM TBD	C/CPFF	Lockheed Martin : FT. Worth, TX	0.000	0.000		107.548	Jul 2016	258.583	Jul 2017	-		258.583	Continuing	Continuing	Continuing
Prime LM 02-C-3002	C/CPFF	Lockheed Martin : FT. Worth, TX	1.655	17.830	Jun 2015	1.080	Dec 2015	0.000		-		0.000	0.000	20.565	20.565
Prime LM 16-C-0008	C/CPFF	Lockheed Martin : FT. Worth, TX	0.000	39.280	Jun 2015	14.246	Jan 2016	23.520	Jan 2017	-		23.520	0.000	77.046	77.046
Prime LM IDIQ 13-D-0005	C/CPFF	Lockheed Martin : FT. Worth, TX	0.158	0.000		0.000		0.000		-		0.000	0.000	0.158	0.158
Subtotal			1.813	57.110		122.874		282.103		-		282.103	-	-	-
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	Various	Various : Various	3.787	0.000		0.000		8.714	Dec 2016	-		8.714	55.071	67.572	-
Development Support	Various	Eglin : Various	0.000	0.035	Jun 2015	0.982	Dec 2015	1.940	Dec 2016	-		1.940	13.659	16.616	-
Development Support	WR	NAWCAD : Patuxent River, MD	0.400	0.000		1.355	Dec 2015	20.970	Dec 2016	-		20.970	96.015	118.740	-
Development Support	WR	NAWCWD : China Lake, Ca	0.000	0.000		0.000		7.389	Dec 2016	-		7.389	29.941	37.330	-
Development Support	MIPR	AFLCMC : Wright Patterson AFB	0.000	0.000		0.000		0.232	Dec 2016	-		0.232	2.125	2.357	-
Subtotal			4.187	0.035		2.337		39.245		-		39.245	196.811	242.615	-
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	Various	NAWCAD : Patuxent River, MD	0.000	0.000		0.000		35.824	Dec 2016	-		35.824	154.870	190.694	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604810M / (U)Joint Strike Fighter Follow On Develop - MC	Project (Number/Name) 2935 / JSF Follow On Development - Marine Corps
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental Test & Evaluation	WR	NAWCWD : China Lake , CA	0.000	0.000		0.000		1.637	Dec 2016	-		1.637	19.415	21.052	-
Developmental Test & Evaluation Edwards/AFB	Various	Edwards AFB : Edwards AFB, CA	0.000	0.000		0.000		9.592	Dec 2016	-		9.592	284.041	293.633	-
Developmental Test & Evaluation	Various	Various : Various	0.000	0.000		0.000		0.250	Dec 2016	-		0.250	43.999	44.249	-
Subtotal			0.000	0.000		0.000		47.303		-		47.303	502.325	549.628	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Functional Wyle	C/CPFF	Wyle : Arlington, VA	0.000	1.900	Sep 2016	0.000		0.000		-		0.000	0.000	1.900	1.900
AFLCMC Civilian Pay	Various	AFLCMC CIVPAY : Wright Patterson, AFB	0.000	0.000		0.000		13.500	Nov 2016	-		13.500	137.060	150.560	-
Subtotal			0.000	1.900		0.000		13.500		-		13.500	137.060	152.460	-

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Subtotals	6.000	59.045	125.211	382.151	-	382.151	-	-	-
0207142F JSF FOLLOW ON DEVELOPMENT	-	23.660	48.954	127.302	-	127.302			-
International FoD	-	14.997	34.259	117.235	-	117.235			-
0604810N JSF FOLLOW ON DEVELOPMENT	-	10.302	21.200	63.387	-	63.387			-
Project Cost Totals	6.000	10.086	20.798	74.227	-	74.227	-	-	-

Remarks
 FY 2014 reflects \$3.000M USAF/\$1.500 USN/\$1.500M USMC/\$0.000M International/Total \$6.000M
 FY 2015 reflects \$23.660M USAF/\$10.302M USN/\$10.086M USMC/\$14.997M International/Total \$59.045
 FY 2016 reflects \$48.954M USAF/\$21.200M USN/\$20.798M USMC/\$34.259M International/Total \$125.211

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604810M / (U)Joint Strike Fighter Follow On Develop - MC	Project (Number/Name) 2935 / JSF Follow On Development - Marine Corps
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	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
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FY 2017 reflects \$127.302M USAF/\$63.387M USN/\$74.227M USMC/\$117.235M International/Total \$382.151

R-2A (section B)/R-3 displays total combined program (i.e. not Service-specific), including International partners.

JSF Follow on Development Includes:
 USAF PE 0207142F BPAC 675346
 USN PE 0604810N Project Unit 2936
 USMC PE 0604810M Project Unit 2935
 USN PE 0604800N Project Unit 9999 (FY14): \$1.500
 USMC PE 0604800M Project Unit 999 (FY14) : \$1.500

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604810M / (U)Joint Strike Fighter Follow On Develop - MC	Project (Number/Name) 2935 / JSF Follow On Development - Marine Corps
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Proj 2935	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Requirements							CDD (JROC) ◆																					
Acquisition											EMD RFP Decision ▲				IPR ◆				EMD Contract Decision ▲				IPR ◆				IPR ◆	
Contracting					Block 4 Pre-Modernization								Block 4 Modernization															
Systems Engineering								Initial SRR ◆								Initial PDR ◆												
Test & Evaluation																					4.1 Test				4.2 Test			
Fielding																												4.1 Fleet Avail ▲

2017PB - 0604810M - 2935

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604810M / (U)Joint Strike Fighter Follow On Develop - MC	Project (Number/Name) 2935 / JSF Follow On Development - Marine Corps

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2935				
Requirements: Final CDD (JROC)	3	2016	3	2016
Acquisition: EMD RFP Decision	3	2017	3	2017
Acquisition: EMD Contract Decision	3	2018	3	2018
Acquisition: Interim Program Review (IPR) FY18	1	2018	1	2018
Acquisition: Interim Program Review (IPR) FY19	1	2019	1	2019
Acquisition: Interim Program Review (IPR) FY20	1	2020	1	2020
Acquisition: Interim Program Review (IPR) FY21	1	2021	1	2021
Contracting: Block 4 Pre-Modernization	4	2015	3	2018
Contracting: Block 4 Modernization	3	2018	4	2021
Systems Engineering: Initial Preliminary Design Review (PDR)	3	2018	3	2018
Systems Engineering: Initial System Requirements Review (SRR)	4	2016	4	2016
Test & Evaluation: Test & Evaluation: 4.1 Test	3	2019	3	2020
Test & Evaluation: Test & Evaluation: 4.2 Test	1	2021	4	2021
Fielding: Block 4.1 Fleet Availability	4	2020	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604810N / (U) <i>Joint Strike Fighter Follow On Develop - Navy</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	6.000	10.302	21.200	63.387	-	63.387	133.686	144.003	147.646	150.902	Continuing	Continuing
2936: <i>JSF Follow On Development - Navy</i>	6.000	10.302	21.200	63.387	-	63.387	133.686	144.003	147.646	150.902	Continuing	Continuing

Program MDAP/MAIS Code: 198

A. Mission Description and Budget Item Justification

Decrease in (U)JOINT STRIKE FIGHTER FOLLOW ON DEVELOP-NAVY by \$2.661M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

The F-35 Joint Strike Fighter (JSF) Program will develop and field an affordable, highly common family of next generation strike aircraft for the United States Navy, Air Force, Marine Corps and allies. The three variants are the F-35A Conventional Takeoff and Landing; F-35B Short Take Off and Vertical Landing; and the F-35C Aircraft Carrier suitable variant. Maximum commonality among the variants, consistent with National Disclosure Policy, will minimize life cycle costs. As Initial Operational Capability (IOC) delivers for each variant during System Development and Demonstration (SDD), planning and initial systems engineering for the Follow-on Development (FoD) continues.

FoD capability requirements were initiated through ongoing Service-led operational analysis of warfighting gaps identified in the Fifth Generation Fighter Modernization Initial Capabilities Document (ICD), and through F-35 JSF Program Block 4 Mission Decomposition analysis completed in FY2014. These analyses serve as basis for the F-35 FoD Block 4 Capabilities Development Document (CDD), staffed through the Air Force Requirements Oversight Council (AFROC) and signed by the USAF Chief of Staff in January 2015. JROC approval of the CDD is expected in FY2016. Pre-modernization activities in FY2016 and FY2017 include systems engineering, risk reduction, and FoD facility upgrades to support an initial Block 4 fleet availability in 2020.

The United Kingdom, Italy, Netherlands, Turkey, Canada, Australia, Denmark and Norway are participants in F-35 modernization. The program shown here reflects USN, USMC, USAF, and International Partner funding. Funding at the accomplishment/planned program level is reported as the total of all service and partners as these activities support all aircraft variants. Foreign Military Sales are ongoing separately.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)	R-1 Program Element (Number/Name) PE 0604810N / (U)Joint Strike Fighter Follow On Develop - Navy
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	10.622	47.579	103.564	-	103.564
Current President's Budget	10.302	21.200	63.387	-	63.387
Total Adjustments	-0.320	-26.379	-40.177	-	-40.177
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-26.379			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.320	0.000			
• Program Adjustments	0.000	0.000	-40.202	-	-40.202
• Rate/Misc Adjustments	0.000	0.000	0.025	-	0.025

Change Summary Explanation

Schedule changed to reflect direction resulting from Material Development Decision (MDD) and receipt of F-35 Lightning II Joint Strike Fighter Block 4 Acquisition Decision Memorandum (19 August 2015). As a result the schedule changes were:

Requirements: Final CDD (JROC) changed from 1st Quarter 2016 to 3rd Quarter 2016 start to end

Acquisition: EMD RFP Decision changed from 1st Quarter 2016 to 3rd Quarter 2016 start to end

Acquisition: EMD RFP Contract Decision changed from 2nd Quarter 2017 to 3rd Quarter 2017 start to end

Contracting: Pre-EMD Requirements Development (Phase 1) changed from 4th Quarter 2015 to 1st Quarter 2016

Contracting: Pre-EMD Requirements Development (Phase 2) changed from 1st Quarter 2016 to 2nd Quarter 2016

Systems Engineering: Initial Preliminary Design Review (PDR) changed from 1st Quarter 2017 to 3rd Quarter 2017

Systems Engineering: Initial Preliminary Design Review (PDR) changed from 1st Quarter 2017 to 3rd Quarter 2018

Systems Engineering: Initial Preliminary Design Review (SRR) changed from 2nd Quarter 2016 to 4th Quarter 2018

Test & Evaluation: 4.1 Test changed from 1st Quarter 2019 to 3rd Quarter 2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0604810N / (U) <i>Joint Strike Fighter Follow On Develop - Navy</i>	
Test & Evaluation: 4.2 Test changed from 1st Quarter 2021 to 4th Quarter 2021		
<p>Follow-on Development (FoD) Block 4 schedule updated to reflect incremental fielding strategy focused on software-focused fleet releases of capability every two years and software plus hardware-focused fleet releases of capability every four years. Based on direction provided in current Block 4 Acquisition Decision Memorandum, the Planning and Systems Engineering phase leading up to a Block 4 system Preliminary Design Review (PDR) was updated to 3rd Quarter FY2017. The Modernization Request for Proposal (RFP) Release Decision Point and Contract Award dates were also updated to account for the program planning, requirements decomposition and systems engineering activities leading up to successful completion of these events.</p> <p>Program Changes: FY2017 Decrease: -\$2.570M was to account for the availability of prior year execution balances. -\$37.632M was for proper program alignment and funding for higher USN priorities.</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604810N / (U)Joint Strike Fighter Follow On Develop - Navy				Project (Number/Name) 2936 / JSF Follow On Development - Navy			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2936: JSF Follow On Development - Navy	6.000	10.302	21.200	63.387	-	63.387	133.686	144.003	147.646	150.902	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Total cost, including International partner contributions, USN, USMC, and USAF funding: FY2015 \$59.045M; FY2016 \$125.211M; FY2017 \$382.151M

R-2A table shown above reflects service funding only.

R-2A (section B)/R-3 displays combined program for JSF Follow-on Development (FoD).

JSF FoD Includes:

USAF PE 0207142F BPAC 675346

USN PE 0604810N Project Unit 2936

USMC PE 0604810M Project Unit 2935

USN PE 0604800N Project Unit 9999(FY14): \$1.500M

USMC PE 0604800M Project Unit 9999 (FY14): \$1.500M

International Partner Contributions

A. Mission Description and Budget Item Justification

F-35 FoD provides continuing incremental upgrades of the three F-35 variants and associated ground equipment. Upgrades are essential mission improvements for Air Interdiction and Strategic Attack, Close Air Support, Suppression and Destruction of Enemy Air Defenses, Offensive and Defensive Counter Air and expanded Surface Warfare. The Block 4 acquisition strategy is based upon incremental deliveries of capabilities in 4 sub-blocks. The strategy includes deliveries on a two year cycle with a focus on hardware and tech refresh change every four years. FoD capability planning includes an efficient transition from F-35 SDD to Follow-on Development. As SDD development activities ramp down, the FoD will assume responsibility for improvements and modernization efforts. Block 4 capability planning includes Block 4.1 through 4.4 modernization efforts with initial increment of capability available in 2020 and subsequent releases every two years.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Product Development	59.010	114.684	283.246	0.000	283.246
Articles:	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604810N / (U)Joint Strike Fighter Follow On Develop - Navy	Project (Number/Name) 2936 / JSF Follow On Development - Navy

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Description: Capability planning effort will focus on mission requirements analysis, early engineering, risk reduction and preparations leading to formal acquisition approval of Block 4 Modernization Contract. Program planning will consist of engineering and development support for defining, managing and the acquisition of capability enhancements required to address threats indicated in the Electronic Warfare Initial Capabilities Document (ICD) and the Fifth Generation Fighter Modernization ICD and FoD CDD.</p> <p>FY 2015 Accomplishments: Requirements analysis and technical requirements development, systems engineering and technical planning. A combined Systems Requirements Review and System Functional Review is planned followed by development of the Block 4 preliminary design.</p> <p>FY 2016 Plans: Requirements analysis and technical requirements development, systems engineering, and technical planning. A combined Systems Requirements Review and System Functional Review is planned followed by development of the Block 4 preliminary design.</p> <p>FY 2017 Base Plans: Continue requirements analysis and technical requirements development, systems engineering, and technical planning. A combined Systems Requirements Review and System Functional Review is planned, followed by development of the Block 4 preliminary design. Begin EMD Block 4 Modernization and complete Pre-EMD Phase 1 and Phase 2 activities.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Support Costs</p> <p align="right">Articles:</p>	0.035	10.527	44.849	0.000	44.849
<p>Description: Technical and Analytical Support</p> <p>FY 2015 Accomplishments:</p>	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604810N / (U)Joint Strike Fighter Follow On Develop - Navy	Project (Number/Name) 2936 / JSF Follow On Development - Navy

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Initiate development support for defining, managing and acquiring the F-35 capability enhancements identified in approved requirements documents.</p> <p>FY 2016 Plans: Initiate development support for defining, managing and acquiring the F-35 capability enhancements identified in approved requirements documents.</p> <p>FY 2017 Base Plans: Initiate development support for defining, managing and acquiring the F-35 capability enhancements identified in approved requirements documents.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Test and Evaluation</p> <p align="right">Articles:</p> <p>Description: Initiate Laboratory and Test Aircraft Upgrade and other test planning activities required for Block 4 and later development , integration, test and evaluation. Changes are needed to support development and evaluation of improvements driven by changes in threat and as identified in the Electronic Warfare ICD and the Fifth Generation Fighter Modernization ICD.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans: Funding will support infrastructure investment planning and prioritization required to maintain future development capability. This includes planning for long-lead procurement for replacement of engines and other life limited components on Developmental Test aircraft that will be at end of life upon completion of SDD, as well as laboratory upgrades required to support development and verification of capabilities in a relevant threat.</p> <p>FY 2017 OCO Plans: N/A</p>	0.000 -	0.000 -	54.056 -	0.000 -	54.056 -
Accomplishments/Planned Programs Subtotals	59.045	125.211	382.151	0.000	382.151

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604810N / (U)Joint Strike Fighter Follow On Develop - Navy	Project (Number/Name) 2936 / JSF Follow On Development - Navy

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017	FY 2017	FY 2017
			Base	OCO	Total
0207142F JSF FOLLOW ON DEVELOPMENT	23.660	48.954	127.302	-	127.302
International FoD	14.997	34.259	117.235	-	117.235
0604810M JSF FOLLOW ON DEVELOPMENT	10.086	20.798	74.227	-	74.227
Navy Subtotals	10.302	21.200	63.387	0.000	63.387

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017	FY 2017	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Cost To	
										Base	OCO
• RDT&E/0604810M/2635: <i>F-35C Follow-on Development</i>	10.086	20.798	74.227	-	74.227	154.047	164.276	168.433	172.040	Continuing	Continuing
• USAF/FOD/0207142F: <i>USAF Follow-on Development</i>	23.660	48.954	127.302	-	127.302	321.658	340.950	339.209	345.223	Continuing	Continuing
• International: <i>International FoD</i>	14.997	34.259	117.235	-	117.235	151.021	162.381	165.592	162.255	Continuing	Continuing

Remarks

D. Acquisition Strategy

To enable the ability to adjust to potential discrepancies discovered during SDD Block 3 Test and Evaluation, the engineering and development planning support for FoD will be procured under a cost type contract. A fee provision will be used to target and motivate contractor performance. A separate Basic Ordering Agreement or Indefinite Delivery/Indefinite Quantity contract is planned to provide a long term approach to upgrading and maintaining laboratories and test aircraft. Both Development Support and Management Services will primarily use CPFF Delivery Orders.

E. Performance Metrics

Overall FoD Performance Metrics will reflect Key Performance Parameters established in the F-35 FoD Capability Development Document.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)						Project (Number/Name)					
1319 / 5				PE 0604810N / (U)Joint Strike Fighter Follow On Develop - Navy						2936 / JSF Follow On Development - Navy					
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Prime LM TBD	C/CPFF	Lockheed Martin : FT. Worth, TX	0.000	0.000		107.548	Jul 2016	258.583	Jul 2017	-		258.583	Continuing	Continuing	Continuing
Prime LM 02-C-3002	C/CPFF	Lockheed Martin : FT. Worth, TX	1.655	17.830	Jun 2015	1.080	Dec 2015	0.000		-		0.000	0.000	20.565	20.565
Prime LM 16-C-0008	C/CPFF	Lockheed Martin : FT. Worth, TX	0.000	39.280	Jun 2015	14.246	Jan 2016	23.520	Jan 2017	-		23.520	0.000	77.046	77.046
Prime LM IDIQ 13-D-0005	C/CPFF	Lockheed Martin : FT. Worth, TX	0.158	0.000		0.000		0.000		-		0.000	0.000	0.158	0.158
Subtotal			1.813	57.110		122.874		282.103		-		282.103	-	-	-
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	Various	Various : Various	3.787	0.000		0.000		8.714	Dec 2016	-		8.714	55.071	67.572	-
Development Support	Various	Eglin : Various	0.000	0.035	Jun 2015	0.982	Dec 2015	1.940	Dec 2016	-		1.940	13.659	16.616	-
Development Support	WR	NAWCAD : Patuxent River, MD	0.400	0.000		1.355	Dec 2015	20.970	Dec 2016	-		20.970	96.015	118.740	-
Development Support	WR	NAWCWD : China Lake, Ca	0.000	0.000		0.000		7.389	Dec 2016	-		7.389	29.941	37.330	-
Development Support	MIPR	AFLCMC : Wirght Patterson AFB	0.000	0.000		0.000		0.232	Dec 2016	-		0.232	2.125	2.357	-
Subtotal			4.187	0.035		2.337		39.245		-		39.245	196.811	242.615	-
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.000		35.824	Dec 2016	-		35.824	154.870	190.694	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604810N / (U)Joint Strike Fighter Follow On Develop - Navy	Project (Number/Name) 2936 / JSF Follow On Development - Navy
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental Test & Evaluation	WR	NAWCWD : China Lake , CA	0.000	0.000		0.000		1.637	Dec 2016	-		1.637	19.415	21.052	-
Developmental Test & Evaluation Edwards/AFB	Various	Edwards AFB : Edwards AFB, CA	0.000	0.000		0.000		9.592	Dec 2016	-		9.592	284.041	293.633	-
Developmental Test & Evaluation	Various	Various : Various	0.000	0.000		0.000		0.250	Dec 2016	-		0.250	43.999	44.249	-
Subtotal			0.000	0.000		0.000		47.303		-		47.303	502.325	549.628	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Functional Wyle	C/CPFF	Wyle : Arlington, VA	0.000	1.900	Sep 2016	0.000		0.000		-		0.000	0.000	1.900	1.900
AFLCMC Civilian Pay	Various	AFLCMC CIVPAY : Wright Patterson, AFB	0.000	0.000		0.000		13.500	Nov 2016	-		13.500	137.060	150.560	-
Subtotal			0.000	1.900		0.000		13.500		-		13.500	137.060	152.460	-

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Subtotals	6.000	59.045	125.211	382.151	-	382.151	-	-	-
0207142F JSF FOLLOW ON DEVELOPMENT	-	23.660	48.954	127.302	-	127.302			-
International FoD	-	14.997	34.259	117.235	-	117.235			-
0604810M JSF FOLLOW ON DEVELOPMENT	-	10.086	20.798	74.227	-	74.227			-
Project Cost Totals	6.000	10.302	21.200	63.387	-	63.387	-	-	-

Remarks
 FY 2014 reflects \$3.000M USAF/\$1.500 USN/\$1.500M USMC/\$0.000M International/Total \$6.000M
 FY 2015 reflects \$23.660M USAF/\$10.302M USN/\$10.086M USMC/\$14.997M International/Total \$59.045
 FY 2016 reflects \$48.954M USAF/\$21.200M USN/\$20.798M USMC/\$34.259M International/Total \$125.211

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy							Date: February 2016			
Appropriation/Budget Activity 1319 / 5			R-1 Program Element (Number/Name) PE 0604810N / (U)Joint Strike Fighter Follow On Develop - Navy			Project (Number/Name) 2936 / JSF Follow On Development - Navy				
	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	
<p>FY 2017 reflects \$127.302M USAF/\$63.387M USN/\$74.227M USMC/\$117.235M International/Total \$382.151</p> <p>R-2A (section B)/R-3 displays total combined program (i.e. not Service-specific), including International partners.</p> <p>JSF Follow on Development Includes: USAF PE 0207142F BPAC 675346 USN PE 0604810N Project Unit 2936 USMC PE 0604810M Project Unit 2935 USN PE 0604800N Project Unit 9999 (FY14): \$1.500 USMC PE 0604800M Project Unit 999 (FY14) : \$1.500</p>										

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604810N / (U)Joint Strike Fighter Follow On Develop - Navy	Project (Number/Name) 2936 / JSF Follow On Development - Navy
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Proj 2936	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Requirements							CDD (JROC) ◆																					
Acquisition											EMD RFP Decision ▲				IPR ◆				EMD Contract Decision ▲				IPR ◆				IPR ◆	
Contracting					Block 4 Pre-Modernization								Block 4 Modernation															
Systems Engineering								Initial SRR ◆								Initial PDR ◆												
Test & Evaluation																	4.1 Test				4.2 Test							
Fielding																												4.1 Fleet Avail ▲

2017PB - 0604810N - 2936

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604810N / (U)Joint Strike Fighter Follow On Develop - Navy	Project (Number/Name) 2936 / JSF Follow On Development - Navy

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2936				
Requirements: Final CDD (JROC)	3	2016	3	2016
Acquisition: EMD RFP Decision	3	2017	3	2017
Acquisition: EMD Contract Decision	3	2018	3	2018
Acquisition: Interim Program Review (IPR) FY18	1	2018	1	2018
Acquisition: Interim Program Review (IPR) FY19	1	2019	1	2019
Acquisition: Interim Program Review (IPR) FY20	1	2020	1	2020
Acquisition: Interim Program Review (IPR) FY21	1	2021	1	2021
Contracting: Block 4 Pre-Modernization	4	2015	3	2018
Contracting: Block 4 Modernization	3	2018	4	2021
Systems Engineering: Initial Preliminary Design Review (PDR)	3	2018	3	2018
Systems Engineering: Initial System Requirements Review (SRR)	4	2016	4	2016
Test & Evaluation: Test & Evaluation: 4.1 Test	3	2019	3	2020
Test & Evaluation: Test & Evaluation: 4.2 Test	1	2021	4	2021
Fielding: Block 4.1 Fleet Availability	4	2020	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605013M / <i>Marine Corps IT Dev/Mod</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	73.709	2.670	4.824	4.856	-	4.856	4.622	2.052	1.925	1.969	Continuing	Continuing
2906: <i>Marine Corps IT</i>	73.709	2.670	4.824	4.856	-	4.856	4.622	2.052	1.925	1.969	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program establishes, sustains, and continuously refines computing platforms and Information Technology (IT) services as tested, certified and reusable components of a Marine Corps IT framework that spans the range of military operations.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	2.887	5.914	5.591	-	5.591
Current President's Budget	2.670	4.824	4.856	-	4.856
Total Adjustments	-0.217	-1.090	-0.735	-	-0.735
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-1.090			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.129	0.000			
• SBIR/STTR Transfer	-0.087	0.000			
• Program Adjustments	0.000	0.000	-0.225	-	-0.225
• Rate/Misc Adjustments	-0.001	0.000	-0.510	-	-0.510

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0605013M / <i>Marine Corps IT Dev/Mod</i>				Project (Number/Name) 2906 / <i>Marine Corps IT</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2906: <i>Marine Corps IT</i>	73.709	2.670	4.824	4.856	-	4.856	4.622	2.052	1.925	1.969	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

The FY 2017 funding request was reduced by \$0.437 million to account for the availability of prior year execution balances.

A. Mission Description and Budget Item Justification

Organizational Messaging Service (OMS) formerly Defense Message System (DMS), as directed by the Joint Staff and HQMC Command, Control, Communications and Computers (C4), meet the organizational messaging requirement for Non-Secure Internet Protocol Router Network (NIPRNET) and Secret Internet Protocol Router Network (SIPRNET). Telos Automated Message Handling System (AMHS) is the current implementation that provides Web-interface for system administration and for user messaging (including readers). Organizational messages (OM) are used to direct and commit resources, provide user authentication, non-repudiation, confidentiality, and integrity. Currently, Area Control Center's (ACC) Pendleton and Lejeune receive approximately (1) one million messages annually. The Defense Information Systems Agency (DISA) is the lead agency and Global System Manager (GSM) for OMS products and its authority to operate (ATO). In FY16, OMS will conduct research and analysis to assist in the transition to the next generation organizational messaging solutions/capabilities that are DISA compliant. Additionally, in the first quarter of FY16 OMS is committed to complete their efforts to comply with the Department of Defense (DoD) mandated datacenter consolidation with the migration of the Pendleton ACC into the MAGTF Information Technology Support Center (MITSC) West DataCenter.

Marine Corps Training Information Management System (MCTIMS) replaced the mainframe program By Name Assignment, which managed all Marine Corps school seats and interfaced with other service's school seat management programs. MCTIMS is the Marine Corps' official program of record for training and education management and is the single data source which the Training and Education Command (TECOM) relies on to manage training personnel, training seats, students, and other training resources. MCTIMS is the enterprise application upon which standards based instruction, education, and training is built, delivered, tracked, and evaluated. MCTIMS is establishing the unit training management module for all ground forces. This module will provide commanders an enterprise level application, which brings standardization in planning and scheduling training, recording of training against units and individual Marines, provides training assessments and reports combat readiness to Department of Defense (DOD) systems. FY16 funding is planned for completion of the development of the Front End Analysis Module and the modernization of training modules.

Manpower Operations Systems (MOS) is a portfolio of enterprise IT systems and modules that support manpower business operations for the Total Force (active and reserve). The investment in the portfolio improves dataflow and increases reliability, functionality, and accuracy of data while reducing the manpower required to operate and maintain these systems/operations. Development is partially driven by regulatory and policy changes mandated by Congress, DOD, Department of the Navy (DON), and United States Marine Corps (USMC). These systems support all five tiers of Manpower: 1) Individual Marine, 2) Small Unit Leader; 3) Unit, 4) Installation Personnel Administration Center (IPAC)/Disbursing Echelon, and 5) Headquarters Marine Corps (HQMC) Manpower and Reserve Affairs (M&RA)/ Defense Finance and Accounting Service. The MOS portfolio provides support in functional areas such as permanent change of station assignments, retention, mobilization, manpower planning, line of duty determination, personnel accountability, individual augmentation, personnel records management and maintenance, management of case incidents, civilian professional development planning, pay entitlement determinations, promotion and performance evaluations and self-service/visibility of personnel

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data. MOS programs interface with other systems to provide manpower data and web services functionality for pay and personnel transactions between systems. Systems in the portfolio include the Web-enabled Manpower Assignment Support System (WebMASS), Performance Evaluation System (PES), Total Force Retention System (TFRS), Optical Digital Imaging - Records Management System (ODI-RMS), Manpower Mobilization Assignment System (MMAS), and the Requirements, Transition and Manpower Management System (RTAMMS) Total Force Administration System (TFAS) (composed of the Secure Personnel Accountability (SPA) Module, Automated Performance Evaluation System (APES) and the Drill Management Module (DMM)).

Marine Corps Enterprise Information Technology Services (MCEITS) provides an overarching portfolio of capabilities to deliver "Power to the Edge" for the Marine Corps. Born from an effort to establish a Continuity of Operations Plan of HQMC Automated Information Systems, MCEITS enables realignment of the existing USMC environment of applications, databases, networks, and facilities into an integrated architecture of programs to deliver new information technology capabilities based on a common infrastructure and shared services. MCEITS is a unifying framework of both the Enterprise Services to be delivered, and the infrastructure and systems which must be deployed to enable delivery of those services. Initially it will encompass the Operational, Technical, and Systems architectures of the enterprise environment. However, ultimately it will extend to transform information access both in garrison and in the deployed environment. Combined with policy, procedure and standards provided by HQMC (C4), MCEITS will allow for architectural standardization, consolidated management, and seamless interoperability of and access to the data residing in currently fielded applications (business and tactical). Testing efforts will be focused on MCEITS provided services operating within a Service Oriented Architecture environment. MCEITS will ensure the ability to host services and applications in a Web Services enabled environment. MCEITS enables services to be federated throughout the Marine Corps to include Content Discover and Delivery, Collaboration and Text Chat, between the service consumer and provider. Efforts for MCEITS will focus on application migration development, the analysis, research and design of increments 3 & 4 and the technology refreshed software and hardware infrastructure, modernized and enhanced MCEITS high availability, automation and service management with continued Pre-Planned Product Improvements (P3I) efforts.

Marine Corps Recruiting Information Support System (MCRISS) is an enterprise level system to automate administrative procedures for the recruiting station operations. This customized automated System, centered on procedures in the Guidebook for Recruiters, Volume I, dramatically improves efficiency and effectiveness in Marine Corps recruiting. Furthermore, Military Entrance Processing Command requires Marine Corps recruiting to provide information in electronic format only. MCRISS is the Marine Corps Recruiting Command's program to manage applicant processing from commitment to accession/commission into the Marine Corps and Marine Corps Reserve. This enterprise approach allows for efficient sharing of information about potential recruits and recruiter screening efforts, yielding a more cost effective process. FY15 funding is planned for the development and implementation of enhanced functionality to support disconnected client operations through development of the Recruiter Client Tool (RCT). FY16 funding is planned for continued development of the Recruiter Client Tool (RCT) capability and implementation of associated Engineering Change Proposals (ECP) to facilitate RCT functionality. FY17 funding is planned for preparing MCRISS for migration to the MCEITS hosting environment, and refinement of RCT capabilities.

Paperless Office/Acquisition (PA) funding supports development and enhancement of Purchase Request (PR) Builder which is the Marine Corps enterprise solution for the electronic generation of purchase requests, funding documents, miscellaneous payments, and serves as the front-end system for feeding the DOD enterprise contracting writing system Standard Procurement System (SPS). Development and enhancement of PR Builder is required to ensure financial and contracting functional requirements and Marine Corps business processes are developed, designed, tested and implemented within the system. PR Builder has instituted a quarterly release schedule based on prioritized requirements received from the Functional Requirements Board. Modifications to the contract are required for each release once Level of Effort (LOE) and costs are known. Milestones for V4.3.3 have been adjusted to Q1FY16 due to delays in completion of the MCEITS migration. Future DOD, DON,

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and USMC initiatives that will need to be researched and developed include support or adherence to: Standard Financial Information Structure (SFIS), Standard Line of Accounting (SLOA), and Purchase Request Data Standards (PRDS).

Risk Management Initiative (RMI) funding addresses outdated Safety systems, capability gaps and support logistics Information Technology (IT) portfolio rationalization. When completed, RMI will consolidate DoN risk management requirements into a single Program of Record (POR) and provide modern Safety capabilities for the military component of the Navy Total Force (both active and reserve). The USN serves as the lead for this effort with the Marine Corps providing a fair share towards development starting in FY16 (~20%). RMI capability consists of four distinct increments of capability: (1) Streamlined Incident Reporting (SIR), (2) Single Point of Entry (SPOE), (3) Safety Program Management (SPM), (4) Analysis and Dissemination (A&D). These four pillars will enable agile responses to business rule changes, automation of routine actions, improvement of data integrity and facilitation of self-service for organizations and individuals. This is a new start effort in FY16 under this Program Element and Project.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Title: ORGANIZATIONAL MESSAGING SERVICE (OMS) / DEFENSE MESSAGE SYSTEM (DMS)</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: -Initiate and complete research the feasibility of migrating Marine Corps organizational messaging capabilities into a virtual environment.</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>	0.000	0.168	0.000	0.000	0.000
	-	-	-	-	-
<p>Title: MARINE CORPS TRAINING INFORMATION MANAGEMENT SYSTEM (MCTIMS)</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: -Initiate development of the Front End Analysis Module and the modernization of training modules.</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans:</p>	0.000	0.458	0.000	0.000	0.000
	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
Title: MARINE CORPS ENTERPRISE INFORMATION TECHNOLOGY SERVICES (MCEITS) <div style="text-align: right;">Articles:</div> <p><i>FY 2015 Accomplishments:</i> -Integrated, tested and transitioned technical refreshed software and hardware infrastructure of the first Enterprise IT Center in Kansas City. -Scaled the technical refreshed and infrastructure capacity for planned migrated applications.</p> <p><i>FY 2016 Plans:</i> -Continue to scale infrastructure capacity to host additional applications planned to migrate. -Initiate analysis, research and design of the MCEITS Increment 3 & 4 and the Application Migration Development.</p> <p><i>FY 2017 Base Plans:</i> -Continue to scale infrastructure capacity to host additional applications planned to migrate. -Initiate analysis, research and design of the MCEITS Increment 3 & 4 and Development Environment.</p> <p><i>FY 2017 OCO Plans:</i> N/A</p>	1.678 -	3.858 -	3.726 -	0.000 -	3.726 -
Title: PAPERLESS ACQUISITION (PA) <div style="text-align: right;">Articles:</div> <p><i>Description:</i> PAPERLESS ACQUISITION (PA)</p> <p><i>FY 2015 Accomplishments:</i> N/A</p> <p><i>FY 2016 Plans:</i> -Initiate support for Engineering Change Proposals (ECPs).</p> <p><i>FY 2017 Base Plans:</i> -Continue support for Engineering Change Proposals (ECPs).</p> <p><i>FY 2017 OCO Plans:</i> N/A</p>	0.000 -	0.144 -	0.396 -	0.000 -	0.396 -
Title: MANPOWER OPERATIONS SYSTEMS (MOS)	0.874	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Articles:</p> <p>FY 2015 Accomplishments: -Initiated and complete Marine Corps Recruiting Command (MCRC) Modernization Transformation developmental effort.</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>	-	-	-	-	-
<p>Title: MARINE CORPS RECRUITING INFORMATION SUPPORT SYSTEM (MCRISS)</p> <p>Articles:</p> <p>FY 2015 Accomplishments: -Continued development of Recruiter Client Development and additional Web Based Training (WBT) modules.</p> <p>FY 2016 Plans: -Initiate Recruiter Client Tool (RCT) Development and enhanced capabilities development.</p> <p>OCO: - N/A</p> <p>FY 2017 Base Plans: -Initiate MCEITS Migration and refinement of RCT capabilities.</p> <p>FY 2017 OCO Plans: N/A</p>	0.118	0.196	0.129	0.000	0.129
<p>Title: SAFETY - RISK MANAGEMENT INITIATIVE (RMI)</p> <p>Description: RISK MANAGEMENT INITIATIVE (RMI) The RMI program is a consolidation of Navy and Marine Corps risk management requirements into a single safety system, thus eliminating the need to modify multiple legacy systems. The Navy serves as the lead for this</p>	0.000	0.000	0.605	0.000	0.605

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
effort with the Marine Corps providing a fair share (approximately 20%) towards the research and development of the RMI system starting in FY16. The Navy portion is funded in PE 0605013N / Information Technology Development; Project 2905.L39 / BUPERS IT FY 2015 Accomplishments: - N/A FY 2016 Plans: - N/A FY 2017 Base Plans: - Initiate Contract funding for Analysis & Dissemination (A&D). - Initiate Testing Phase for Analysis & Dissemination (A&D). - Initiate Contract funding for Safety Program Management (SPM). - Initiate SPM Design and Business Case Analysis (BCA). FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	2.670	4.824	4.856	0.000	4.856

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• PMC/4630 - MCTIMS: MC <i>Training Info Management System</i>	0.178	0.225	0.000	-	0.000	0.233	0.010	0.010	0.010	0.000	0.850
• PMC/4630 - MCRIS: MC <i>Recruiting Info Support System</i>	0.059	0.050	0.049	-	0.049	0.049	0.049	0.050	0.051	0.000	0.408
• PMC/4630 - PA: <i>Paperless Office/Acquisition</i>	0.000	0.123	0.000	-	0.000	0.122	0.124	0.127	0.130	0.000	0.839
• PMC/4630-MCEITS: MC <i>Enterprise IT Services</i>	8.271	1.827	2.954	-	2.954	2.589	30.537	31.167	3.603	0.000	106.524
• PMC/4630 - OMS: <i>Organizational Messaging Service (OMS)</i>	0.098	1.046	0.000	-	0.000	0.000	0.002	0.002	0.002	0.000	1.448

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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• PMC/4620- MOS: <i>Manpower Operations Systems (MOS)</i>	0.000	0.000	0.294	-	0.294	0.240	0.245	0.251	0.256	0.000	1.286
• PMC/4617 - MOS: <i>Manpower Operations Systems (MOS)</i>	0.432	0.396	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1.595
• PMC/4620 - Safety: <i>Safety</i>	0.000	0.100	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	0.100

Remarks

D. Acquisition Strategy

Organizational Messaging Service (OMS) is a Joint Acquisition Category (ACAT) IAM program. It is Assistant Secretary Defense Command, Control, Communication and Intelligence mandated. Each year the Joint Interoperability Test Command (JITC) runs Operational Test (OT) assessments on OMS software versions and maintenance releases. Marine Corps participation is vital to ensuring that the implementation of OMS is interoperable with all DOD CINCs, services, and agencies. Furthermore, as follow-on organizational messaging solutions for OMS are being identified, materiel solution analysis activities will be conducted. In FY16, OMS will procure Hyper Converged Virtualization Platforms and switches to replace the current equipment that can no longer be warrantied and is necessary to remain compliant with ATO requirements.

Marine Corps Training Information System (MCTIMS) will utilize an evolutionary strategy with incremental development methodology. MCTIMS is structured in a module format that allows for phasing of development without having to reengineer the entire system to add significant new capability. MCTIMS utilizes a firm-fixed price contracting strategy to reduce risk to the government. MCTIMS is a fully integrated system, emphasizing code re-use between modules to reduce cost and improve program stability.

Manpower Operations Systems (MOS) within this portfolio follows an Evolutionary Acquisition (EA) approach: 1. Define, develop, and deliver an initial or "core" capability based on mature technology. 2. "Core" capability will be incrementally improved over an extended period of time. Incremental Development Model: 1. Iterative cycles of requirements definition, design, build and evaluation. The contracting strategy across the portfolio is to utilize competitive firm-fixed price contracts.

Marine Corps Enterprise Information Technology Services (MCEITS) will be implemented using an initial increment (with 2 releases for each EITC location) followed by P3Is providing an operationally effective and suitable capability in the shortest time possible. The program will deliver an initial capability and continue integration and production of the system in accordance with the USMC Information Enterprise Strategy. The objective is to balance needs with available commercial and government solutions and resources, and to rapidly provide capabilities to the Marines. This strategy is supported by an Indefinite Delivery Indefinite Quantity contracting vehicle which will allow the contractor to provide the full range of capabilities, services and solutions necessary to satisfy the requirements through incremental implementation of technology, processes and capabilities. Capabilities will be delivered through individual task orders to ensure technology and services are inserted according to the overall program goals, user requirements and program schedule.

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Paperless Acquisition (PA) will use an incremental development methodology utilizing short development periods. The contracting strategy is to use a firm-fixed price contract to reduce risk to government, with additional capabilities defined by a Marine Corps Configuration Control Board and delivered to the service integrator as a modification to the contract. The delivery of small functional capabilities allows for measurable enhancements to the base system while keeping Post Deployment System Support costs relatively low.

Marine Corps Recruiting Information Support System (MCRISS) capitalizes on centrally located data with secure web and wireless web enabled entry. MCRISS utilizes a modular/incremental development to maintain system operability while providing continued development. Contracting strategy includes competitive firm-fixed price contracts.

Risk Management Initiative (RMI) consolidates risk management requirements into a single system utilizing a single vendor Indefinite Delivery / Indefinite Quantity (IDIQ). The USN serves as the lead for the RMI effort with the Marine Corps providing a fair share towards development starting in FY16. The approach for RMI is an incremental COTS configuration model providing usable increments of capability within 24-month cycles after funds certification for each. Development of the Streamlined Incident Reporting and Single Point of Entry capability increments via separate task orders using RDT&E beginning in FY14. Safety Program Management and Analysis & Dissemination will be initiated with FY16 RDT&E.

E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
TFSMS -Dev	C/FPIF	SAIC : McLean, VA	16.760	0.000		0.000		0.000		-		0.000	0.000	16.760	-
DRRS - Sys Integrator Dev	C/FPIF	SAIC : Dumfries, VA	1.064	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
MCEITS P3I Efforts	C/IDIQ	SAIC : McLean VA	2.623	1.392	Feb 2015	1.517	Feb 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Paperless Ofc Acq Dev	C/FFP	TBD : TBD	0.484	0.000		0.144	Aug 2016	0.396	Aug 2017	-		0.396	Continuing	Continuing	Continuing
MOS ODI-RMS Interface Dev	C/FFP	CGI : Dumfries, VA	0.418	0.000		0.000		0.000		-		0.000	0.000	0.418	-
MOS M&RA Roadmap	C/FP	HumanTouch, LLC : McLean, VA	5.277	0.000		0.000		0.000		-		0.000	0.000	5.277	-
MCRC Moderization Transformation	C/FFP	Human Touch : McLean, VA	0.000	0.874	Sep 2015	0.000		0.000		-		0.000	0.000	0.874	-
OMS - Virtualization Testing	C/FFP	PM ISI : Quantico, VA	0.345	0.000		0.000		0.000		-		0.000	0.000	0.345	-
MCTIMS Enhanced Registration of Marines/ Students	C/FP	TBD : TBD	0.001	0.000		0.000		0.000		-		0.000	0.000	0.001	-
MCTIMS Handheld/Mobile App Interface & Integration TrDW Planning	C/FP	InfoReliance : Fairfax, VA	0.000	0.000		0.200	Apr 2016	0.000		-		0.000	0.000	0.200	-
MCTIMS Training Modules Modernization	C/FP	InfoReliance : Fairfax, VA	0.000	0.000		0.258	Apr 2016	0.000		-		0.000	0.000	0.258	-
MCRISSE MCEITS Migration	C/FP	TBD : TBD	0.000	0.000		0.000		0.050	May 2017	-		0.050	0.000	0.050	-
MCRISSE Recruiter Client Development	C/FP	CGI : Dumfries, VA	0.000	0.118	May 2016	0.000		0.000		-		0.000	0.000	0.118	-
MCRISSE Recruiter Client Tool (RCT) Development and Enhanced Capabilities Development	C/FP	TBD : TBD	0.000	0.000		0.196	Jul 2016	0.079	May 2017	-		0.079	0.000	0.275	-
RMI	C/BA	SPAWAR: : San Diego, CA	0.000	0.000		0.000		0.605	Jan 2017	-		0.605	0.000	0.605	-
Prior Years Cumulative Funding	Various	Various : Various	19.043	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			46.015	2.384		2.315		1.130		-		1.130	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Years Cumulative Funding	Various	Various : Various	14.876	0.000		0.000		0.000		-		0.000	0.000	14.876	-
MCEITS HSI Support	WR	NSWC : Dahlgren VA	0.160	0.080	Oct 2015	0.105	Oct 2016	0.111	Sep 2017	-		0.111	0.000	0.456	-
MCEITS EITC Support	WR	SPAWAR : Charleston SC	0.000	0.206	Jan 2015	1.594	May 2016	2.210	May 2017	-		2.210	0.000	4.010	-
Subtotal			15.036	0.286		1.699		2.321		-		2.321	0.000	19.342	-
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
MCEITS Enterprise Architecture	Various	Various : Various	10.451	0.000		0.000		1.405	Jun 2017	-		1.405	Continuing	Continuing	Continuing
Prior Years Cumulative Funding	Various	Various : Various	0.653	0.000		0.000		0.000		-		0.000	0.000	0.653	-
MCEITS Modeling & Simulation	C/FFP	TSC : Silver Spring MD	1.554	0.000		0.642	Aug 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			12.658	0.000		0.642		1.405		-		1.405	-	-	-
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
OMS Hyper Converged Virtualization	C/FFP	TBD : TBD	0.000	0.000		0.168	Mar 2016	0.000		-		0.000	0.000	0.168	-
Subtotal			0.000	0.000		0.168		0.000		-		0.000	0.000	0.168	-
Project Cost Totals			73.709	2.670		4.824		4.856		-		4.856	-	-	-

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	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
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Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy

Date: February 2016

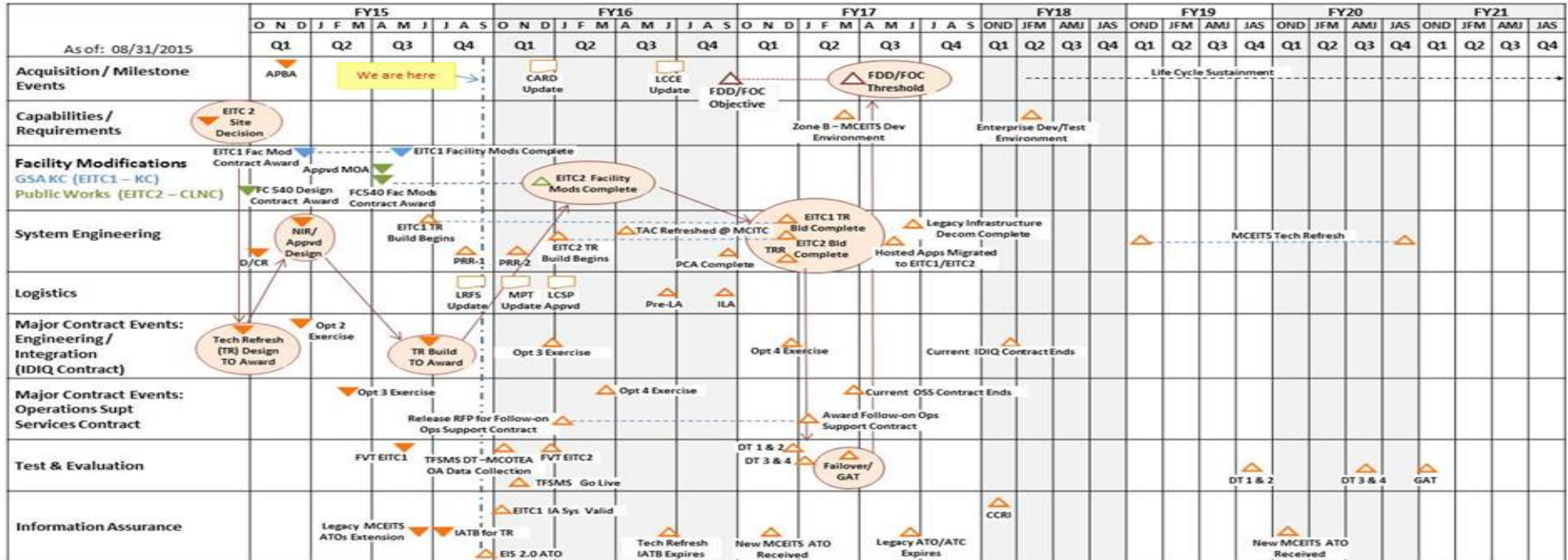
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PE 0605013M / Marine Corps IT Dev/Mod

Project (Number/Name)
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Organizational Messaging Service	Operations & Support																															
	2015				2016				2017				2018				2019				2020				2021							
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
Program Management Office	CCB	CCB	CCB	CCB	CCB	CCB	CCB	CCB	CCB	CCB	CCB	CCB	CCB	CCB	CCB	CCB	CCB	CCB	CCB	CCB	CCB	CCB	CCB	CCB	CCB	CCB	CCB	CCB	CCB	CCB	CCB	CCB
PoPS Gate Template		6.5	6.5					6.5				6.5				6.5				6.5				6.5				6.5				6.5
Milestones																																
Logistics																																
Contracts	HSI Support	NetApp	BACAPS	PATS	Virtualize	Nodes	AMHS	Nodes	Nodes	AMHS	Nodes	AMHS	Nodes	AMHS	Nodes	AMHS	Nodes	AMHS	Nodes	AMHS									RSP	AMHS	Nodes	AMHS
Financial Management	TAR		TAR	OSD Ex	TAR	TAR	OSD Ex	TAR	TAR	TAR	OSD Ex	TAR	TAR	TAR	OSD Ex	TAR	TAR	TAR	OSD Ex	TAR	TAR	TAR	OSD Ex	TAR	TAR	TAR	OSD Ex	TAR	TAR	TAR	OSD Ex	TAR
Information Assurance	QSR	QSR	ASR	QSR	QSR	ASR	QSR	QSR	QSR	ASR	QSR	QSR	QSR	ASR	QSR	QSR	QSR	ASR	QSR	QSR	QSR	ASR	QSR	QSR	QSR	ASR	QSR	QSR	QSR	ASR	QSR	QSR
Engineering																																
T&E																																

MCEITS PROGRAM SCHEDULE



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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013M / Marine Corps IT Dev/Mod	Project (Number/Name) 2906 / Marine Corps IT
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PA Systems	Operations & Support																											
	05/15																											
Fiscal Year	2015				2016				2017				2018				2019				2020				2021			
Quarter	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Program Management Office		PMR	PMR		PMR		PMR		PMR		PMR		PMR		PMR		PMR		PMR		PMR		PMR		PMR		PMR	
PoPS Gate Template		6.5	6.5		6.5				6.5				6.5				6.5				6.5				6.5			
Milestones	SR13a	PMR v4.3.3	WCEITS Go Live													EPS Migration												
Logistics			LCSP				LCSP				LCSP				LCSP				LCSP				LCSP				LCSP	
Contracts	webMethods Pilot	Quantico Server Refresh	BACAPS	PATS EIAS	PDSS	BACAPS	PATS EIAS	TCSI	BACAPS	PATS EIAS	TCSI		BACAPS	PATS EIAS	TCSI													
Financial Management	QOC IRB	PB Ex	IRB	OSD Ex	PB Ex	OSD Ex	NAVCOMPT Ex	POM18	NAVCOMPT Ex	POM19	NAVCOMPT Ex	POM20	NAVCOMPT Ex	POM21	NAVCOMPT Ex	POM22	NAVCOMPT Ex	POM23	NAVCOMPT Ex	POM24	NAVCOMPT Ex	POM25	NAVCOMPT Ex	POM26	NAVCOMPT Ex	POM27	NAVCOMPT Ex	POM28
Information Assurance									SPS IV&V	SPS AT0	PMR AT0										SPS AT0	PRB AT0						
Engineering	SR13a GAT	4.3.3 GAT	WCEITS GAT																									

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy

Date: February 2016

Appropriation/Budget Activity
1319 / 5

R-1 Program Element (Number/Name)
PE 0605013M / Marine Corps IT Dev/Mod

Project (Number/Name)
2906 / Marine Corps IT

MC Training Info Management Sys	Operations & Support																											
	2015				2016				2017				2018				2019				2020				2021			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Program Management Office	▲ DITPR DON	▲ Release	▲ Release	▲ Release	▲ Release	▲ Release	▲ Release	▲ Release	▲ Release	▲ Release	▲ Release	▲ Release	▲ Release	▲ Release	▲ Release	▲ Release	▲ Release	▲ Release	▲ Release	▲ Release	▲ Release	▲ Release	▲ Release	▲ Release	▲ Release	▲ Release	▲ Release	▲ Release
PoPS Gate Template		6.3	6.3		6.3				6.3				6.3				6.3				6.3				6.3			
Logistics		▮ LHA			▮ LHA				▮ LHA				▮ LHA				▮ LHA				▮ LHA				▮ LHA			
Contracts	▲ HSI Support	▲ PDSS OY3	▲ BACAPS PATS		▲ PDSS BACAPS	▲ PATS Eng & IA			▲ PDSS OY1 BACAPS	▲ PATS Eng & IA			▲ PDSS OY2 BACAPS	▲ PATS Eng & IA			▲ PDSS OY3 BACAPS	▲ PATS Eng & IA										
Financial Management	▲ TAR	▲ TAR	▲ TAR	▲ TAR	▲ TAR	▲ TAR	▲ TAR	▲ TAR	▲ TAR	▲ TAR	▲ TAR	▲ TAR	▲ TAR	▲ TAR	▲ TAR	▲ TAR	▲ TAR	▲ TAR	▲ TAR	▲ TAR	▲ TAR	▲ TAR	▲ TAR	▲ TAR	▲ TAR	▲ TAR	▲ TAR	▲ TAR
Information Assurance													▲ ATO												▲ ATO			
Systems Engineering		▼ PRR	▼ PRR	▼ PRR	▼ PRR	▼ PRR	▼ PRR	▼ PRR	▼ PRR	▼ PRR	▼ PRR	▼ PRR	▼ PRR	▼ PRR	▼ PRR	▼ PRR	▼ PRR	▼ PRR	▼ PRR	▼ PRR	▼ PRR	▼ PRR	▼ PRR	▼ PRR	▼ PRR	▼ PRR	▼ PRR	▼ PRR
Test and Evaluation		▼ TRR GAT	▼ TRR GAT	▼ TRR GAT	▼ TRR GAT	▼ TRR GAT	▼ TRR GAT	▼ TRR GAT	▼ TRR GAT	▼ TRR GAT	▼ TRR GAT	▼ TRR GAT	▼ TRR GAT	▼ TRR GAT	▼ TRR GAT	▼ TRR GAT	▼ TRR GAT	▼ TRR GAT	▼ TRR GAT	▼ TRR GAT	▼ TRR GAT	▼ TRR GAT	▼ TRR GAT	▼ TRR GAT	▼ TRR GAT	▼ TRR GAT	▼ TRR GAT	▼ TRR GAT

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy

Date: February 2016

Appropriation/Budget Activity
1319 / 5

R-1 Program Element (Number/Name)
PE 0605013M / Marine Corps IT Dev/Mod

Project (Number/Name)
2906 / Marine Corps IT

Fiscal Year	MCRISS Operations & Support																															
	2015				2016				2017				2018				2019				2020				2021							
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
Program Management Office			PCE	IRB	IRB	IRB	PCE	IRB		PCE					PCE				PCE				PCE				PCE				PCE	
PoPS Gate Template		6.5	6.5		6.5				6.5				6.5				6.5				6.5				6.5				6.5			
Logistics	LCSP				LCSP				LCSP				LCSP				LCSP				LCSP				LCSP				LCSP			
Contracts	WBT Award	Program Support Contracts		PDSS	PDSS	Program Support Contracts			Program Support Contracts	PDSS			Program Support Contracts	PDSS			Program Support Contracts	PDSS			Program Support Contracts	PDSS			Program Support Contracts	PDSS			Program Support Contracts	PDSS		
Financial Management	POM 17		PB Exh	POM 18		PB Exh	POM 19		PB Exh	POM 20			PB Exh	POM 21			PB Exh	POM 22			PB Exh	POM 23			PB Exh				PB Exh			
Information Assurance	IV&V	ATO expires	ATO ext	3 yr. ATO										ATO																		
Systems Engineering	TFITS SETR Events conducted per Release Schedule																															
Test and Evaluation	TFITS SETR Events conducted per Release Schedule																															

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013M / <i>Marine Corps IT Dev/Mod</i>	Project (Number/Name) 2906 / <i>Marine Corps IT</i>
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Proj 2906</i>				
Increment 1 Full Operational Capability (FOC) (MCEITS)	3	2017	3	2017

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	209.677	55.105	85.816	97.066	-	97.066	111.160	86.855	84.705	59.665	Continuing	Continuing
2901.: <i>AAUSN IT</i>	23.376	2.771	24.961	15.177	-	15.177	26.100	21.827	24.997	3.462	Continuing	Continuing
2903: <i>NAVAIR IT</i>	1.863	0.682	6.431	5.332	-	5.332	5.705	0.596	0.604	0.618	Continuing	Continuing
2904: <i>NAVSEA IT</i>	117.122	21.277	17.469	30.879	-	30.879	27.976	27.523	27.572	25.127	Continuing	Continuing
2905.: <i>BUPERS IT</i>	30.829	14.182	13.362	29.664	-	29.664	38.426	26.440	20.894	19.618	Continuing	Continuing
3167: <i>Joint Technical Data Integration (JTDI)</i>	21.348	2.774	8.122	5.514	-	5.514	4.619	3.906	3.987	4.069	Continuing	Continuing
3185: <i>Joint Airlift Information System (JALIS)</i>	1.045	0.325	0.340	0.329	-	0.329	0.352	0.361	0.368	0.375	Continuing	Continuing
9406: <i>Maintenance Data Warehouse</i>	14.094	13.094	11.131	10.171	-	10.171	7.982	6.202	6.283	6.396	Continuing	Continuing
9999: <i>Congressional Adds</i>	0.000	0.000	4.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	4.000

A. Mission Description and Budget Item Justification

2901 - BSO 39

DEPARTMENT OF NAVY TASKING RECORDS AND CONSOLIDATED KNOWLEDGE ENTERPRISE REPOSITORY (DoN TRACKER)

The DoN lacks standard Records Management (RM) and Task Management (TM) policy & processes for users as well as the organization required to meet current Federal and Departmental mandates. These non-standard and decentralized processes result in inefficient business operations from duplication of effort, long & protracted process cycle times, ineffective compliance with statutes and poor decision support. DoN TRACKER addresses these issues through an enterprise-wide solution designed & developed to meet reengineered business processes and requirements.

ELECTRONIC PROCUREMENT SYSTEM (ePS)

ePS will replace the Standard Procurement System (SPS). Program Executive Office / Enterprise Information Systems (PEO/EIS) will act as the Program Manager. ePS will be a modular and cloud based system built in a Service Oriented Architecture.

2901 - BSO 22

DONAA IT - The Modernization Initiative includes multiple projects with RDT&E requirements: Multiple Threat Alert Center (MTAC), Data Modernization & Analytical Tools, Knowledge Network (K-Net), Consolidated Law Enforcement Operations Center (CLEOC), and Data Modernization of the Secretariat Automated Resources

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity
1319: *Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)*

R-1 Program Element (Number/Name)
PE 0605013N / *Information Technology Development*

Management Information System (SARMIS). RDTEN funding will optimize DONAA's capability to make necessary improvements to various Secretariat systems. This modernization will ensure compliance with continued financial emerging requirements. Enhancement of financial auditability will be in compliance with DOD security system requirements.

MULTIPLE THREAT ALERT CENTER (MTAC)

The Post-Cole Secretary of the Navy Anti-terrorism/Force Protection Task Force identified the need for NCIS to enhance the Multiple Threat Alert Center (MTAC). The MTAC provides key anti-terrorism/force protection products in response to Fleet tasking and is critical to Fleet protection during current Overseas Contingency Operations (OCO). This project provides funding for the development of an IT system to track the movement of NCIS special agents deployed in advance of DoN in-transit units. The ability to track and communicate with these agents is necessary in order to forward threat data to those forward deployed agents and to task them to respond to emerging threats. Funding is required for equipment and contractor support to modify COTS software.

DATA MODERNIZATION & ANALYTICAL TOOLS

NCIS data collection, filtering, and analysis infrastructure is unable to handle the increased flow of terrorism investigative and threat reporting of the Post 9/11 era. NCIS must revitalize its infrastructure and its data and investigation management capabilities to effectively counter current terrorist threats. The three main components of this portfolio investment are data modernization, knowledge management, and investigation management.

KNOWLEDGE NETWORK (K-Net)

K-Net is a Data Modernization & analytical tool being developed and soon deployed that greatly enhances NCIS's technological arsenal. K-Net implements an integrated NCIS approach for identifying, capturing, evaluating, retrieving, and sharing all of NCIS's knowledge and expertise. To that end, K-Net is a knowledge management system that improves NCIS's ability to search, analyze, fuse, and distribute both national intelligence and law enforcement information. The envisioned end state for K-Net is a secure, intuitive, web environment that is the one stop shop where applications, data, and tools are easily accessible to all of NCIS users to effectively and securely fulfill their mission regardless of when and where they operate.

CONSOLIDATED LAW ENFORCEMENT OPERATIONS CENTER (CLEOC)

The Naval Criminal Investigative Service (NCIS) enhancement of CLEOC will enable meeting Law Enforcement (LE) reporting requirements, satisfy Congressional mandates for the Defense Incident-Based Reporting System (DIBRS) and improve functionality across the Naval criminal justice community.

DEPARTMENT OF THE NAVY CRIMINAL JUSTICE INFORMATION SYSTEM (DONCJIS)

The Naval Criminal Investigative Service (NCIS) is the Executive Agent (EA) for the Department of the Navy Criminal Justice Information System (DONCJIS). This system provides a cradle to grave criminal justice and law enforcement information system. The system enables multiple communities within the DON to share criminal justice and law enforcement information. Funding is required for contractor support to develop, test, train, deploy and implement this application.

2903 - BSO 19

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	
NAVAIR IT		
<p>JOINT CONFIGURATION MANAGEMENT INFORMATION SYSTEM (JCMIS) The Joint Configuration Management Information System (JCMIS) Program is Department of Defense (DoD) standard software system for complete and integrated configuration management (CM) of weapon systems from acquisition to disposal. JCMIS efficiently manages all product structure data, including complex interrelationship between assemblies and subassemblies, technical documentation and the parts that comprise the item. JCMIS is designed to manage and control configuration data to support the DoD business processes. Accurate, complete and accessible configuration data is critical to the successful operations of DoD weapon systems or tracked assets. Mission readiness and operational capabilities are enhanced by JCMIS, as instant consistent integrated configuration data is readily available to operators, maintainers and logistics personnel. This system is a CM tool available DoD wide to support all potential customers. JCMIS provides users with a common database infrastructure to ensure compatibility, quality, and consistency of CM processes and provides configuration managers and analysts the validated CM information necessary for accurate maintenance, spare procurements, reliability and safety analysis, and mission readiness. Funding is budgeted to support the services of re-hosting and testing of COTS upgrades to ensure objective performance of JCMIS is achieved.</p>		
<p>TASK FORCE CYBER AWAKENING (TFCA) Cyber Warfare consists of many different aspects to include sabotage of our weapon systems, networks as well as enablement of missions. Nation and non-nation state actors are acquiring and employing more advanced cyber-attacks in order to exploit our networks and aviation systems challenging our technological edge. The threats and capabilities are real and range from exploiting capabilities, overloading weapons systems and logistics supply chains, to jamming signals or taking control of weapons systems. We must defend against adversarial cyber-attacks while contributing to the exploitation of cyber warfare capabilities.</p>		
<p>To meet these challenges and address the Chief of Naval Operations priorities and tasking, these research and development efforts are specifically focused on Naval Air Systems Command weapon or control systems and programs to ensure warfighting effectiveness as part of integrated / multi-platform kill chains. These research and development efforts will strengthen our cyber posture by developing research, development, test and evaluation capabilities and solutions to deter, detect, and mitigate cyber threats and safeguard classified naval aviation systems and platforms from "cradle to grave." These solutions will be integrated into the acquisition of weapons systems to enhance security, increase lethality, and improve resiliency in the expected operational environments. Our weapon or control systems are unique in the aforementioned environments and mission, but also in the presence of numerous non-traditional access points and trusted cyber relationships required for operational environments.</p>		
2904 - BSO 24		
<p>NAVSEA IT - This program includes the funding for Information Technology (IT) support at NAVSEA, managed by the NAVSEA 04 Program Management Office (PMO-IT) for the support and sustainment of maritime shore maintenance and includes multiple modernization efforts to insure effectiveness of Fleet maintenance systems as part of the current Navy Maritime Maintenance Enterprise Solution (NMMES). These efforts include retirement and/or replacement of costly legacy systems, transition planning and systems engineering for integration with national and enterprise interim and future solutions. These efforts align with direction to insure that proposed interim solutions support a planned, single maintenance solution end state, as well as direction to align with data center consolidation plans proposed across the</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy Date: February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy I BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>
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FYDP. It includes the modernization of Naval Shipyard and Regional Maintenance Centers' Maintenance, Repair and Overhaul (MRO) production tools. This includes modifications/enhancements to Shipyard IT systems, such as Advanced Industrial Management (AIM); Project Scheduling and Sequencing (PSS); Workload and Performance Systems; the COST and MAT systems, and other solutions such as the Electronic Technical Working Document (eTWD) Initiative. The goal of PMO-IT is to provide modernization, migration and consolidation of obsolete legacy systems to the next generation of centrally hosted tools supporting Fleet Maintenance and national systems for the Navy.

2905 - BSO 39

BUPERS IT

BILLET BASED DISTRIBUTION (BBD)

The objective of BBD is to replace the current inventory-based requisition generation process with automated functionality driven by requirements--an inventory-balanced and position-based process. This methodology will increase personnel readiness, improve fit and provide clear visibility to the impact on mission readiness at the billet level. BBD will facilitate maximizing the contributions of every member of the Navy workforce by delivering competency-based career paths.

LEARNING MANAGEMENT SYSTEM - DISTANCE LEARNING (LMS-DL)

As part of Sailor 2025, Ready & Relevant Learning requires the development of a Learning Management System as part of a holistic IT approach that will allow:

- (1) Mobile & Flexible Delivery of Modular Training to the Sailor
- (2) Synchronization of Work Requirements with Learning Modules to Deliver the Proper Training at the Right Time
- (3) Development of Learning Oversight and Governance

The objective of Ready and Relevant Learning is to strongly link manpower and personnel with training and education by changing learning content development and delivery to more closely align with new billet definitions, sailor job assignments, and mission. Content is thereby provided in smaller increments targeted to the immediate needs of the sailor.

This investment will develop and deploy new technologies for modularized training in Fleet Concentration Areas to support the continuum of learning. This includes:

- (1) Development, Modification or Replacement of the Current LMS Platform
- (2) Integration of Learning Management Tools (e.g. NSIPS PeopleSoft, Learning Assessment, CeTARS, Navy Training Management Planning System) with Processes Supporting the Billet Based Distribution Model
- (3) Creation of New Career Profiles via Progressive NECs
- (4) Transformation of the Navy's Advancement System

The Learning Management tools and supporting infrastructure must also be modified to support management of training into the Delayed Entry Program, the growing use of demonstration videos, social media, student and learning management for MPTE mobility efforts, gaming and simulation technology as it is brought on-line.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	
<p>LMS-DL will also introduce the Learning Continuum Pilot, a risk reduction effort that develops proof of concept alignment of sailor training requirements with learning content delivery.</p> <p>MY NAVY PORTAL (MNP) MNP consolidates & eliminates multiple portals and provides a common user interface for Sailors to access Navy Personnel, Training & Education services. MNP provides targeted audiences (e.g. Sailors, Marines, etc.) with highly personalized interactive experiences and exposes them to important assets: (1) Relevant Information Assets Including Content, Applications and Business Processes (2) Knowledge Assets (3) Human Assets</p> <p>MNP is designed to be highly personalized to the individual Sailor. MNP provides technological services commonly used by Sailor-facing applications and eliminates redundancy in the implementation of those services across the enterprise. The MNP investment implements significant efficiencies: (1) Substantially Smaller Overall DoN IT Footprint (2) Reduced Number of Navy Portals (3) Decreased Investment in Technology Services by Business Applications (4) Improved Quality of Service for Sailors and Marines</p> <p>ANALYSIS OF ALTERNATIVE/ECONOMIC ANALYSIS (AOA) The Navy will conduct multiple AoAs to analyze viable alternatives in order to determine the most efficient and effective solution to address the modernization of elements of the Navy's Manpower, Personnel, Training and Education (MPTE) IT portfolio. The program will assess operational effectiveness, suitability, and costs of MPT&E systems to meet emerging capability requirements.</p> <p>NAVY STANDARD INTEGRATED PERSONNEL SYSTEM (NSIPS) NSIPS is the Navy's business solution to Human Resources Management for approximately 400,000 Sailors worldwide. NSIPS provides the Navy with a web-based, field-entry, electronic pay and personnel support system and analytical repository for all active duty & reserve Sailors. NSIPS is available worldwide--both ashore and shipboard. NSIPS collects, validates, processes and transfers the data necessary to ensure accurate & timely pay and maintenance of personnel records. NSIPS is pivotal in the processes of mobilization and demobilization.</p> <p>To address future personnel requirements, the Navy will leverage its investment in NSIPS and take an incremental approach for a rationalized and modernized IT portfolio.</p> <p>NAVY MANPOWER REQUIREMENTS SYSTEM (NMRS) NMRS will modernize obsolete software in the current NMRS production version and incorporate a 57% enhancement of new capabilities in support of manpower requirements data analysis.</p>		

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<p>NMRS modernization will provide an agile capability and system to assist the Navy Manpower Analysis Center (NAVMAC) in determining and documenting the following Manpower Requirements:</p> <p>(1) NAVMAC, Afloat Manpower Requirements Department (Code 40) determines and documents manpower requirements for surface ships, submarines, afloat staffs and other "Category IV" commands. The Fleet / Ship Manpower Document (F/SMD) reflects total manpower requirements supporting the following:</p> <ul style="list-style-type: none"> - Operational Manning (Watch Stations) - Preventive Maintenance, Corrective Maintenance & Facilities Maintenance - Own-Unit Support Workload and Customer Service Support - At-Sea Scenarios as defined by Required Operational Capabilities (ROC) & Projected Operational Environment (POE) <p>(2) The NAVMAC Aviation Manpower Requirements Department (Code 30) determines and documents Manpower Requirements for aviation squadrons, shipboard Aviation Intermediate Maintenance Departments (AIMDs), Sea Operational Detachments (SEAOPDETs) and aviation staff. This is a standards-based program that utilizes approved industrial engineering techniques to identify the manpower necessary to carry out the assigned mission of each command. The Aviation Manpower Requirements program documents manpower requirements and publishes them as Squadron Manpower Documents (SQMDs).</p> <p>(3) The Navy's Fleet Manpower Requirements Determination (FMRD) program is managed by the Chief of Naval Operations - CNO N12 (Total Force Programming, Manpower and Information Resource Management Division) and is supported by NAVMAC. The Manpower documents allow billet implementation in the Total Force Manpower Management System (TFMMS) and directly support the Department of Defense (DoD) obligation for Manpower Readiness reporting as required by Title 10 USC - 115a.</p> <p>RISK MANAGEMENT INITIATIVE (RMI) The goal of the Risk Management Initiative (RMI) is to implement reengineered business processes and consolidate five legacy stovepipe systems (WESS, ESAMS, MMAC, INJTRK, POAIRS) into a complementary & supportable RMI capability.</p> <p>RMI's objective is to address outdated Safety systems, capability gaps and support logistics Information Technology (IT) portfolio rationalization. When completed, RMI will consolidate DoN risk management requirements into a single Program of Record (POR) and provide modern Safety capabilities for the military component of the Navy Total Force (both active and reserve). RMI capability consists of four distinct increments of capability:</p> <ol style="list-style-type: none"> (1) Streamlined Incident Reporting (SIR) (2) Single Point of Entry (SPOE) (3) Safety Program Management (SPM) (4) Analysis and Dissemination (A&D) <p>These four pillars will enable agile responses to business rule changes, automation of routine actions, improvement of data integrity and facilitation of self-service for organizations and individuals.</p> <p>AUTHORITATIVE DATA ENVIRONMENT (ADE)</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy Date: February 2016

Appropriation/Budget Activity 1319: Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)	R-1 Program Element (Number/Name) PE 0605013N / Information Technology Development
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As part of the Sailor 2025 strategy, the Chief of Naval Personnel has directed an acceleration of expansion and development of the ADE and improvements in making MPTE data more available to Commanders, Sailors, Business Owners and MPTE and Fleet Executive Leadership. The ADE provides Infrastructure, Operations and Sustainment of the Navy Manpower, Personnel, Training and Education Authoritative Data Warehouse, (ADW), Enterprise Service Bus, and Web Support Services.

The additional capability from this funding includes the following:

- (1) Completed "Golden Record" Expansion Increments
 - Data Quality
 - Governance
 - Security
 - Data Standardization
- (2) Increased Capabilities for MPTE Supply Chain & Business Operations
 - Data Discovery
 - Advanced Visualization Tools
 - Predictive Analytics
- (3) Enhanced Architecture to Support Unstructured Data and "Big Data" Analytics
- (4) Improved Support for Future Identity Management & Access (IDAM) for Mobile Device Capability

APPLICANT RELATIONSHIP MANAGEMENT (ARM)

ARM is being implemented as a modernization to the Pride Mod Automated Information System (AIS). ARM provides automated support of the management of recruiting information. ARM enables all levels of recruiting to have real-time access to timely and accurate information. ARM provides managers with decision-making support by consolidating Navy Recruiting Command (NRC) legacy application systems. The complete ARM Systems Dev/Mod effort will incorporate biometrics and paperless implementation across all lines of business systems to gain additional efficiencies.

3167 - BSO 19

JOINT TECHNICAL DATA INTEGRATION (JTDI)

Funding supports the evaluation, testing and integration to develop a JTDI Commercial-Off-The-Shelf (COTS) solution for installation on a Carrier (CV) and Amphibious Assault (L) class ships and up to 104 Navy/Marine Corp aviation activities. JTDI is a digital technical data access, delivery and local O&I level library management toolset and telemaintenance collaboration process enabler. It improves accuracy and timeliness of technical manual and other technical data delivery and minimizes the Fleet's library management burden. JTDI reduces maintenance work hours with saving Return on Investment (ROI) of 2.5:1. It facilitates the transition of the Joint Distance Support and Response (JDSR) Advanced Concept Technology Demonstration (ACTD) for telemaintenance and provides for process efficiencies to support ongoing Aviation Fleet Technical Representative reductions.

MARINE AVIATION LOGISTICS ENTERPRISE INFORMATION TECHNOLOGY (MAL-EIT)

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	
<p>Funding supports the evaluation, development, testing and integration of software and hardware solutions across all US Marine Corps Aviation activities to be used in the planning and execution of geographically distributed, expeditionary Aviation Logistics (AVLOG) chains in support of deployed USMC Air Combat Element operations. The Marine Aviation Logistics Enterprise Information Technology (MAL-EIT) Program is one of four programs contained within the Marine Aviation Logistics Support Program (MALSP) modernization program known as MALSP II. Legacy MALSP is nearly 25 years old and grossly inadequate in IT capability to meet the informational, planning, and C2 needs of a dynamic, geographically distributed nodal AVLOG system. MAL-EIT is a Defense Business System Abbreviated Acquisition Program that will develop and deliver the required IT capability necessary to eliminate the IT related gaps existing in the legacy MALSP.</p>		
<p>3185 - BSO 39</p> <p>JOINT AIR LOGISTIC INFORMATION SYSTEM (JALIS) JALIS is a critical element with regard to DoD CONUS and OCONUS Air Logistics assets.</p> <p>JALIS is an operational scheduling and aircraft management system that facilitates real-time data analysis, and is a critical element for management of DoD air logistics assets. JALIS allows DoD organizations to do the following:</p> <ol style="list-style-type: none">(1) Submit airlift requirements for passengers and cargo(2) Communicate among air logistics flying units to determine aircraft availability on a real-time graphic display(3) Designate scheduling organizations to compare airlift requirements to available aircraft(4) Create mission assignments		
<p>9406 - BSO 19</p> <p>NAVAIR DECKPLATE Aviation Data Warehouse/NAVAIR Decision Knowledge Programming for Logistics Analysis and Technical Evaluation (DECKPLATE) - The development of the DECKPLATE program is the next generation data warehouse for aircraft maintenance, flight, and usage data. It provides a web-based interface to a single source of information currently being stored in multiple Naval Aviation Logistics Data Analysis systems. Through the use of analysis, query, and reporting tools the user has the capabilities to effectively obtain readiness data in a near real-time environment, as well as providing historical data for long range planning, trend analysis and records analysis, records reconstruction, and compliance with technical directives. DECKPLATE supports the mission of the warfighter who requires a single source of near real-time aviation data in which to base critical readiness decisions. This requires collecting data from authoritative sources into a data warehouse. Because the warfighter only needs to access one database, the time consuming task of collecting various pieces of data from various sources will be reduced and ultimately eliminated. This improves data quality because it reduces the possibility of two systems providing identical data elements, but slightly different data. Data availability is improved through continuous near real-time feeds from the data sources, giving the warfighter the most current information to base decisions. In addition, this also accomplishes a reduction in legacy systems mandated by Office of the Chief of Naval Operations. DECKPLATE manages total inventory for two major categories of</p>		

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy Date: February 2016

Appropriation/Budget Activity
1319: Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)

R-1 Program Element (Number/Name)
PE 0605013N / Information Technology Development

assets, Aircraft and Engine/Propulsion Systems/Modules (EPSMs).DECKPLATE is comprised of the Aircraft Inventory and Readiness Reporting (DECK-AIRRS) and the Engine Transaction Reporting (DECK-ETR) subsystems which provide the complete lifecycle for aircraft and Engine/ Propulsion System/Modules (EPSMs). Both DECK-ETR and DECK-AIRRS are undergoing a FISCAM assessment (FY16) and audit (FY17) and are undergoing review for designation as the Accountable Property System of Record (APSR) for aircraft and uninstalled engines.

CONDITION BASED MAINTENANCE PLUS (CBM+)

Through automated analysis and decision making processes, the CBM+ Initiative provides Naval Aviation Enterprise with common enabling capabilities which deliver timely data-driven decisional information to optimize aircraft availability and materiel readiness by incorporating health and usage leading indicators into the failure mode mitigation process, enabling the Warfighter to more efficiently meet mission requirements. The CBM+ Initiative increases readiness by streamlining maintenance processes, provide the sustainment base with timely, actionable logistics data not previously available, and enable engineers and acquisition professionals to support system improvements based on CBM+ acquired data results. CBM+ provides the enabling solutions needed to extend the life of current and new acquisition aircraft, realizing savings from reductions in field (organizational and intermediate) maintenance actions, reduced functional check flight hours, mishap mitigation, and reduced parts usage. JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under SYSTEM DEVELOPMENT AND DEMONSTRATION because it includes those projects that have passed Milestone B approval and are conducting engineering and manufacturing development tasks aimed at meeting validated requirement prior to full-rate production decision.

INTEGRATED LOGISTICS SUPPORT MANAGEMENT SYSTEM (ILSMS)

The development of the ILSMS program is the next generation analytical tool set for Unit, Aircraft, Engines, Component Readiness and Cost metrics. It will be a web-based tool that will provide the user with validated and aggregated data. ILSMS provides analysts with the means to pull data on type/model/series (TMS) readiness, run detailed component analysis, manage aircraft life by bureau number, request lists of TMSs' top degraders, model the impacts of degraded components on readiness and cost, generate production scenarios, and manage the incorporation of technical directives. ILSMS institutionalizes a data analysis process that is repeatable and establishes a common understanding of readiness and cost degraders among its users. This is also the foundation for working with provider organizations to establish metrics, actionable mitigation plans and milestones. ILSMS will give its users a one stop shop to proactively identify readiness and cost degraders quickly with a consistent methodology across all TMS thus providing a standardized tool to assist programs in reducing total ownership costs. JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under SYSTEM DEVELOPMENT AND DEMONSTRATION because it includes those projects that have passed Milestone B approval and are conducting engineering and manufacturing development tasks aimed at meeting validated requirement prior to full-rate production decision.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	66.317	89.711	99.939	-	99.939
Current President's Budget	55.105	85.816	97.066	-	97.066
Total Adjustments	-11.212	-3.895	-2.873	-	-2.873
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-7.895			
• Congressional Rescissions	-	-			
• Congressional Adds	-	4.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-9.078	0.000			
• SBIR/STTR Transfer	-2.133	0.000			
• Program Adjustments	0.000	0.000	4.207	-	4.207
• Rate/Misc Adjustments	-0.001	0.000	-7.080	-	-7.080

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 9999: *Congressional Adds*

Congressional Add: *Information Technology Development Increase*

	FY 2015	FY 2016
Congressional Add Subtotals for Project: 9999	0.000	4.000
Congressional Add Totals for all Projects	0.000	4.000

Change Summary Explanation

Technical: Not applicable.

Schedule Changes: 3167, Joint Technical Data Integration:

Due to Information Assurance (IA) requirements, Release Titles for JTDI have been changed on the R-4 and R-4a.

Schedule Changes: 3167, Marine Aviation Logistics Support Program II (MALSP II) Expeditionary Pack up Kit (EPUK):

Due to delay in obtaining Internal Review Board Certification, acquisition schedule and milestones have changed. Titles on the R-4 and R-4a have also changed due to DCA Policy Letter Revision A to MALSP II IOC Requirement dated 10 April 2012 stating title should be MAL-EIT.

Schedule Changes: PU 9406, Maintenance Data Warehouse:

Due to Maintenance Data Warehouse/NAVAIR Decision Knowledge Programming for Logistics Analysis and Technical Evaluation (DECKPLATE) being a new start in FY12 and CRA lasting until January 2012, the contract award has been moved from first quarter to second quarter on the R-4 and R-4a.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity	R-1 Program Element (Number/Name)
1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	PE 0605013N / <i>Information Technology Development</i>

Changes to PU 9406 Maintenance Data Warehouse (DECKPLATE): Schedule slippage in FY13 to FY15 is due to sequestration in FY13 and other budget cuts in FY14 which hindered the development start of Automated Logistics Environment/Auto Log Set.

Changes to PU 9406 Condition Based Maintenance Plus (CBM+): Schedule changes/corrections reflect actual requirements and dates necessary to meet stated return on investment presented in the original issue sheet requirements for CBM+.

FY 2017 decrease in Information Technology Development RD TEN by \$4.001M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 2901. / <i>AAUSN IT</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2901.: <i>AAUSN IT</i>	23.376	2.771	24.961	15.177	-	15.177	26.100	21.827	24.997	3.462	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

DATA MODERNIZATION & ANALYTICAL TOOLS: The Secretariat Automated Resources Management Information System (SARMIS) is a financial tool used by the Secretariat to formulate, execute, and report changes to organizational resources. DON/AA employs this system to support financial and resource decisions for the entire Secretariat. The system mirrors the capabilities of PBIS, however at a more detailed UIC level. SARMIS produces budget materials and analysis, as well as generating allocation data. In addition, SARMIS contains organizational manpower data that assists our leaders in making necessary personnel decisions for the Secretariat. This RD TEN funding will optimize DON/AA's capability to make necessary modernization to various Secretariat systems in order to ensure compliance with FIAR and other financial emerging requirements of a clean financial statement. This modernization will provide transparency and enhance the level of financial auditability in the system. RD TEN funding is required to support systems technology upgrades and DOD security system requirements.

CORB IT System Modernization:

The CAPS-II programs is used by the Navy Clemency and Parole Board (NCPB) and the Combat Related Special Compensation Board(CRSC) to process and adjudicate approximately 3,200 cases per year. The current system defects have resulted in additional man-hours and reduced reporting functionality. This has created a longer manual process, and hinders adequate and accurate statistical data from being collected or retrieved.

RD TEN funding will be used to modernize the CAPS-II program in order to meet current IT standards and enhance system capabilities. The system is currently non-serviceable and is not aligned with NCPB and CRSC current mission requirements.

DON TRACKER

Department of the Navy Tasking, Records and Consolidated Knowledge Enterprise Repository (DON TRACKER - formerly known as Enterprise Records and Task Management (ERTM)) is a single, auditable, compliant Records and Task Management process, implemented uniformly across all DON Divisions and Commands, and administered by DON/AA, to enable efficient and effective execution of Records Management (RM) and Task Management (TM) policy in compliance with statute.

ELECTRONIC PROCUREMENT SYSTEM (ePS)

Provides the Department of the Navy Solution for Electronic Contract Writing replacing the existing Standard Procurement System (SPS) and DoN Integrated Contracting Environment (DICE) capabilities and deficiencies. ePS aligns Contract Writing System (CWS) with Financial Improvement Audit Readiness requirements mandated by Congress and the Department of Navy's goal for an auditable link between financial management and contract writing system. It supports strategic sourcing and seamless exchange of data in addition to evolving to meet changing requirements. The improved capabilities will meet emerging data standards Procurement Data Standards/Procurement Request Data Standards (PDS/PRDS), in addition to complying with OSD Clause Logic Service. ePS meets the intent of the National Defense Authorization Act of 2013 by providing an electronic means to award contracts.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 2901. / <i>AAUSN IT</i>
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The Navy Enterprise Service Bus (NESB) serves as the hub to relay procurement data to various finance and other systems of record, such as Navy Enterprise Resource Planning (NERP), Standard Accounting & Reporting System (STARS) and Standard Accounting Budgeting & Reporting System (SABRS). In FY17 funds will continue system engineering, and begin software hosting, testing and gap analysis for the future contract writing system.

The result of successful ePS implementation shall be a contracting process workforce well informed and completely empowered to writing accurate and timely contracts in support of the warfighter.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Title: CORB IT System Moderization</p> <p align="right">Articles:</p> <p>Description: The Secretariat has numerous requirements to combat cyber security and improve efficiencies. Funding will be used to support the mission of the Combat Related Special Compenstation (CRSC) and the Navy Clemency and Parole Board (NCBP). Modernization of the CAPS-II program will enable the CRSC and NCBP to meet current IT standards and improve their record processing cycle.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: Funding will support the modernization of the current system used by Navy Clemency and Parole Board(NCPB) and the Combat Related Special Compensation Board(CRSC) to process and adjudicate approximately 3,200 cases per year. Fulfilling this requirement aligns with the Department of Navy's objective to "Drive Innovation Enterprise Transformation" which will maximize Information Technology Efficiencies.</p> <p>FY 2017 Base Plans: Continue FY2016 modernization effort.</p> <p>FY 2017 OCO Plans: N/A</p>	0.000	0.500	0.500	0.000	0.500
<p>Title: Modernization - Secretariat</p> <p align="right">Articles:</p> <p>Description: The Secretariat has numerous requirements to modernize its financial management system and portal applications. SARMIS will be updated from older technologies to include new FIAR and web based requirements. These upgrades are necessary to continue functionality of the system and ensures timely, accurate and efficient operation of the Secretariat's mission.</p>	1.107	0.727	1.180	0.000	1.180

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 2901. / AAUSN IT

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
4. Further prioritize user needs and identify capability shortfalls FY 2017 Base Plans: 1. Continue Development of SIPR Component (a) Test and Fix Software (b) Conduct User Evaluation Testing 2. Provide Software Updates 3. Commence Development to Provide Afloat Capability FY 2017 OCO Plans: N/A					
Title: Electronic Procurement System (ePS) Articles: Description: Funding is required for the Contract Writing System - contractor support required for configuration, integration, testing, training, deployment and implementation of system. FY 2015 Accomplishments: - System Engineering Technical Requirements (SETR) and development - Navy Enterprise Service Bus (NESB) front end development; NESB is the interface required between existing financial systems (i.e., Navy ERP) to ePS. For example, NESB will replace the existing interface between Navy ERP and Standard Procurement System (SPS). - Acquisition documentation FY 2016 Plans: NESB development required for final Contract Writing System, to include: - Continuation of system engineering - Data mapping interfaces - Configuration and validation - Evaluation of the Test and Evaluation Master Plan (TEMP) requirements - Preparation of software hosting for a test bed FY 2017 Base Plans: Continue development of the NESB required for final Contract Writing System, to include: - Continuation of system engineering	1.664	23.298	12.902	0.000	12.902
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 2901. / AAUSN IT

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Software hosting for a test bed - Begin testing - Begin gap analysis and development for future contract writing system. - Award the Commercial-Off-the Shelf contract					
<i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	2.771	24.961	15.177	0.000	15.177

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• 8106: <i>Command Support Equipment</i>	0.000	3.794	3.875	-	3.875	1.445	6.716	6.934	0.000	0.000	22.764
• 4A6M: <i>Command and Admin</i>	0.000	1.561	1.651	-	1.651	1.559	1.585	1.611	1.645	0.000	9.612

Remarks

D. Acquisition Strategy
 MODERNIZATION - Contract will be awarded under a competitive, all source, RFP. NO ACAT

The selected contractor must have knowledge of the existing information systems pertinent to the task. They must also have the corporate experience and a staff of knowledgeable personnel to provide the required services. The task will be monitored by the Contracting Officer Representative (COR), who reviews technical data submissions, system deliverables, and invoices to ensure acceptable contractor performance and scheduled deliveries.

CORB IT System Modernization:
 Contract will be awarded under a competitive, all source, RFP. NO ACAT
 DON TRACKER
 This planned acquisition will be a Cost-Plus-Fixed-Fee (CPFF) single award Indefinite Delivery Indefinite Quantity (IDIQ) contract to a selected Vendor in support of sustainment, software development, legacy data transfer, and additional fielding of the DON TRACKER application.

ELECTRONIC PROCUREMENT SYSTEM (ePS)
 Commercial Off-The-Shelf (COTS) contract (full and open competition), close the capability / requirements gap to meet 100% of the DoN Integrated Contracting Environment (DICE) and implement Navy Enterprise Service business for financial interfaces to ePS.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / Information Technology Development	Project (Number/Name) 2901. / AAUSN IT

E. Performance Metrics

Program cost, schedule and performance are measured using a systematic approach with approved programs and methods. The results of these measurements are presented to DON/AA management through a governance review board process on a regular basis to determine program effectiveness and to provide new direction as needed to ensure the efficient use of resources. To monitor and manage the execution of projects in addition to other IT investments, management and governance boards review metrics and key performance indicators that are outlined in various plans. Some of the plans that expound on the data captured to attribute to performance measures include: Project Management Plan, Risk Mitigation Plan, Communication Plan, Procurement Plan, and a Certification & Accreditation Plan.

Other specific performance measurements include:

1. Actual versus planned project scope
2. Actual versus planned time schedule
3. Actual versus planned costs
4. Actual versus planned risks and the mitigation of those risks

CORB IT System Modernization specific performance measurements include:

1. CRSC processes and adjudicates approximately 2,600 cases per year
2. NCPB processes and adjudicates approximately 800 cases per year

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PII-100% of flagged PII shall be protected

Automation-95% of requests will be processed using automated system without a manual workaround

Operational Availability-99% of transactions shall be resolved correctly per System Accuracy definition

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 2901. / <i>AAUSN IT</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Software Development (Modernization)	C/FP	CACI : Chantilly, VA	4.555	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Contractor Engineering Support (DONCJIS)	SS/T&M	Interimage Inc. : Manassas, VA	1.272	0.000		0.000		0.000		-		0.000	0.000	1.272	-
Software Development	C/FP	Dell Marketing LP : Round Rock, TX	1.938	0.000		0.000		0.000		-		0.000	0.000	1.938	-
Software Development (CLEOC)	C/FP	NSA : Various	0.500	0.000		0.000		0.000		-		0.000	0.000	0.500	-
Software Development (EPS)	TBD	NA : NA	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
SYSTEM Moderization	WR	SPAWAYSYSCEAN ATLANTIC : CHARLESTON, SC	0.044	1.107	Oct 2014	0.727	Oct 2015	1.180	Oct 2016	-		1.180	0.000	3.058	-
CORB SYSTEM Modernization	WR	SPAWASYSYSTEM : CHARLESTON, SC	0.000	0.000		0.500	Oct 2015	0.500	Oct 2016	-		0.500	0.000	1.000	-
DON TRACKER Engineering	C/CPFF	Progeny : Manassas, VA	4.750	0.000		0.436	Feb 2016	0.595	Feb 2017	-		0.595	Continuing	Continuing	Continuing
ePS Data Transition Strategy	Various	NAVSUP BSC : Mechanicsburg, PA	1.502	0.000		0.000		0.000		-		0.000	0.000	1.502	-
ePS NESB Data Mapping	C/FP	BOOZ ALLEN : Tysons Corner, Va	0.000	0.400	Jul 2015	5.000	Dec 2015	0.900	Dec 2016	-		0.900	Continuing	Continuing	Continuing
NESB Configuration and Validation	C/FP	SPAWAR : San Diego, CA	0.000	0.000		10.000	Apr 2016	0.000		-		0.000	0.000	10.000	-
Contract Writing System	C/FP	SPAWAR : San Diego, CA	0.000	0.000		0.000		5.300	Jun 2017	-		5.300	Continuing	Continuing	Continuing
Subtotal			14.561	1.507		16.663		8.475		-		8.475	-	-	-

Remarks
 DON TRACKER: FY17 funding will be used for Pre-Planned Product Improvements (P3I), to include enhancements to the solution and development and operational testing (test software enhancements and conducting operator testing for user validation)

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
1319 / 5				PE 0605013N / Information Technology Development				2901. / AAUSN IT							
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Acquisition Documentation (ePS)	C/IDIQ	MAGA : Washington, DC	1.260	0.474	Jul 2015	2.000	Dec 2015	1.000	Dec 2016	-		1.000	Continuing	Continuing	Continuing
Cost Analysis (ePS)	C/CPFF	SPAWAR : San Diego, CA	0.377	0.264	May 2015	0.404	Oct 2015	0.500	Oct 2016	-		0.500	Continuing	Continuing	Continuing
Systems Engineering (ePS)	Various	SPAWAR : San Diego, CA/ Charleston, SC	3.590	0.396	Jul 2015	3.478	Oct 2015	2.752	Oct 2016	-		2.752	Continuing	Continuing	Continuing
Logistics Analysis (ePS)	Various	SSC LANT : Charleston, SC	0.788	0.000		0.416	Oct 2015	0.450	Oct 2016	-		0.450	Continuing	Continuing	Continuing
8a Requirements Validation (EPS)	C/FFP	SPAWAR : San Diego, CA	1.500	0.000		0.000		0.000		-		0.000	0.000	1.500	-
Subtotal			7.515	1.134		6.298		4.702		-		4.702	-	-	-
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Testing Preparations (ePS)	C/FFP	SSC LANT : Charleston, SC	0.800	0.000		0.000		0.000		-		0.000	0.000	0.800	-
Software Hosting	C/FP	SPAWAR : San Diego, CA	0.000	0.000		1.900	Jul 2016	1.900	Jul 2017	-		1.900	Continuing	Continuing	Continuing
Testing	C/FP	OPTEVFOR : NORFOLK,VA	0.000	0.130	Jul 2015	0.100	Jun 2016	0.100	Jun 2017	-		0.100	Continuing	Continuing	Continuing
Subtotal			0.800	0.130		2.000		2.000		-		2.000	-	-	-
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
ePS Program Support	C/FFP	PEO EIS : Arlington, VA	0.500	0.000		0.000		0.000		-		0.000	0.000	0.500	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 2901. / <i>AAUSN IT</i>
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FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Proj 2901.L12																												
Technology Development (Modernization)					████████████████████																							
System Development & Demonstration (Modernization)					████████████████████																							
Production & Deployment (Modernization)					██████████																							
Operations & Support (Modernization)					██████████																							
System Development (Secretariat)	████████████████████																											
System Testing (Secretariat)					██████████																							
Deployment (Secretariat)					██████████																							
DON TRACKER System Enhancement Contract Award / Modification					██																							
DON TRACKER Development					████████████████████																							
DON TRACKER Critical Design Review					██████																							
DON TRACKER Application Test Readiness Review					██████																							
DON TRACKER User Acceptance Functional Testing					██████																							
DON TRACKER Production Readiness Review					██████																							
DON TRACKER Enhancement Deployment					██████																							
ePS Requirements Validation	██████████																											
ePS / Navy Enterprise Service Bus (NESB) Data Mapping					████████████████████																							
ePS / Navy Enterprise Service Bus (NESB) Configuration & Validation					██████████																							

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 2901. / <i>AAUSN IT</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

ePS / Navy Enterprise Service Bus (NESB) Testing & Implementation	[REDACTED]
Award the Commercial-Off-the-Shelf contract	[REDACTED]

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 2901. / <i>AAUSN IT</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2901.L12				
Technology Development (Modernization)	3	2015	4	2017
System Development & Demonstration (Modernization)	3	2015	4	2017
Production & Deployment (Modernization)	1	2016	4	2016
Operations & Support (Modernization)	1	2016	4	2016
System Development (Secretariat)	1	2015	1	2017
System Testing (Secretariat)	1	2016	1	2017
Deployment (Secretariat)	1	2016	1	2017
DON TRACKER System Enhancement Contract Award / Modification	2	2016	2	2016
DON TRACKER Development	2	2016	3	2018
DON TRACKER Critical Design Review	3	2016	4	2016
DON TRACKER Application Test Readiness Review	4	2016	1	2017
DON TRACKER User Acceptance Functional Testing	1	2017	2	2017
DON TRACKER Production Readiness Review	2	2018	3	2018
DON TRACKER Enhancement Deployment	4	2018	1	2019
ePS Requirements Validation	1	2015	3	2015
ePS / Navy Enterprise Service Bus (NESB) Data Mapping	4	2015	3	2017
ePS / Navy Enterprise Service Bus (NESB) Configuration & Validation	3	2016	3	2017
ePS / Navy Enterprise Service Bus (NESB) Testing & Implementation	4	2017	2	2021
Award the Commercial-Off-the-Shelf contract	3	2017	1	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>				Project (Number/Name) 2903 / <i>NAVAIR IT</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2903: <i>NAVAIR IT</i>	1.863	0.682	6.431	5.332	-	5.332	5.705	0.596	0.604	0.618	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Joint Configuration Management Information System (JCMIS): The JCMIS Program is DoD's standard software system for complete and integrated Configuration Management (CM) of weapon systems from acquisition to disposal. JCMIS efficiently manages all product structure data, including complex interrelationship between assemblies and subassemblies, technical documentation and the parts that comprise the item. JCMIS is designed to manage and control configuration data to support the DoD business processes. Accurate, complete and accessible configuration data is critical to the successful operations of DoD weapon systems or tracked assets. Mission readiness and operational capabilities are enhanced by JCMIS, as instant consistent integrated configuration data is readily available to operators, maintainers and logistics personnel. This system is a CM tool available DoD wide to support all potential customers. JCMIS provides users with a common database infrastructure to ensure compatibility, quality, and consistency of CM processes and provides configuration managers and analysts the validated CM information necessary for accurate maintenance, spare procurements, reliability and safety analysis, and mission readiness. Funding is budgeted to support the services of re-hosting and testing of Commercial off-the-shelf (COTS) upgrades to ensure objective performance of JCMIS is achieved. This program is funded under SYSTEM DEVELOPMENT AND DEMONSTRATION because it includes those projects that have passed Milestone B approval and are conducting engineering and manufacturing development tasks aimed at meeting validated requirement prior to full-rate production decision.

Task Force Cyber Awakening (TFCA)- Cyber Warfare consists of many different aspects to include sabotage of our weapon systems, networks as well as enablement of missions. Nation and non-nation state actors are acquiring and employing more advanced cyber-attacks in order to exploit our networks and aviation systems challenging our technological edge. The threats and capabilities are real and range from exploiting capabilities, overloading weapons systems and logistics supply chains, to jamming signals or taking control of weapons systems. We must defend against adversarial cyber attacks while contributing to the exploitation of cyber warfare capabilities.

To meet these challenges and address the Chief of Naval Operations priorities and tasking, these R&D efforts are specifically focused on Naval Air Systems Command weapon or control systems and programs to ensure warfighting effectiveness as part of integrated / multi-platform kill chains. These research and development efforts will strengthen our cyber posture by developing research, development, test and evaluation capabilities and solutions to deter, detect, and mitigate cyber threats and safeguard classified naval aviation systems and platforms from "cradle to grave." These solutions will be integrated into the acquisition of weapons systems to enhance security, increase lethality, and improve resiliency in the expected operational environments. Our weapon or control systems are unique in the aforementioned environments and mission, but also in the presence of numerous non-traditional access points and trusted cyber relationships required for operational environments.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: JCMIS Annual Software Release	0.682	0.431	0.716	0.000	0.716
Articles:	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 2903 / <i>NAVAIR IT</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p><i>FY 2015 Accomplishments:</i> Re-baselined Joint Configuration Management Information System (JCMIS) software to upgrade to latest version of Oracle. Incorporated development efforts associated with COTS obsolescence and evolved an open standard interface to other systems.</p> <p><i>FY 2016 Plans:</i> Re-baseline JCMIS Software to upgrade to latest version of Oracle, incorporate development efforts associated with COTS obsolescence and evolve an open standard interface to other systems.</p> <p><i>FY 2017 Base Plans:</i> Re-baseline of JCMIS software to upgrade to latest versions of Cold Fusion and Oracle. Incorporate development efforts associated with COTS obsolescence and evolve an open standard interface to other systems. Maintain system compliance with Section 508 requirements. Constantly evolving threats, new vulnerabilities, and changing DON Cyber Security policy require increasingly strong efforts on behalf of JCMIS to ensure that system software and architecture remain secure. Continue generation of solutions and mitigation plans for any vulnerabilities identified during system assured compliance assessment solution scans. Continue monitoring for changes and compliance with applicable security technical implementation guided checklists and security content automation protocol results. Compliance with applicable information assurance updates including information assurance vulnerability alert, information assurance vulnerability bulletin, information assurance vulnerability technical, Microsoft, and supporting software updates. Generation of timely and efficient system and/or software solutions to assist with requests that may involve modification/update to system software/architecture.</p> <p><i>FY 2017 OCO Plans:</i> N/A</p>					
<p><i>Title:</i> Task Force Cyber Awakening (TFCA)</p> <p align="right"><i>Articles:</i></p>	0.000 -	6.000 -	4.616 -	0.000 -	4.616 -
<p><i>FY 2015 Accomplishments:</i> N/A</p> <p><i>FY 2016 Plans:</i> Develop unique tactical cyber solutions for customized control systems where solutions currently do not exist. Many of the traditional security measures are inappropriate or inadequate for use in control systems due to the presence of real time operating systems, latency sensitivity, and disconnected or intermittent connections</p>					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 2903 / <i>NAVAIR IT</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>to networks. Additionally, many control systems have access vectors, such as maintenance connections or RF apertures that may bypass the layered enterprise defenses typically viewed as the first lines of a layered defense. This R&D effort is a deliberate investment to develop tailored solutions for our control systems and improve the cyber security at control system entry points.</p> <p><i>FY 2017 Base Plans:</i> Continued development of unique tactical cyber solutions for customized control systems where solutions currently do not exist. Many of the traditional security measures are inappropriate or inadequate for use in control systems due to the presence of real time operating systems, latency sensitivity, and disconnected or intermittent connections to networks. Additionally, many control systems have access vectors, such as maintenance connections or RF apertures that may bypass the layered enterprise defenses typically viewed as the first lines of a layered defense. This R&D effort is a deliberate investment to develop tailored solutions for our control systems and improve the cyber security at control system entry points.</p> <p><i>FY 2017 OCO Plans:</i> N/A</p>					
Accomplishments/Planned Programs Subtotals	0.682	6.431	5.332	0.000	5.332

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

The Joint Configuration Management Information System (JCMIS) Program used Joint Logistics Systems Center (JLSC) funds to evolve JCMIS to Software Release 5.0. In June 1998 JCMIS was transferred to the Navy as executive agent and NAVAIR as program manager. Program Budget Decision 401 transferred joint funding from JLSC to NAVAIR to continue evolving JCMIS. The JCMIS Program Manager continues to evolve the program to keep pace with cost, Military Standards, and evolving commercial standards. Various contractors using competitively awarded contracts have supported the program. Currently, Intergraph Corporation is the JCMIS integration contractor selected through a GSA contract.

Task Force Cyber Awakening (TFCA) - The TFCA strategy is in 3 concurrent steps:
 1. Broad Agency Announcements (BAA) for resilient cyber warfare capabilities and control system solutions for NAVAIR Weapon Systems. Draft BAA delineating Naval Research Areas of Interest; Specific Areas of Interest; Technologies Being Sought; Proposal Submission; Proposal Abstracts; Full Proposal; General Information, and Evaluation Criteria.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 2903 / <i>NAVAIR IT</i>
<p>The objective of the BAA is principally to orchestrate germane research and development to fill the gaps in cyber warfare capabilities for Naval Air Systems Command (NAVAIR) weapon systems, i.e., secure weapon systems able to survive and exploit cyber warfare. Areas of interest include but not limited to:</p> <ol style="list-style-type: none"> 1) SWaP sensitive cyber resiliency for RTOS and aviation warfare environment 2) Access point identification, prioritization and defense 3) Cyber-Electronic Warfare convergent capabilities 4) Full acquisition cycle cyber security measures 5) Cyber test, inspection, incident response and training tools 6) Cyber warning systems 7) Cyber fault, risk and threat assessment methodologies <p>2. Stand-up Advanced Cyber Lab (ACL) Achieve capability to respond to cyber incidents, conduct federated avionics penetration tests in support of cyber risk assessments and develop control system solutions for NAVAIR weapon systems and acquisition programs. Stand-up capability to assess BAA solutions. Acquire delineated specialized equipment, software tools, space, power, cooling, and security.</p> <ol style="list-style-type: none"> 1) Secure Messaging - Cryptography, Steganography, etc. 2) Embedded Operating System Threat Assessment, Software Reverse Engineering, Federated Penetration Testing of Custom Control Systems 3) Advanced Anti-tamper, Digital Forensics 4) Microelectronics Reverse Engineering 5) Capabilities in response to Denial of Service, Precision Direct Attack/ Root Kits, Interdiction / Data in transit and Infrastructure / SCADA attacks. 6) Portable Assessment and Test <p>3. Organic Cyber Solutions for NAVAIR Customized Control Systems Project investigation and development of tools and tailored solutions for our control systems and improve the cyber security at control system entry points will be completed. Areas discovered include but are not limited to:</p> <ol style="list-style-type: none"> 1) Intrusion Detection / Prevention Systems (IDS/IPS) for Real Time systems 2) Live-CD boot 3) Out of Band Monitoring & Authentication 4) Weapon System of Systems Architecture tools 5) Avionics Fuzzing 6) Federated Penetration Testing Tool Set & Non-Destructive Inspection Tool 7) Dynamic Network Maneuvering 8) Weapon System Side Channel Analysis <p>E. Performance Metrics Joint Configuration Management Information System (JCMIS) - Milestone C Spiral Development:</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 2903 / <i>NAVAIR IT</i>
<p>1. During the life of the contract verify conformance with agency specific information processing standards and functional requirements. Prior to delivery of enhanced software, demonstrate the operational capability of the system software. Functionality of the software must meet required systems architecture and processing capabilities. All requirements mandated by law or regulation must be 100% compliant. Independent Verification and Validation will be used for testing new releases of software to determine that previous functionality is maintained. Customer satisfaction will be measured through limited validated customer complaints, feedback, and surveys.</p> <p>Task Force Cyber Awakening (TFCA):</p> <ol style="list-style-type: none">1. Establish Broad Agency Announcements (BAA) for Resilient Cyber Warfare Capabilities for Naval Air Systems Command Weapon Systems: Receive responses that address at key areas of interest.2. Stand-up Advanced Cyber Lab: Operating capability workstations and inter agency task team.3. Organic Cyber Solutions for NAVAIR Control Systems: Complete all projects.		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 2903 / <i>NAVAIR IT</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Solutions for Cyber Warfare Capabilities for Task Force Cyber Awakening	TBD	TBD : TBD	0.000	0.000		4.900	Oct 2015	3.900	Oct 2016	-		3.900	0.000	8.800	-
Subtotal			0.000	0.000		4.900		3.900		-		3.900	0.000	8.800	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Software Support for Joint Configuration Management Information System (JCMIS)	C/FFP	NAVSUP : Mechanicsburg, PA	1.388	0.481	Mar 2015	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Software Support for Joint Configuration Management Information System (JCMIS)	C/FFP	Wyle : Lexington Park, MD	0.000	0.000		0.313	Mar 2016	0.572	Mar 2017	-		0.572	0.000	0.885	-
Subtotal			1.388	0.481		0.313		0.572		-		0.572	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support for Joint Configuration Management Information System (JCMIS)	WR	NAWCAD : Patuxent River, MD	0.475	0.201	Dec 2014	0.118	Dec 2015	0.144	Dec 2016	-		0.144	Continuing	Continuing	Continuing
Systems Engineering Support for Task Force Cyber Awakening	WR	NAWCAD : Patuxent River, MD	0.000	0.000		1.100	Oct 2015	0.716	Oct 2016	-		0.716	0.000	1.816	-
Subtotal			0.475	0.201		1.218		0.860		-		0.860	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy							Date: February 2016				
Appropriation/Budget Activity 1319 / 5			R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>				Project (Number/Name) 2903 / <i>NAVAIR IT</i>				
	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract		
Project Cost Totals	1.863	0.682	6.431	5.332	-	5.332	-	-	-		

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 2903 / <i>NAVAIR IT</i>
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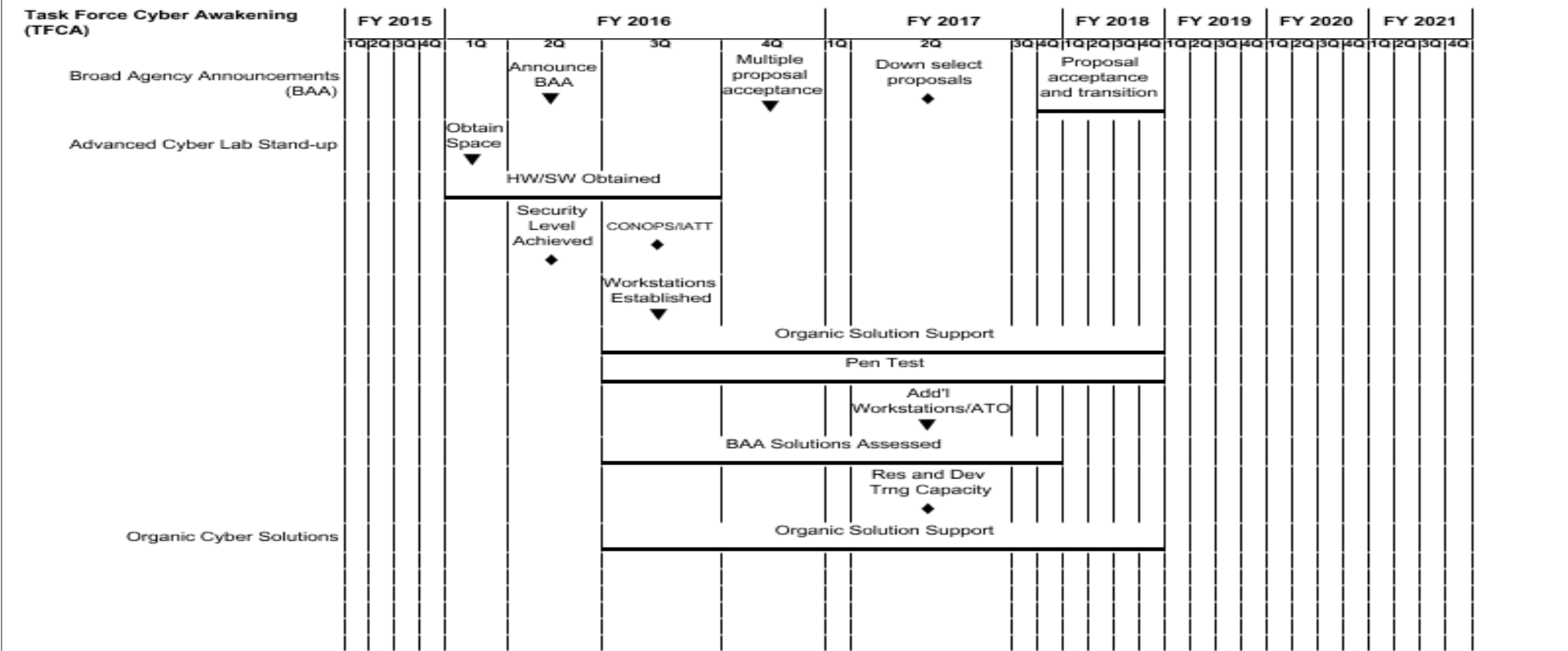
NAVAIR IT	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Requirements Determination	Release 8.0.14.6				Release 8.0.14.7				Release 8.0.14.8				Release 8.0.14.9				Release 8.0.14.10				Release 8.0.14.11							
Contract Award				Release 8.0.14.5 ●				Release 8.0.14.6 ●				Release 8.0.14.7 ●				Release 8.0.14.8 ●				Release 8.0.14.9 ●				Release 8.0.14.10 ●				Release 8.0.14.11 ●
Development	Release 8.0.14.5				Release 8.0.14.6				Release 8.0.14.7				Release 8.0.14.8				Release 8.0.14.9				Release 8.0.14.10				Release 8.0.14.11			
Software Code & Integration	Release 8.0.14.5				Release 8.0.14.6				Release 8.0.14.7				Release 8.0.14.8				Release 8.0.14.9				Release 8.0.14.10				Release 8.0.14.11			

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 2903 / <i>NAVAIR IT</i>
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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 2903 / <i>NAVAIR IT</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
NAVAIR IT				
Requirements Determination: Release 8.0.14.6	1	2015	2	2016
Requirements Determination: Release 8.0.14.7	1	2016	2	2017
Requirements Determination: Release 8.0.14.8	1	2017	2	2018
Requirements Determination: Release 8.0.14.9	1	2018	2	2019
Requirements Determination: Release 8.0.14.10	1	2019	2	2020
Requirements Determination: Release 8.0.14.11	1	2020	2	2021
Contract Award: Contract Award, Release 8.0.14.5	4	2015	4	2015
Contract Award: Contract Award, Release 8.0.14.6	4	2016	4	2016
Contract Award: Contract Award, Release 8.0.14.7	4	2017	4	2017
Contract Award: Contract Award, Release 8.0.14.8	4	2018	4	2018
Contract Award: Contract Award, Release 8.0.14.9	4	2019	4	2019
Contract Award: Contract Award, Release 8.0.14.10	4	2020	4	2020
Contract Award: Contract Award, Release 8.0.14.11	4	2021	4	2021
Development: Software Code & Integration: Release 8.0.14.5	1	2015	3	2015
Development: Software Code & Integration: Release 8.0.14.6	1	2016	3	2016
Development: Software Code & Integration: Release 8.0.14.7	1	2017	3	2017
Development: Software Code & Integration: Release 8.0.14.8	1	2018	3	2018
Development: Software Code & Integration: Release 8.0.14.9	1	2019	3	2019
Development: Software Code & Integration: Release 8.0.14.10	1	2020	3	2020
Development: Software Code & Integration: Release 8.0.14.11	1	2021	3	2021
Task Force Cyber Awakening (TFCA)				

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 2903 / <i>NAVAIR IT</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Broad Agency Announcements (BAA): Announce BAA	2	2016	2	2016
Broad Agency Announcements (BAA): Proposal Acceptance Multiple	4	2016	4	2016
Broad Agency Announcements (BAA): Down Select Detailed Proposals	2	2017	2	2017
Broad Agency Announcements (BAA): Accept Proposals and Transition	4	2017	4	2018
Advanced Cyber Lab Stand-up: Obtain Space	1	2016	1	2016
Advanced Cyber Lab Stand-up: Obtain Specialized HW/SW tools	1	2016	3	2016
Advanced Cyber Lab Stand-up: Achieve Security Level	2	2016	2	2016
Advanced Cyber Lab Stand-up: Initial CONOPS/IATT	3	2016	3	2016
Advanced Cyber Lab Stand-up: Establish Workstations	3	2016	3	2016
Advanced Cyber Lab Stand-up: Support Organic Solutions	3	2016	4	2018
Advanced Cyber Lab Stand-up: Avionics Pen Test	3	2016	4	2018
Advanced Cyber Lab Stand-up: Establish Additional Workstations/ATO	2	2017	2	2017
Advanced Cyber Lab Stand-up: Assess BAA Solutions	3	2016	4	2017
Advanced Cyber Lab Stand-up: Establish Research and Development Training Capacity	2	2017	2	2017
Organic Cyber Solutions: Support Organic Solutions	3	2016	4	2018

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>				Project (Number/Name) 2904 / NAVSEA IT			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2904: NAVSEA IT	117.122	21.277	17.469	30.879	-	30.879	27.976	27.523	27.572	25.127	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This program includes the funding for Information Technology (IT) support at NAVSEA, managed by the NAVSEA 04 Program Management Office (PMO-IT) for the support and sustainment of maritime shore maintenance and includes multiple modernization efforts to insure effectiveness of Fleet maintenance systems as part of the current Navy Maritime Maintenance Enterprise Solution (NMMES). This IT solution is used by over 40,000 civilians and military who conduct yearly \$6.5B of ships maintenance and modernization. PMO efforts include retirement and/or replacement of costly legacy systems, transition planning and systems engineering for integration with national and enterprise interim and future solutions. These efforts align with direction to insure that proposed interim solutions support a planned, single maintenance solution end state, as well as direction to align with data center consolidation plans proposed across the FYDP. It includes the modernization of Naval Shipyard and Regional Maintenance Centers' Maintenance, Repair and Overhaul (MRO) production tools. This includes modifications/enhancements to Shipyard IT systems, such as Advanced Industrial Management (AIM); Project Scheduling and Sequencing (PSS); Workload and Performance Systems; the COST and MAT systems, and other solutions such as the Electronic Technical Working Document (eTWD) Initiative. This program also includes funding for the advanced planning and execution of the technical refreshes of the current solution which is at end of life. Advanced planning includes capabilities studies to examine COTS applications to replace current GOTS technology. The goal of PMO-IT is to provide modernization, migration and consolidation of obsolete legacy systems to the next generation of centrally hosted tools supporting Fleet Maintenance and national systems for the Navy.

The enterprise Product Lifecycle Management (ePLM) Integrated Decision Environment (IDE) will serve as a central knowledge repository for process and product evolution and history. It will promote integration, data exchange, and analysis among all business users and information systems that will interact with any Weapon System Configuration Item (CI) during its lifecycle. The ePLM IDE will cost effectively address each weapon system program requirement for an IDE as stated in the Defense Acquisition Guidebook.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: NAVSEA IT	21.277	17.469	30.879	0.000	30.879
Articles:	-	-	-	-	-
Description: This program includes the funding for Ship Maintenance Information Technology modernization at NAVSEA, managed by the NAVSEA 04 Program Management Office (PMO-IT) for the support of maritime shore maintenance and includes multiple modernization efforts to insure effectiveness of Fleet maintenance systems. It includes the modernization of Naval Shipyard and Regional Maintenance Center (RMC) maintenance, repair and overhaul (MRO) production tools. This effort will allow Navy to realign functionality, consolidate systems and applications, and re-platform operations to facilitate a centrally hosted, net-centric maintenance solution suite.					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 2904 / <i>NAVSEA IT</i>

C. Other Program Funding Summary (\$ in Millions)

Remarks

D. Acquisition Strategy

The backbone of the present solution is a set of dated information technology (IT) products that are approaching end-of-life. These products were supported by a variety of independent activities from their inception until NAVSEA down-selected to a corporate best-of-breed solution in the 1990s. This non-centralized approach to original systems development made integration and consolidation difficult; and limited the functional benefits and cost savings that could be realized from common system standardization & processes, sharing of resources, and unification of infrastructure. Following plans to freeze and replace these systems in 2002-2006, the Fleet Maintenance Board of Directors approved the establishment of the NAVSEA Program Management Office for Information Technology (PMO-IT) to oversee the selected development and sustainment efforts of this solution; to acquire and manage the IT resources necessary to gain further efficiencies in the systems; and to transition this solution to a more modern and efficient end state. Selected systems modernizations are aligned with ongoing systems sustainment to provide an IT solution until a COTS based Technical Refresh of this solution can be completed and deployed. ePLM: NSWC-PHD will lead the integration of SBIR-developed technologies through the utilization of Phase 3 SBIR contracts. SBIR technologies will be enhanced and integrated into the ePLM tool suite and will result in execution of a competitive, full acquisition strategy.

E. Performance Metrics

System performance is measured using the following:

A. Operational Availability (A_o): Percent of time systems are available for use.

(1) Mean Down Time (MDT) is the mean time the system will be down to start and complete maintenance and corrective task.

MDT = (Total Down Time)/(Total Number of Maintenance). Measure of Performance (MOP): Total Down Time ? 87.6 Hrs/Year.

(2) Mean Time Between Maintenance (MTBM) is the mean time between maintenance, all corrective and preventive maintenance. MTBM = (Total Up Time)/(Total Number of Maintenance). MOP: A_o = MTBM / (MTBM+MDT) > 0.99.

B. Reliability: Ability of a system to perform its mission without failure or degradation under a prescribed set of operating conditions.

(1) Mean Time Between Failure (MTBF) is the mean time between unforeseen system failures which result in substantial loss in users' productivity, including being off-line unscheduled. MTBF = (Total Up Time)/(Total Number of Failures). MOP: MTBF > 3504 Hours

(2) Mean Time To Repair (MTTR) is the mean time to perform the corrective maintenance to repair the failure. MTTR = (Total Down Time for corrective maintenance)/(Total Number of Failures). MOP: MTTR less then or equal to 16 Hours.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 2904 / <i>NAVSEA IT</i>
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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Software Development	C/CPFF	NAVSEA : WNY, D.C.	95.652	14.277	Dec 2014	10.007	Jul 2016	18.879	Dec 2016	-		18.879	Continuing	Continuing	Continuing
Software Development	WR	NSLC : Mechanicsburg, PA	15.999	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Advance Planning Analysis	WR	SPAWAR : Arlington, VA	5.471	2.000	Mar 2015	0.000		0.000		-		0.000	0.000	7.471	-
Advance Planning Analysis	TBD	NAVSEA : WNY, D.C.	0.000	0.000		7.462	May 2016	12.000	Dec 2016	-		12.000	0.000	19.462	-
Advance Planning Analysis	TBD	NSWC PHD : Port Hueneme, CA	0.000	5.000	May 2015	0.000		0.000		-		0.000	0.000	5.000	-
Subtotal			117.122	21.277		17.469		30.879		-		30.879	-	-	-

Remarks
The NAVSEA 04 Program Office for Information Technology plans to execute all contract awards for software development of shipyard and national systems through the NAVSEA SEAPORT vehicle and other competitively awarded contracts. Funding for advance planning of the NMMES Technical Refresh is being executed by NAVSEA and SPAWAR.

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	117.122	21.277	17.469	30.879	-	30.879	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy Date: February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 2904 / NAVSEA IT
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PAGE ONE - Lean Systems Improvement	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
ELECTRONIC TECHNICAL WORK DOCUMENTS (eTWD)						eTWD Test & Doc		eTWD IMPL ●																				
PROJECT SEQUENCING & SCHEDULING (PSS) UPGRADE					PSS UPGR SKED IMPRV OEP ●				PSS UPGR SKED IMPRV ANLYSIS				PSS UPGR SKED IMPRV S/W DEV				PSS UPGR SKED IMPRV TEST & DOC				PSS UPGR SKED IMPRV IMPL ●							

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 2904 / <i>NAVSEA IT</i>
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PAGE THREE - Migration, Consolidation & Enhancements	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021										
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q							
PLANNED MAINTENANCE SYSTEM (PMS): PMS UPGRADE								PMS UPGR OEP ●					PMS UPGR ANLYSIS																						
											PMS UPGR S/W DEV																								
															PMS UPGR TEST & DOC																				
																			PMS UPGR IMPL ●																

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 2904 / <i>NAVSEA IT</i>
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PAGE FOUR - Migration, Consolidation & Enhancements CONTINUED	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
STRATEGIC PLANNING & FORECASTING: SPF UPGRADE				SPF UPGR OEP ●				SPF UPGR ANALYSIS																								
								SPF UPGR S/W DEV																								

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 2904 / <i>NAVSEA IT</i>
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PAGE SIX- Migration, Consolidation & Enhancements CONTINUED	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021									
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q						
MATERIAL MANAGEMENT UPGRADE					MATL MGMT UPGR OEP ●					MAT MGMT UPGR ANLYSIS																								
									MAT MGMT UPGR S/W DEV																									
													MAT MGMT UPGR TEST & DOC																					
																	MAT MGMT UPGR IMPL ●																	

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

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PAGE SEVEN- Migration, Consolidation & Enhancements CONTINUED	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
NMMES MARITIME SYSTEMS ENVIRONMENT (MSE):																																
					MSE DB OPTMZN OEP ●																											

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 2904 / <i>NAVSEA IT</i>
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Enterprise Lifecycle Management (ePLM) Integrated Decision Environment (IDE)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
			ePLM IDE ●																									

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 2904 / NAVSEA IT

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
PAGE ONE - Lean Systems Improvement				
ELECTRONIC TECHNICAL WORK DOCUMENTS (eTWD): eTWD Testing & Documentation	2	2016	2	2016
ELECTRONIC TECHNICAL WORK DOCUMENTS (eTWD): eTWD Implementation	4	2016	4	2016
PROJECT SEQUENCING & SCHEDULING (PSS) UPGRADE: PSS Upgrade Scheduling Improvement OEP Approval	1	2016	1	2016
PROJECT SEQUENCING & SCHEDULING (PSS) UPGRADE: PSS Upgrade Scheduling Improvement Analysis	1	2016	3	2016
PROJECT SEQUENCING & SCHEDULING (PSS) UPGRADE: PSS Upgrade Scheduling Improvement Software Development	3	2016	2	2017
PROJECT SEQUENCING & SCHEDULING (PSS) UPGRADE: PSS Upgrade Scheduling Improvement Testing & Documentation	2	2017	4	2017
PROJECT SEQUENCING & SCHEDULING (PSS) UPGRADE: PSS Upgrade Scheduling Improvement Implementation	4	2017	4	2017
PAGE THREE - Migration, Consolidation & Enhancements				
PLANNED MAINTENANCE SYSTEM (PMS): PMS UPGRADE: PMS Upgrade OEP Approval	4	2016	4	2016
PLANNED MAINTENANCE SYSTEM (PMS): PMS UPGRADE: PMS Upgrade Analysis	2	2017	3	2017
PLANNED MAINTENANCE SYSTEM (PMS): PMS UPGRADE: PMS Upgrade Software Development	3	2017	1	2018
PLANNED MAINTENANCE SYSTEM (PMS): PMS UPGRADE: PMS Upgrade Testing & Documentation	1	2018	3	2018
PLANNED MAINTENANCE SYSTEM (PMS): PMS UPGRADE: PMS Upgrade Implementation	3	2018	3	2018

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy			Date: February 2016	
Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)		
1319 / 5	PE 0605013N / Information Technology Development	2904 / NAVSEA IT		
Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
PAGE FOUR - Migration, Consolidation & Enhancements CONTINUED				
STRATEGIC PLANNING & FORECASTING: SPF UPGRADE: SPF UPGRADE OEP Approval	4	2015	4	2015
STRATEGIC PLANNING & FORECASTING: SPF UPGRADE: SPF UPGRADE Analysis	1	2016	3	2016
STRATEGIC PLANNING & FORECASTING: SPF UPGRADE: SPF UPGRADE Software Development	3	2016	1	2017
STRATEGIC PLANNING & FORECASTING: SPF UPGRADE: SPF UPGRADE Testing & Documentation	2	2017	4	2017
STRATEGIC PLANNING & FORECASTING: SPF UPGRADE: SPF UPGRADE Implementation	4	2017	4	2017
NMMES Technical Refresh: NMMES Technical Refresh Advanced Planning	4	2015	1	2016
NMMES Technical Refresh: NMMES Technical Refresh OEP Approval	4	2015	3	2016
NMMES Technical Refresh: NMMES Technical Refresh Alternative Analysis	1	2016	2	2017
NMMES Technical Refresh: NMMES Technical Refresh Solution Analysis	4	2016	1	2017
NMMES Technical Refresh: NMMES Technical Refresh Software Development	2	2017	3	2021
NMMES Technical Refresh: NMMES Technical Refresh Testing & Documentation	4	2021	4	2021
NMMES Technical Refresh: NMMES Technical Refresh Implementation	4	2021	4	2021
PAGE FIVE- Migration, Consolidation & Enhancements CONTINUED				
FINANCIAL TECHNICAL UPGRADE: Financial Tech Upgrade OEP Approval	2	2016	2	2016
FINANCIAL TECHNICAL UPGRADE: Financial Tech Upgrade Analysis	1	2016	3	2016
FINANCIAL TECHNICAL UPGRADE: Financial Tech Upgrade Software Development	4	2016	3	2017
FINANCIAL TECHNICAL UPGRADE: Financial Tech Upgrade Testing & Documentation	3	2017	2	2018
FINANCIAL TECHNICAL UPGRADE: Financial Tech Upgrade Implementation	2	2018	2	2018
PAGE SIX- Migration, Consolidation & Enhancements CONTINUED				
MATERIAL MANAGEMENT UPGRADE: Material Mgmt Upgrade OEP Approval	1	2016	1	2016

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 2904 / NAVSEA IT
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
MATERIAL MANAGEMENT UPGRADE: Material Mgmt Upgrade Analysis	1	2016	3	2016
MATERIAL MANAGEMENT UPGRADE: Material Mgmt Upgrade Software Development	3	2016	2	2017
MATERIAL MANAGEMENT UPGRADE: Material Mgmt Upgrade Testing & Documentation	2	2017	4	2017
MATERIAL MANAGEMENT UPGRADE: Material Mgmt Upgrade Implementation	4	2017	4	2017
<i>PAGE SEVEN- Migration, Consolidation & Enhancements CONTINUED</i>				
NMMES MARITIME SYSTEMS ENVIRONMENT (MSE): Database Optimization: OEP Approval	1	2016	1	2016
NMMES MARITIME SYSTEMS ENVIRONMENT (MSE): Database Optimization: Analysis	1	2016	2	2016
NMMES MARITIME SYSTEMS ENVIRONMENT (MSE): Database Optimization: Software Development	2	2016	1	2017
NMMES MARITIME SYSTEMS ENVIRONMENT (MSE): Database Optimization: Testing & Documentation	2	2017	3	2017
NMMES MARITIME SYSTEMS ENVIRONMENT (MSE): Database Optimization: Implementation	4	2017	4	2017
<i>Enterprise Lifecycle Management (ePLM) Integrated Decision Environment (IDE)</i>				
Award acquisition contract for the ePLM IDE solution	3	2015	3	2015

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>				Project (Number/Name) 2905. / <i>BUPERS IT</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2905.: <i>BUPERS IT</i>	30.829	14.182	13.362	29.664	-	29.664	38.426	26.440	20.894	19.618	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

BILLET BASED DISTRIBUTION (BBD)

BBD is a technology solution that will provide the capability to clearly track the position an enlisted Sailor is filling at a command, provide a definitive accounting of personnel allocation, lead to a more accurate requisition, allow for the optimal usage of resources and serve as a basis to project how personnel changes will affect a command's mission readiness.

The objective of BBD is to replace the current inventory-based requisition generation process with automated functionality driven by requirements--an inventory-balanced and position based process. This methodology will increase personnel readiness, improve fit and provide clear visibility to the impact on mission readiness at the billet level. BBD will facilitate maximizing the contributions of every member of the Navy workforce by delivering competency-based career paths.

LEARNING MANAGEMENT SYSTEM - DISTANCE LEARNING (LMS-DL)

As part of Sailor 2025 holistic IT approach, ready & relevant learning requires the development of a Learning Management System that permits:

- (1) Mobile & flexible delivery of modular training to the sailor
- (2) Synchronization of work requirements with learning modules to ensure proper training is delivered at the right time

This funding will develop and deploy new technologies for modularized training in fleet concentration areas to support the continuum of learning. This includes:

- (1) Development, modification or replacement of the current LMS platform
- (2) Integration of MPTE management tools to support end to end business processes (billet information, assignment, distribution, student management, learning management, personnel information, advancement) that will be impacted by changes to learning delivery and career profiles via Progressive NECs (e.g. TFMMS, NSIPS, Learning Assessment System, Navy Training Management Planning System) .

The Learning Management tools and supporting IT infrastructure must also be modified to support management of training into the Delayed Entry Program, the growing use of demonstration videos, social media, student and learning management for MPTE mobility efforts, gaming and simulation technology as it is brought on-line.

LMS-DL will also introduce the Learning Continuum Pilot, a risk reduction effort that develops proof of concept alignment of sailor training requirements with learning content delivery.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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MY NAVY PORTAL (MNP)

MNP consolidates and eliminates multiple portals through the use of a multi-phased development approach and provides a common user interface for Sailors to access Navy personnel, training, and education services. MNP provides targeted audiences (Active and Reserve Sailors) with personalized interactive experiences and enables access to relevant information including learning content, human resource applications, and career business processes.

Phase 2C includes seventeen of the highest priority and most complicated transactions to support life and career events and may include other development activities based on varying levels of development effort. The MNP Phase 2C development effort accelerates the integration and/or development of identified Career Life Event(CLE) events and continued requirements refinement work with key Fleet stakeholders.

My Navy Portal may address previously deferred requirements from prior phases. Should MNP exceed schedule/delivery, planned follow-on phases or activities may be accelerated.

ANALYSIS OF ALTERNATIVE/ECONOMIC ANALYSIS (AOA)

The Navy will conduct multiple AoAs to analyze viable alternatives in order to determine the most efficient and effective solution to address the modernization of elements of the Navy's Manpower, Personnel, Training and Education (MPTE) IT portfolio. AOA will assess operational effectiveness, suitability, and costs of non-tactical systems to meet emerging capability requirements.

NAVY STANDARD INTEGRATED PERSONNEL SYSTEM (NSIPS)

NSIPS facilitates the Navy's portion of the largest Federal PeopleSoft Human Resources implementation, providing the Navy with a systematic modernization of our web-based pay and personnel system - both afloat and ashore. NSIPS collects, validates, processes and transfers the data necessary to ensure accurate and timely pay and maintenance of personnel records.

NAVY MANPOWER REQUIREMENTS SYSTEM (NMRS)

NMRS will modernize obsolete software and incorporate a wide array of enhancements (expanded capabilities based on sponsor's approved Functional Requirements Document) of new capabilities in support of Manpower Requirement efficiencies. Should NMRS deliver early, planned follow-on phases may be accelerated.

NMRS is a key tool which Navy manpower managers rely on to set, implement, and execute manpower requirements. Recommendations for improving data bases and the Navy's mobilization capacity rely on NMRS to make strength determinations.

The planned effort also includes technical evaluation and integration of products produced by the Simulation Toolset for Analysis of Mission, Personnel and Systems (STAMPS) program.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
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<p>RISK MANAGEMENT INITIATIVE (RMI) The RMI program is a consolidation of DoN risk management requirements into a single Program of Record (POR) to provide modern safety capabilities for both active and reserve Navy. RMI enables agile responses to business rule changes, automation of routine actions, improved data integrity, and facilitates self-service for organizations and individuals.</p> <p>RMI is being developed in three increments of capabilities: Streamlined Incident Reporting (SIR), Safety Program Management (SPM), and Analysis & Dissemination (A&D). A fourth requirement, Single Point of Entry (SPOE), will be accomplished as part of the development of the three RMI increments since each will be built on the same Commercial Off The Shelf (COTS) platform. Each of these capabilities will be acquired as individual Abbreviated Acquisition Programs using an incremental development approach for reengineered business processes, while consolidating four legacy systems [Web-Enabled Safety System (WESS), Enterprise Safety Application Management Systems (ESAMS), Portsmouth Occupational Accident and Illness Reporting System (POAIRS), Medical Mishap and Compensation (MMAC)].</p> <p>AUTHORITATIVE DATA ENVIRONMENT (ADE) As part of the Sailor 2025 strategy, the Chief of Naval Personnel has directed an acceleration of expansion and development of the ADE and improvements in making MPTE data more available to commanders, sailors, business owners and MPTE and fleet executive leadership. The ADE provides infrastructure, operations and sustainment of the Navy MPTE Authoritative Data Warehouse(ADW), enterprise service bus, and web support services.</p> <p>The capabilities delivered by this funding includes the following:</p> <ul style="list-style-type: none"> (1) Completed "golden record" expansion increments <ul style="list-style-type: none"> - Data quality - Governance - Security - Data standardization (2) Increased capabilities for MPTE supply chain & business operations <ul style="list-style-type: none"> - Data discovery - Advanced visualization tools - Predictive analytics (3) Enhanced architecture to support unstructured data and "big data" analytics (4) Improved support for future identity management & access for mobile device capability <p>APPLICANT RELATIONSHIP MANAGEMENT (ARM) ARM provides automated support of the management of recruiting information. ARM enables all levels of recruiting to have real-time access to timely and accurate information. ARM provides managers with decision-making support by consolidating Navy Recruiting Command (NRC) legacy application systems. The complete ARM Systems Dev/Mod effort will incorporate biometrics and paperless implementation across all lines of business systems to gain additional efficiencies.</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 2905. / <i>BUPERS IT</i>
<p>Included in the ARM program is the Self Service Accessions Application (SSAA). Phase II of this effort will build the SSAA application into the ARM system. SSAA is a mobile device-based software application. SSAA supports a change in the NRC business processes from a recruiter-driven business model to an applicant self-service business model. This "app" will be used by applicants to collaborate with recruiters anytime & anywhere to more efficiently and effectively navigate the recruiting process.</p> <p>Funding associated with Personnel TEMPO (PERSTEMPO) is being aligned to PE 060513N 2905 beginning in FY15. This aligns the funds with the organization required to execute PERSTEMPO strategy as directed by the CNO to the CNP. Two components are rolled together, modifying the ITEMPO system and further developing the Navy Deployment Health Location process. This strategy consists of Business Process Re-engineering (BPR) defined requirements (artifact is a Functional Requirements Document-FRD), modernization/risk reduction of existing system (ITEMPO) and a process that uses our corporate systems at DMDC Mechanicsburg.</p> <p>The desired effects of PERSTEMPO strategy are:</p> <ul style="list-style-type: none"> - Generate efficiencies throughout the Fleet to meet statutory requirements and improve Fleet readiness. - Provide improved service to Sailors (improving retention). - Facilitate informed management decision making. <p>Associated sub-projects:</p> <p>Individual TEMPO (ITEMPO): PERSTEMPO was implemented to comply with Sections 586 and 923 of the FY00 NDAA, now within 10 USCS 991. This is a non-acquisition category program. Each military service is to track and manage the number of deployed days and number of temporary duty days away from homeport for active and reserve personnel. Information is reported to DoD/DMDC, which is used to report to the Secretary of Defense. ITEMPO is the system used to comply with these directives. PERSTEMPO supports Navy management of stress on the force as requested by the CNO; Commander, U.S. Fleet Forces Command (N1); and the Commander, U.S. Pacific Fleet (N1). Enhancements will be performed on the primitive ITEMPO functional tools/metrics to make it actionable, current in technology, user friendly, and integrated into a variety of personnel and pay systems. Preparations are already underway to complete the FRD and perform a gap analysis within existing resources. This will support pay auditability/certainty when payment is authorized.</p> <p>DEPLOYMENT HEALTH LOCATION: Deployment Health Location is being implemented per DoD Instruction 6490.03, "Deployment Health," (DoD Instruction) August 11, 2006. This requires the Military Departments to plan, program, and implement a system to ensure daily location recording for all deployed personnel assigned, attached on temporary duty, or temporary additional duty to deployed units. The Services are required to report the daily location information electronically to DMDC at least weekly. Also, this will correct the finding by DoD Inspector General Report NO. DODIG 2012-112 of Jul 18, 2012.</p> <p>Capability change for ITEMPO: The system has had no significant software change in more than 8 years. The report mechanisms are extremely antiquated.</p> <p>Capability change Deployment Health Location: Deployed Service members are potentially subject to occupational and environmental hazards that can include exposure to harmful levels of environmental contaminants, such as industrial toxic chemicals, chemical and biological warfare agents, or radiological and nuclear contaminants. These hazards may include contamination from the past use of a site, battle damage, stored stockpiles, military use of hazardous materials, or from other</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 2905. / <i>BUPERS IT</i>
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sources. Harmful levels include high-level exposures that result in immediate health effects and low-level exposures that could result in delayed or long-term health effects. Collecting deployment information will allow the Military Health System to identify populations at risk for occupational and environmental exposures that may need medical follow-up. Improving timeliness of treatment will have a positive effect on readiness and long-term wounded warrior care.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Title: Billet Based Distribution (BBD)</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: Completed Functional Testing and Deployment of Phase 1B which included: 1. Continuous alignment of people-to-position functionality deployed with Phase 1A 2. Creation of a position-based requisition 3. Inventory Projection 4. Requisition Priority 5. Alignment Sustainment Functions 6. Global Force Management Data Initiative (GFM DI)--Spaces-to-Faces requirement</p> <p>FY 2016 Plans: Complete the requirements analysis, design and software development of BBD Phase 1C Increment 1.</p> <p>FY 2017 Base Plans: Continue the testing and deployment of BBD Phase 1C Increment 1 and begin requirements analysis, design and development of BBD Phase 1C Increment 2. This activity may also address previously deferred requirements from Phase 1B. Should the program deliver early, planned follow-on phases may be accelerated or additional capability may be incorporated into the delivery.</p> <p>FY 2017 OCO Plans: N/A</p>	1.583	0.975	2.140	0.000	2.140
	-	-	-	-	-
<p>Title: Learning Management System - Distance Learning (LMS-DL)</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: 1. Deployed post deployment improvements to integrated student management and scheduling functions between LMS-DL, CeTARS, and NTMPS. 2. Delivered the second and third of three incremental software releases for LMS-DL Phase II.</p> <p>FY 2016 Plans:</p>	0.066	0.000	3.750	0.000	3.750
	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)						
		FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A						
FY 2017 Base Plans: Development of two pilot projects for assessing the technical changes needed to fully integrate Learning Continuum Requirements across MPTE IT systems.						
1. Conduct Learning Continuum Phase I LMS Pilot to integrate the LMS with virtual classroom technology, Learning Assessment System, CeTARS, and the electronic training jacket. The Learning Continuum Phase I LMS Pilot will also evaluate technical options for adding Resume Capture for new training media that requires student tracking (e.g. mobile applications, videos & simulations).						
2. Perform Risk Reduction Pilot on migrating AtlasPro LMS to NSIPS PeopleSoft LMS and test end to end business process scenarios to identify technical changes required to interfacing systems.						
FY 2017 OCO Plans: N/A						
Title: My Navy Portal (MNP)		1.901	1.750	4.350	0.000	4.350
		Articles: -	-	-	-	-
FY 2015 Accomplishments:						
1. Continued MNP Phase 2B development with a focus on refining the layout and organization of the graphical user interface (GUI) with Sailors, the OPNAV Fleet Introductory Team (FIT) as well as key stakeholders to create a user-friendly MPTE focused intuitive MNP Homepage.						
2. Integrated the Navy Knowledge Online (NKO) program functionality into MNP.						
3. Reviewed and considered opportunities to incorporate BUPERS On Line (BOL) into MNP.						
4. Continued exploring the options for hosting MNP Production.						
5. Identified the key Career Life Events (CLE) and external applications which will likely connect to My Navy Portal (MNP) in the future.						
6. Developed initial CLE capability that supports Physical Fitness and Selection Board/Advancement Exam preparation tasks.						
7. Set the stage for using the Authoritative Data Environment (ADE) web services and Navy 311 for customer service.						

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>8. Began efforts to incorporate mobility tools into the My Navy Portal tool set. The first of these tools included the eDIVO application which was created to collate first tour division officer related data into an easy to navigate tool which can be used on mobile devices globally once downloaded.</p> <p>FY 2016 Plans:</p> <ol style="list-style-type: none"> Commence MNP Phase 2C Development <ul style="list-style-type: none"> - Design Portlets Supporting Prioritization of Sailor Career Life Event (CLE) Tasks - Connect CLEs to other Capabilities & Interfaces - Provide Seamless HR Support Mechanism for Sailors - Use HR Support Mechanism to Reduce Time Sailors Spend Performing Administrative Tasks Visually display Authoritative Data Environment (ADE) information to compose a Sailor's Record. Each CLE sprint will include a development, testing and release phase to provide Sailors with incremental capability. The first set of CLEs will include the following: <ul style="list-style-type: none"> - Personnel Records - Enlisted and Officer Advancement - Training and Readiness - Physical Fitness - Certifications and Qualifications - Pay - Leave - Travel - "New to the Navy" - Retention <p>FY 2017 Base Plans:</p> <p>Continue to accelerate and broaden the development of CLE capabilities for sailors to manage their career based on CNP's Sailor 2025 initiative. Accomplish the following tasks:</p> <ol style="list-style-type: none"> Development of MNP mobile applications Update MNP mobile applications required to meet dynamic user and stakeholder needs (develop and/or integrate proposed portlet/app) Accelerate MNP Phase 2C development in other CLE areas, and potentially begin the next phase of MNP to deliver operational capability to sailors sooner Increase development and integration of identified CLE portlets Finalize platform for MNP preferred ashore hosting solution 					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Additionally MNP may address previously deferred requirements from prior program deliveries and phases. Should the program deliver early, planned follow-on phases may be accelerated.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Total Force Manpower Management System (TFMMS)</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: 1. Completed Requirements Analysis and Design Phases 2. Commenced Iteration 1 Development 3. Commenced & Completed Application Design Phase of Iteration 1 4. Deployed Iteration 1 Development 5. Commenced Iteration 2 Development</p> <p>FY 2016 Plans: Test and deploy Iteration 2</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>	3.781	1.200	0.000	0.000	0.000
	-	-	-	-	-
<p>Title: Analysis of Alternative Economic Analysis (AOA EA)</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: 1. Commence studies & Analysis of Alternative (AoA) of material solutions for emerging business IT requirements 2. Commence AoA for Personnel Accountability Processes</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans: 1. Analysis of Alternative (AoA) of material solutions for emerging business IT requirements</p>	0.538	0.000	0.800	0.000	0.800
	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)					
	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
2. AoA for Personnel Accountability Processes 3. Complete personnel manpower analysis for 2025 Sailor toolkit 4. Complete AoA of the viability of converting MPT&E efforts to cloud services FY 2017 OCO Plans: N/A					
Title: Personalized Recruiting for Immediate and Delayed Enlistment Modernization II (PRIDE Mod II) Articles:	2.185 -	0.000 -	0.000 -	0.000 -	0.000 -
FY 2015 Accomplishments: 1. Awarded Contract 2. Completed the following Phases: - Systems Requirement Review (SRR) - System Functional Review (SFR) - Preliminary Design Review (PDR) 3. Completed the Following Phases: - Critical Design Review (CDR) - Product Development - Operational Testing FY 2016 Plans: N/A FY 2017 Base Plans: N/A FY 2017 OCO Plans: N/A					
Title: Navy Manpower Requirements System (NMRS) Articles:	0.000 -	0.000 -	3.378 -	0.000 -	3.378 -
FY 2015 Accomplishments: N/A FY 2016 Plans:					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
FY 2017 Base Plans: 1. Award Contract, Post Award Conference, and kick off project 2. Complete SFR/SRR 3. Complete PDR 4. Meet Acquisition Decision Memorandum (ADM) threshold requirements for cost, schedule, and performance FY 2017 OCO Plans: N/A					
Title: Navy Standard Integrated Personnel System (NSIPS) Articles:	2.400	3.872	4.450	0.000	4.450
FY 2015 Accomplishments: 1. Completed requirements analysis of the Retirements and Separations (R&S) functional requirements 2. Completed FIT / GAP analysis of the R&S functional requirements to PeopleSoft 9.2 3. Completed System Requirements Review / System Functional Review (SRR / SFR) 4. Completed Critical Design Review (CDR) for Iteration 1 functionality (Review / Approval Process) FY 2016 Plans: 1. Complete application testing for Iteration 1 functionality (Review/Approval Process) 2. Deploy Iteration 1 to the NSIPS production environment 3. Complete Critical Design Review (CDR) for Iteration 2 functionality (Separations Process) 4. Complete application testing for Iteration 2 functionality (Separations Process) 5. Deploy Iteration 2 to the NSIPS production environment 6. Complete Critical Design Review (CDR) for Iteration 3 functionality (Forms/Reports) 7. Complete application testing for Iteration 3 functionality (Forms/Reports) 8. Deploy Iteration 3 to the NSIPS production environment 9. Pay Navy share of Tri-Service PeopleSoft license 10. Award task order for prioritized and/or deferred software changes in the areas below requiring development / modernization: - Selection Board Preparation - Personnel Appraisal	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Personnel Accountability					
<p>FY 2017 Base Plans:</p> <p>1. Tri-Service PeopleSoft license acquisition</p> <p>2. Continue the implementation of the strategy in completing deferred software changes related to retirements, separations, selection board preparation, personnel appraisal, and personnel accountability that require development and modernization; and implement improved modernized personnel processes</p> <p>Award contract, perform requirements analysis and system design for all increments.</p> <p>FY 2017 OCO Plans:</p> <p>N/A</p>					
<p>Title: Authoritative Data Environment (ADE)</p> <p align="right">Articles:</p>	0.000	0.000	4.700	0.000	4.700
<p>FY 2015 Accomplishments:</p> <p>N/A</p> <p>FY 2016 Plans:</p> <p>N/A</p> <p>FY 2017 Base Plans:</p> <p>1. Selection and Implementation of the technology platform for Production Deployment</p> <p>2. Commence People Common Operational Picture (COP) Phase I - Supply Chain Management & MPTE Analytic, Visualization and Information Services</p> <ul style="list-style-type: none"> - Design - Configuration - Integration - Testing - Deployment <p>FY17 will fund the design, configuration, integration and testing of Phase I of the ADE program: Supply Chain Management & MPTE Analytic, Visualization and Information Services. Funding will also be for the deployment of the ADE Phase I prototype. This is a new start in FY17.</p> <p>FY 2017 OCO Plans:</p>	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
<p>Title: Risk Management Initiative (RMI)</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments:</p> <ol style="list-style-type: none"> 1. Completed Streamlined Incident Reporting (SIR) 2. Completed Single Point of Entry (SPOE) Design 3. Commenced Testing Phase for SIR <p>FY 2016 Plans:</p> <ol style="list-style-type: none"> 1. Complete Phase I Design and Testing for Analysis & Dissemination (A&D) 2. Complete Test Readiness and Production Readiness Reviews for Streamline Incident Reporting (SIR). Full deployment begins in FY16 for SIR. <p>FY 2017 Base Plans:</p> <ol style="list-style-type: none"> 1. Complete contract award, design, systems requirement reviews, and preliminary design reviews for Safety Program Management (SPM). 2. Complete testing, post implementation, and begin full deployment for Phase I Analysis and Dissemination (A&D). Complete award and design of Phase II of A&D. <p>FY 2017 OCO Plans:</p> <p>N/A</p>	1.728	2.033	2.761	0.000	2.761
	-	-	-	-	-
<p>Title: Applicant Relationship Management (ARM)</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments:</p> <p>N/A</p> <p>FY 2016 Plans:</p> <ol style="list-style-type: none"> 1. Commence and Complete the Following Phases: <ul style="list-style-type: none"> - Systems Requirement Review (SRR) - Design - Preliminary Design Review (PDR) 2. Validate System Interface Requirements 	0.000	2.221	3.335	0.000	3.335
	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>3. Business Process Mapping</p> <p>FY 2017 Base Plans:</p> <ol style="list-style-type: none"> 1. Conduct software requirement analyses leading up to Acceptance Test Readiness Review (ATTR) 2. Collect additional requirements volatility data resulting from ongoing requirement analyses 3. Implement modifications / upgrades resulting from requirements volatility data 4. Support officer and enlisted active and reserve Delayed Entry Program (DEP) enlistment & accession processing 5. Utilize workflow management to perform paperless processing 6. Create medical waiver workflow for officer and enlisted applicants within one system 7. Provide alerts, notifications, and email for increased efficiency 8. Create improved architecture for linking to United States Military Entrance Processing Command. <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Personnel TEMPO (PERSTEMPO)</p> <p align="right">Articles:</p> <p>Description: The PERSTEMPO program consists of two components: Modifying the ITEMPO system and further developing the Navy Deployment Health Location process. This strategy consists of Business Process Re-engineering (BPR) defined requirements, modernization/risk reduction of existing system (ITEMPO) and a process that uses our corporate systems at DMDC Mechanicsburg.</p> <p>ITEMPO: PERSTEMPO was implemented to comply with Sections 586 and 923 of the FY00 NDAA, now within 10 USCS 991. This is a non-acquisition category program. Each military service is to track and manage the number of deployed days and number of temporary duty days away from homeport for active and reserve personnel. This information is reported to DoD/DMDC, which is used to report to the Secretary of Defense. ITEMPO is the system used to comply with these directives. PERSTEMPO supports Navy management of stress on the force as requested by the CNO; Commander, U.S. Fleet Forces Command (N1); and the Commander, U.S. Pacific Fleet (N1). Enhancements will be performed on the primitive ITEMPO functional tools/ metrics to make it actionable, current in technology, user friendly, and integrated into a variety of personnel and pay systems. Preparations are already underway to complete the FRD and perform a gap analysis within existing resources. This will support pay auditability/certainty when payment is authorized.</p>	0.000	0.811	0.000	0.000	0.000
	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>DEPLOYMENT HEALTH LOCATION: Deployment Health Location is being implemented per DoD Instruction 6490.03, "Deployment Health," (DoD Instruction) August 11, 2006. This requires the Military Departments to plan, program, and implement a system to ensure daily location recording for all deployed personnel assigned, attached, on temporary duty, or temporary additional duty to deployed units. The Services are required to report the daily location information electronically to DMDC at least on a weekly basis. Also, this will correct the finding by DoD Inspector General Report NO. DODIG 2012-112 of Jul 18, 2012.</p> <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> - Started PERSTEMPO design. - Complete PERSTEMPO design reviews. - Started building the modifications on the ITEMPO and Deployment Health Location development sub-projects, based on approved FRDs. - Started advanced updates and enhancements to ITEMPO, allowing to transition the system to make it actionable, current in technology, user friendly, and integrated into a variety of personnel and pay systems. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Complete modifications on the ITEMPO and Deployment Health Location development sub-projects, based on approved FRDs. - Complete advanced updates and enhancements (likely) to ITEMPO, allowing to transition the system to make it actionable, current in technology, user friendly, and integrated into a variety of personnel and pay systems. <p>FY 2017 Base Plans: NA</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Recruiting Information System (NRIS)</p> <p align="right">Articles:</p> <p>Description: The Recruiting Information System (NRIS) creates a holistic approach to Navy Accessions by integrating Recruiter and Applicant information in real-time and to appropriate Manpower, Personnel, Training, and Education DoD business systems. Combined with Mobile Recruiter Initiative (MRI), the NRIS family of web enabled systems extends the recruiting force point-of-presence and key business processes to the field;</p>	0.000	0.500	0.000	0.000	0.000
	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
facilitates real-time data sharing and paperless processing across the Accessions supply chain; and drives down the total number of transactions required to transition from street to fleet.					
NRIS supports the active and reserve component, enlisted and officer accessions processes and includes system interfaces that eliminate multiple data entry and reduces errors. Interface partners include CeTARS (book school seats and initial strength gain), MIRS/eSOA (schedule applicants for physicals and testing at MEPS) and NSIPS (start the initial personnel record).					
NRIS encompasses PRIDE Modernization-I, WebRTTools, CIRIMS and NASIS; and will include PRIDE Modernization-II and ARM when deployed in FY15. The NRIS architecture provides the recruiting force with an agile, flexible, secure, and data-centric IT operating environment, the key building block for business transformation and supports the command's RF2030 strategy.					
FY 2015 Accomplishments: N/A					
FY 2016 Plans: Complete NRIS Development and deploy NRIS final capability.					
FY 2017 Base Plans: N/A					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	14.182	13.362	29.664	0.000	29.664

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• 8106: <i>Command Support Equipment</i>	2.124	0.573	0.563	-	0.563	1.600	1.633	0.593	0.601	0.000	17.687
• 8161: <i>Enterprise Information Technology</i>	0.000	3.177	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	3.177

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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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Remarks
BLI 8106 funds for NSIPS and LMS-DL. BLI 8161 funds for RMI.

D. Acquisition Strategy

BILLET BASED DISTRIBUTION (BBD)
The required services will be procured through a Cost Plus Fixed Fee (CPFF) 8a contract and a competitive, multiple award, small business Indefinite Delivery / Indefinite Quantity (ID/IQ) contract task order.

LEARNING MANAGEMENT SYSTEM - DISTANCE LEARNING (LMS-DL)
Use existing GWAC or competitive contract for any new product sourcing, use existing Tri-Service PeopleSoft license, Indefinite Delivery/Indefinite Quantity contract vehicles within PMW 240 for additional design and integration services.

NAVY STANDARD INTEGRATED PERSONNEL SYSTEM (NSIPS)
Navy Standard Integrated Personnel System (NSIPS) will incrementally implement Navy's personnel and pay modernization strategy using a variety of IDIQ contract task orders.

MY NAVY PORTAL (MNP)
The required services will be procured through a Cost Plus Fixed Fee (CPFF) 8a contract and a competitive, multiple award, small business Indefinite Delivery / Indefinite Quantity (ID/IQ) contract task order.

NAVY MANPOWER REQUIREMENTS SYSTEM (NMRS)
The required services will be procured through a Cost Plus Fixed Fee (CPFF) task order awarded on a competitive, multiple award, small business Indefinite Delivery / Indefinite Quantity (ID/IQ) contract.

RISK MANAGEMENT INITIATIVE (RMI)
There are existing Commercial-Off-the-Shelf (COTS) software and services that, with customization, can fill the Navy's documentation requirements and generate safety reporting of the United States Naval forces. These services will be procured through an 8A CPFF contract.

The Navy plans to leverage Contractor developed safety-related products by using a modular contracting approach to implement and combine capabilities from the following systems.

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<p>(a) Streamlined Incident Reporting (SIR) (b) Single Point of Entry (SPOE) (c) Safety Program Management (SPM); (d) Analysis & Dissemination (A&D)</p> <p>AUTHORITATIVE DATA ENVIRONMENT (ADE) The required services will be procured through multiple Cost Plus Fixed Fee (CPFF) task orders awarded on a competitive, multiple award, small business Indefinite Delivery / Indefinite Quantity (ID/IQ) contract for PMW 240 enterprise services, and also on a competitive, single award, large business Indefinite Delivery / Indefinite Quantity (ID/IQ) contract for tasking related to personnel and pay modernization.</p> <p>APPLICANT RELATIONSHIP MANAGEMENT (ARM) CPFF contract using GOTS software solution. (U) PERSTEMPO: Expect to use existing systems and build applications in those environments. Specifically for ITEMPO related costing, system resources are already existing within other system budget lines, and the OMN structure has been increased from FY2016 through the FYDP to sustain these changes. For Deployment Health Location, best system will be determined to host these attributes once the FRD is completed. For software development, the existing contract vehicles will be used, managing the work through separate sub contract line items (SLINs). Existing test resources will be used for testing software modifications.</p> <p><u>E. Performance Metrics</u></p> <p>BILLET BASED DISTRIBUTION (BBD) Concurrent Users: 250 Users Screen Refresh: 6-20 Seconds System Recoverability: <=4 Hrs System Interoperability: 95% System Availability: >=95%</p> <p>LEARNING MANAGEMENT SYSTEM - DISTANCE LEARNING (LMS-DL) Capturing end user screen refresh latency as compared to current system benchmarks for on-line courses. Identifying all integration points, failure modes and data flows required for the additional technology and approach Identifying supply chain, instructional, and student management business process changes needed to employ the technology Assessing server utilization and physical architecture projections (#s and types of hardware/SW/network appliances) needed for full scale use of the technology.</p> <p>ANALYSIS OF ALTERNATIVE/ECONOMIC ANALYSIS (AOA) Produce assessments for 95% of required AoAs.</p> <p>NAVY STANDARD INTEGRATED PERSONNEL SYSTEM (NSIPS) The system shall allow role-based access to SSN and/or masked SSN in accordance with Personally Identifiable Information (PII) instructions 100% of the time.</p>		

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<p>The system shall have a retrieval or generation of data entry/navigation screen within 4 seconds for 90% of transactions. System maintainability - Failures or unplanned outages shall be restored within 4 hours. The system shall have sufficient capacity to handle anticipated user demand based on increased functionality and accessibility for at least 12,000 simultaneous users. Data consistency - The system shall produce consistent reports when a query is duplicated using identical user-selected parameters, to include the specific timestamp of the query. System will be within 99% accuracy in replicating the report content. Data accuracy - The system shall generate forms and accurately populate them with authoritative source data with greater than 99% accuracy between the data auto-populated forms and the data contained within the system.</p> <p>MY NAVY PORTAL (MNP) Meet acquisition programs and system engineering and technical review milestones for development with no outstanding severity 1-3 defects for production release. The portal will manage at least 15,000 current actions per hour. MNP will manage over 1,100,000 users registrations.</p> <p>NAVY MANPOWER REQUIREMENTS SYSTEM (NMRS) Security- No identified / open findings without documentation of implemented mitigations and a remediation plan. No residual CAT I findings, or risk aggregation to CAT I. Concurrent Users - A minimum of 35 concurrent users without degradation of system performance. Transactions - 98% of transactions completed successfully System Reliability - Edit failures transmitted data that are not detected automatically and require field level manual intervention to correct in less than 2% of all transactions. System Availability - Available 95% of the time. Reporting - System must generate, populate, and display simple reports within ten seconds and complex reports within two minutes. Queries - System must have the ability to execute simple queries within ten seconds and complex queries within fifteen seconds. Screen Refresh - System shall have the ability to perform a screen refresh invoked by the user within fifteen seconds of submission. Navigation - System shall have the ability to navigate between hierarchy levels while utilizing the map within ten seconds of each instance of level change.</p> <p>RISK MANAGEMENT INITIATIVE (RMI) Safety Incident Reporting Functionality - The system shall provide the ability to utilize RMI mishap, near mishap, and hazard initial notification, report drafting, report submission, report endorsement, and mishap recommendation / action item response and tracking functionality for at least 95% of Navy and Marine Corps operational ground forces, shore commands, surface forces, aviation forces, and submarine forces Incident Data Capture - The system shall capture safety incident report data 100% of the time. Security - The system shall protect flagged Safety Privilege, Personally Identifiable Information (PII), and Protected Health Information (PHI), and allow only role-based access in accordance with law, regulation and policy (LRP) instructions. 100% of flagged Safety Privilege, PII, and PHI data shall be protected from unauthorized roles and tacit export.</p>		

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 2905. / <i>BUPERS IT</i>
<p>Registered Users - The system shall support user account access for Navy and Marine Corps members and safety support users for all safety user types = (administrative, power, occasional, and infrequent) Concurrent Active Users - The system shall have sufficient capacity to support concurrent active users or greater than 20% of all safety users. Response Time - Data requests/queries, reports, building of custom views, etc. shall not significantly impact transaction processing time. All items will be processed within 1 second or less for 90% of requests and 3 seconds or less for 10% of single record requests.</p> <p>AUTHORITATIVE DATA ENVIRONMENT (ADE) The system shall provide an audit trail for all system transactions. The system shall transfer data payloads of up to 1 megabyte (MB) among services. The system shall transfer data transactions of up to 1 MB among applications. The system shall allow any authorized application or system to insert data. The system shall provide CAC-enabled login for identity management.</p> <p>APPLICANT RELATIONSHIP MANAGEMENT (ARM) The system shall have the ability to perform simple queries and present data to the user within five seconds upon submission. ARM shall have no architectural limitations that would preclude a minimum of 5,000 concurrent users. The system response time will support an experienced classifier making at least ten classifications per hour. The ARM system shall auto save information entered by a recruiter while the information is being entered without degradation of system responsiveness. (U) 2905 PERSTEMPO: Meet program system engineering and technical review milestones for development with no outstanding severity 1-3 defects for production release.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
1319 / 5				PE 0605013N / Information Technology Development				2905. / BUPERS IT							
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
BBD Phase 1b/1c Increments 1 & 2 Design, Development, Test & Deployment	C/CPFF	SSC, INC : New Orleans, LA	7.030	1.583	Jan 2015	0.975	Dec 2015	2.140	Dec 2016	-		2.140	Continuing	Continuing	Continuing
LMS-DL People COP Phase I - Licenses & System Integrator	C/CPFF	TBD : Pensacola, FL	1.735	0.066	Feb 2015	0.000		2.250	Jan 2017	-		2.250	0.000	4.051	1.801
MNP Phase 2A/B/C Design, Development, Test & Deployment	C/CPFF	eScience : Arlington, VA	4.600	1.901	Mar 2015	1.750	Nov 2015	4.350	Nov 2016	-		4.350	Continuing	Continuing	Continuing
TFMMS Design, Development, Test & Deployment (2 Increments)	C/CPFF	A3IS : Palm Coast, FL	1.471	3.781	Mar 2015	1.200	Feb 2016	0.000		-		0.000	Continuing	Continuing	Continuing
PRIDE MOD II Design, Development, Test & Deployment	C/CPFF	CGI, Fed : Washington, DC	0.000	2.185	Jan 2015	0.000		0.000		-		0.000	0.000	2.185	1.370
AOA EA Design, Development, Test & Deployment	C/CPFF	TBD : New Orleans, LA	0.454	0.538	Mar 2015	0.000		0.800	Mar 2017	-		0.800	Continuing	Continuing	Continuing
NSIPS PERSMOD Deferred SCRs Design, Development, Test & Deployment	C/CPFF	SRA (CSC) : Washington, DC	8.537	0.000		1.449	Jan 2016	2.026	Jan 2017	-		2.026	Continuing	Continuing	Continuing
NMRS Design, Development, Test & Deployment	C/CPFF	TBD : New Orleans, LA	0.000	0.000		0.000		3.378	Feb 2017	-		3.378	Continuing	Continuing	Continuing
RMI SIR/SPOE/SPM/A&D Design, Development, Test & Deployment	C/CPFF	Syneren : Arlington, VA	2.202	1.728	Jun 2015	2.033	Jun 2016	2.762	Jun 2017	-		2.762	Continuing	Continuing	Continuing
ADE - BI / Visualization / Analytics Products	C/CPFF	TBD : Washington, D.C.	0.000	0.000		0.000		2.000	Mar 2017	-		2.000	Continuing	Continuing	Continuing
ADE - System Integration	C/CPFF	TBD : Washington, D.C.	0.000	0.000		0.000		1.200	Mar 2017	-		1.200	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 2905. / <i>BUPERS IT</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ARM Phase 1-3 Design, Development, Test & Deployment	C/CPFF	TBD : Orlando, FL	0.000	0.000		2.221	Dec 2015	3.335	Dec 2016	-		3.335	0.000	5.556	2.221
PERSTEMPO System Design, Engineering, and Development	C/CPFF	FLC Philadelphia : Philadelphia, PA	0.000	0.000	Mar 2015	0.811	Sep 2016	0.000		-		0.000	0.000	0.811	-
Recruiting Information System (NRIS)	C/CPFF	CGI Federal, Inc : Fairfax, VA	0.000	0.000		0.500	Oct 2015	0.000		-		0.000	0.000	0.500	-
Subtotal			26.029	11.782		10.939		24.241		-		24.241	-	-	-

Remarks

PMW 240 programs are all either abbreviated acquisition programs or non-designated projects and do not require Independent Operational Test Evaluation (IOTE). Testing is performed in accordance with approved test plans by the business owners.

BBD: Complete critical design review and development & test readiness for Phase 1c.

LMS-DL: Conduct Learning Continuum Phase I LMS Pilot to integrate the LMS with virtual classroom technology, Learning Assessment System, CeTARS, and the electronic training jacket in NTMPS. The Learning Continuum Phase I LMS Pilot will also evaluate technical options for adding Resume Capture for new training media that requires student tracking (e.g. mobile applications, videos & simulations).

MNP: FY 17 funding will be used to continue to accelerate and broaden the development of Career Life Events capabilities in My Navy Portal for Sailors to manage their career based on the Chief of Navy Personnel's Sailor 2025 initiatives.

NSIPS: FY17 funding continues the implementation of this strategy in completing deferred software changes related to retirements, separations, selection board preparation, personnel appraisal, and personnel accountability that require development and modernization.

AoA: Development of AoA volumes for emerging Sailor 2025, cloud services transition, and supply chain analytics

NMRS: FY17 funding will kick off NMRS modernization effort, focusing primarily on requirements analysis.

RMI: Complete contract award, design, systems requirement reviews, and preliminary design reviews for Safety Program Management (SPM).

ADE: FY17 funds will be used for Design, Configuration, Integration, Testing, Deployment of Supply Chain Management & Ad Hoc MPTE Analytic, Visualization and Information Services

ARM: FY17 funds Phase II Self Service Accessions Application (SSAA) project to incorporate various functionalities, including capability for positive identification, paperless forms and data-only records, into mobile devices.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 2905. / <i>BUPERS IT</i>
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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
LMS-DL Application Host Environment	C/CPFF	TBD : Washington, D.C.	0.000	0.000		0.000		1.000	Jan 2017	-		1.000	0.000	1.000	-
LMS-DL Program Support	C/CPFF	TBD : TBD	0.000	0.000		0.000		0.500	Jan 2017	-		0.500	0.000	0.500	-
NSIPS Tri-Service License	C/CPFF	Oracle : Redwood City, CA	4.800	2.400	Dec 2014	2.423	Dec 2015	2.423	Dec 2016	-		2.423	Continuing	Continuing	Continuing
ADE Application Host Environment	C/CPFF	TBD : Washington, D.C.	0.000	0.000		0.000		1.000	Feb 2017	-		1.000	0.000	1.000	-
ADE Program Support	C/CPFF	TBD : TBD	0.000	0.000		0.000		0.500	Feb 2017	-		0.500	0.000	0.500	-
Subtotal			4.800	2.400		2.423		5.423		-		5.423	-	-	-

Remarks
 LMS-DL: Support costs for LMS-DL revolve around the hosting environment and program operational support for Learning Continuum Requirements.
 NSIPS: PMW 240 pays the Navy's share of the Tri-Service PeopleSoft license under an Army administered contract.
 ADE: Support costs for ADE revolve around the hosting environment and program operational support for Navy Total Force Human Resource data

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	30.829	14.182	13.362	29.664	-	29.664	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy

Date: February 2016

Appropriation/Budget Activity
1319 / 5

R-1 Program Element (Number/Name)
PE 0605013N / Information Technology
Development

Project (Number/Name)
2905. / BUPERS IT

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<i>Learning Management System - Distributed Learning (LMS-DL)</i>																												
LMS-DL Phase 2b Release 2 Production Readiness Review	■																											
LMS-DL Phase 2b Acceptance Testing	■	■	■																									
LMS-DL Phase 2b Release 3 Production Readiness Review		■	■	■																								
LMS-DL Phase 2b Production			■	■	■																							
LMS-DL Virtual Classroom Product Licenses										■	■																	
LMS-DL System Integrator Task Order Award										■	■																	
LMS-DL System Requirement Review / System Functional Review										■	■																	
LMS-DL Preliminary Design Review / Critical Design Review											■	■																
LMS-DL Application Test Readiness Review / PRR											■	■	■															
LMS-DL Pilot Evaluation											■	■	■	■														
LMS-DL Pilot Design Review											■	■																
LMS-DL Pilot Test Readiness Review and Pilot Operations											■	■	■	■	■													
LMS-DL Pilot Tech Assessment Report													■	■														
LMS-DL Career Profile Management Design												■	■	■														
LMS-DL Career Profile Management Preliminary Design Review													■	■														
LMS-DL Career Profile Management Development													■	■	■													

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 2905. / <i>BUPERS IT</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
LMS-DL Career Profile Management Critical Design Review														■														
LMS-DL Career Profile Management Testing														■														
LMS-DL Career Profile Management Production Readiness Review																												
LMS-DL Career Profile Management Deployment																												
LMS-DL Decentralized Learning Delivery & Management Design																												
LMS-DL Decentralized Learning Delivery & Management Preliminary Design Review																												
LMS-DL Decentralized Learning Delivery & Management Development																												
LMS-DL Decentralized Learning Delivery & Management Critical Design Review																												
LMS-DL Decentralized Learning Delivery & Management Testing																												
LMS-DL Decentralized Learning Delivery & Management Production Readiness Review																												
LMS-DL Decentralized Learning Delivery & Management Deployment																												
LMS-DL Advancement Changes Design																												
LMS-DL Advancement Changes Preliminary Design Review																												
LMS-DL Advancement Changes Development																												
LMS-DL Advancement Changes Critical Design Review																												
LMS-DL Advancement Changes Testing																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 2905. / <i>BUPERS IT</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
PRIDE MOD II Preliminary Design Review		■																										
PRIDE MOD II Critical Design Review		■																										
PRIDE MOD II Development and Operational Testing				■																								
PRIDE MOD II Application Test Readiness Review / Application Functional Testing			■																									
PRIDE MOD II Application System Integration Testing					■																							
PRIDE MOD II Deployment				■																								
<i>Analysis of Alternative Economic Analysis (AOA E.4)</i>																												
AOA EA Phase 1 - Personnel Accountability Processes	■	■	■	■																								
Personnel Manpower Analysis for Sailor 2025 Tool Kit										■	■	■	■	■	■													
AOA for MPT&E Cloud Services										■	■	■	■	■	■													
AOA EA - Personnel Accountability Process Supply Chain Analytics										■	■	■	■	■	■													
<i>MY NAVY PORTAL (MNP)</i>																												
MNP Phase 2B Development		■																										
MNP Phase 2B Critical Design Review				■																								
MNP Phase 2B Acceptance Testing					■																							
MNP Phase 2B Production						■																						
MNP Phase 2C System Requirement Review							■																					
MNP Phase 2C Preliminary Design Review								■																				
MNP Phase 2C Initial Development									■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
MNP Phase 2C Critical Design Review										■																		

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 2905. / <i>BUPERS IT</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
MNP Phase 2C Acceptance Testing																												
MNP Phase 2C Production																												
MNP Mobile Applications Updates																												
MNP Phase 2C Intermediate Development																												
MNP Develop & Integrate Identified CLE Portlets																												
MNP Finalize Platform for MNP Preferred Hosting Solution																												
MNP Phase 2C Final Development																												
MNP Gather Feedback & Incorporate																												
MNP Develop & Integrate Additional CLE Portlets																												
MNP Develop, Test & Release Portlets																												
MNP Develop, Test & Release Additional Portlets																												
BILLET BASED DISTRIBUTION (BBD)																												
BBD Phase 1b Developer Testing																												
BBD Phase 1b User Acceptance Testing																												
BBD Phase 1b Release Review Board/Production Rollout																												
BBD Phase 1c Increment 1 Detailed Requirements Analysis																												
BBD Phase 1c Increment 1 Preliminary Design Review																												
BBD Phase 1c Increment 1 Development																												
BBD Phase 1c Increment 1 Critical Design Review																												
BBD Phase 1c Increment 1 Application Test Readiness Review																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 2905. / <i>BUPERS IT</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
BBD Phase 1c Increment 1 User Acceptance Functional Testing									■	■	■	■																
BBD Phase 1c Increment 1 Production Readiness Review/Production Rollout													■	■	■	■												
BBD Phase 1c Increment 2 Detailed Requirements Analysis									■	■	■	■																
BBD Phase 1c Increment 2 Preliminary Design Review										■	■	■																
BBD Phase 1c Increment 2 Development									■	■	■	■	■	■	■	■												
BBD Phase 1c Increment 2 Critical Design Review															■	■												
BBD Phase 1c Increment 2 Application Test Readiness Review															■	■												
BBD Phase 1c Increment 2 User Acceptance Functional Testing															■	■	■	■	■	■								
BBD Phase 1c Increment 2 Production Readiness Review/Production Rollout																	■	■	■	■								
BBD Phase 1c Increment 3 Detailed Requirements Analysis																					■	■	■	■				
BBD Phase 1c Increment 3 Preliminary Design Review																						■	■	■				
BBD Phase 1c Increment 3 Development																					■	■	■	■				
BBD Phase 1c Increment 3 Critical Design Review																							■	■				
BBD Phase 1c Increment 3 Application Test Readiness Review																								■	■	■	■	■
BBD Phase 1c Increment 3 User Acceptance Functional Testing																									■	■	■	■

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 2905. / <i>BUPERS IT</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
NSIPS Critical Design Review - Iteration 3							■																					
NSIPS Application Test Readiness Review - Iteration 3							■																					
NSIPS Application Functional Testing / Application System Integration Testing - Iteration 3							■																					
NSIPS Full Deployment - Iteration 3								■																				
NSIPS - Acquisition Authority Decision Milestone B									■																			
NSIPS Contract Award for Deferred SW changes										■																		
NSIPS PERS MOD System Requirements Review/System Functional Review,											■																	
NSIPS PERS MOD Preliminary Design Review												■																
NSIPS PERS MOD Critical Design Review													■															
NSIPS PERS MOD Application Test Readiness Review														■														
NSIPS PERS MOD PRR															■													
NSIPS PERS MOD Deployment	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
NSIPS Design									■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
NSIPS Operational Testing															■	■	■	■	■	■	■	■	■	■	■	■	■	
NSIPS Full Deployment																■	■	■	■	■	■	■	■	■	■	■	■	
NSIPS Critical Design Review																	■	■	■	■	■	■	■	■	■	■	■	
NSIPS Application Test Readiness Review																		■	■	■	■	■	■	■	■	■	■	
NSIPS Production Readiness Review																			■	■	■	■	■	■	■	■	■	
NSIPS Deployment																					■	■	■	■	■	■	■	
NSIPS PIR																						■	■	■	■	■	■	
NSIPS Verify Benefits & Capture Savings																										■	■	

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 2905. / <i>BUPERS IT</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<i>Risk Management Initiative (RMI)</i>																												
RMI Streamlined Incident Reporting Critical Design Review				■																								
RMI Streamlined Incident Reporting Test Readiness Review					■																							
RMI Streamlined Incident Reporting Production Readiness Review						■																						
RMI Streamlined Incident Reporting Limited Deployment						■																						
RMI Streamlined Incident Reporting Full Deployment							■																					
RMI Safety Program Management Award								■																				
RMI Safety Program Management Design									■																			
RMI Safety Program Management System Requirements Review										■																		
RMI Safety Program Management Preliminary Design Review											■																	
RMI Safety Program Management Critical Design Review												■																
RMI Safety Program Management Acceptance Test Readiness Review													■															
RMI Safety Program Management Test Readiness Review														■														
RMI Safety Program Management Post Implementation Review															■													
RMI Safety Program Management Full Deployment																■												
RMI Analysis and Dissemination Phase I Award				■																								

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
RMI Analysis and Dissemination Phase I Design				■																								
RMI Analysis and Dissemination Phase I Preliminary Design Review						■																						
RMI Analysis and Dissemination Phase I Critical Design Review							■																					
RMI Analysis and Dissemination Phase I Acceptance Test Readiness Review							■																					
RMI Analysis and Dissemination Phase I Test Readiness Review									■																			
RMI Analysis and Dissemination Phase I Acceptance Post Implementation Review										■																		
RMI Analysis and Dissemination Phase I Full Deployment										■	■	■	■															
RMI Analysis and Dissemination Phase II Award									■																			
RMI Analysis and Dissemination Phase II Design								■																				
RMI Analysis and Dissemination Phase II Preliminary Design Review									■																			
RMI Analysis and Dissemination Phase II Critical Design Review											■	■	■															
RMI Analysis and Dissemination Phase II Acceptance Test Readiness Review												■																
RMI Analysis and Dissemination Phase II Test Readiness Review													■															
RMI Analysis and Dissemination Phase II Acceptance Post Implementation Review														■														
RMI Analysis and Dissemination Phase II Full Deployment															■													
<i>Authoritative Data Environment (ADE)</i>																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 2905. / <i>BUPERS IT</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
ADE Phase 1 Data Marts BI / Visualization / Analytics Products Contract Award									■																			
ADE Phase 1 Data Marts System Integrator Task Order Award									■																			
ADE Phase 1 Data Marts System Requirement Review / System Functional Review									■																			
ADE Phase 1 Data Marts Preliminary Design Review / Critical Design Review										■																		
ADE Phase 1 Data Marts Application Test Readiness Review / Production Readiness Review										■	■																	
ADE Phase 1 Data Marts Deployment											■	■																
ADE Phase 2 Enterprise Service Bus BI / Visualization / Analytics Products Contract Award													■	■														
ADE Phase 2 Enterprise Service Bus System Integrator Task Order Award													■															
ADE Phase 2 Enterprise Service Bus System Requirement Review / System Functional Review													■															
ADE Phase 2 Enterprise Service Bus Preliminary Design Review / Critical Design Review														■														
ADE Phase 2 Enterprise Service Bus Application Test Readiness Review / Production Readiness Review														■	■													
ADE Phase 2 Enterprise Service Bus Deployment															■	■												
ADE Phase 3 Reports Contract Award - Deployment																	■	■	■	■								
ADE Phase 4 Contract Award - Deployment																					■	■	■	■				
ADE Phase 5 Contract Award - Deployment																									■	■	■	■

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021											
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4								
<i>Applicant Relationship Management (ARM)</i>																																				
ARM Phase 1 Systems Requirements Review					■																															
ARM Phase 1 Design / Preliminary Design Review					■																															
ARM Phase 1 Development and Critical Design Review									■																											
ARM Phase 1 Operational Testing									■																											
ARM Phase 1 Production									■																											
ARM Phase 2 Systems Requirements Review									■																											
ARM Phase 2 Design / Preliminary Design Review									■																											
ARM Phase 2 Development and Critical Design Review													■																							
ARM Phase 2 Operational Testing													■																							
ARM Phase 2 Production													■																							
ARM Phase 3 Systems Requirements Review													■																							
ARM Phase 3 Design / Preliminary Design Review													■																							
ARM Phase 3 Development and Critical Design Review																	■																			
ARM Phase 3 Operational Testing													■																							
ARM Phase 3 Production																	■																			
<i>Navy Manpower Requirements System (NMRS)</i>																																				
NMRS Contract Award / Project Kick-Off									■																											
NMRS Requirements Analysis									■																											
NMRS Preliminary Design Review									■																											
NMRS Development													■																							
NMRS Critical Design Review													■																							
NMRS Acceptance Testing																	■																			

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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
NMRS Operational Testing																												
NMRS Deployment																												

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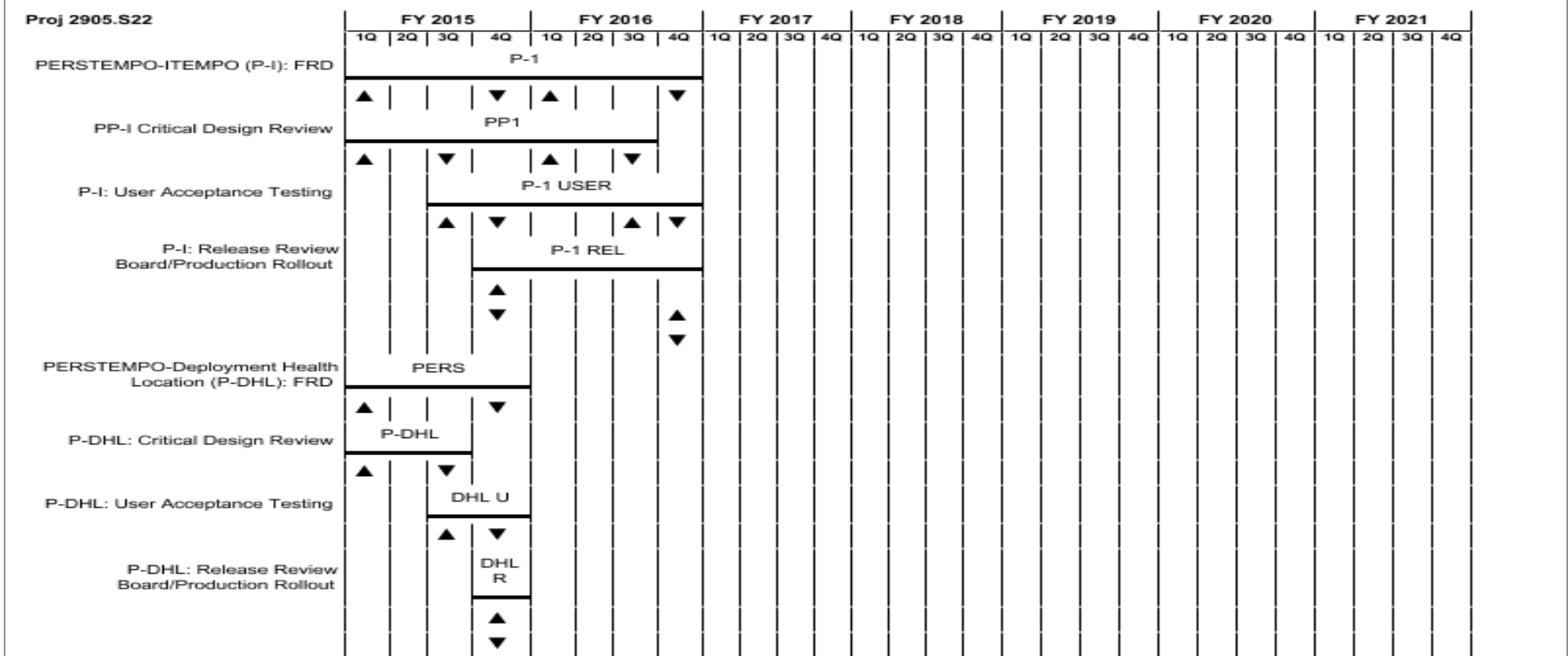
Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy

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Appropriation/Budget Activity
1319 / 5

R-1 Program Element (Number/Name)
PE 0605013N / *Information Technology Development*

Project (Number/Name)
2905. / *BUPERS IT*



2017DON - 0605013N - 2905.S22 Up=Demonstration; Down=Prototype & Documentation

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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2905.L39				
Learning Management System - Distributed Learning (LMS-DL): LMS-DL Phase 2b Release 2 Production Readiness Review	1	2015	1	2015
Learning Management System - Distributed Learning (LMS-DL): LMS-DL Phase 2b Acceptance Testing	1	2015	2	2015
Learning Management System - Distributed Learning (LMS-DL): LMS-DL Phase 2b Release 3 Production Readiness Review	2	2015	3	2015
Learning Management System - Distributed Learning (LMS-DL): LMS-DL Phase 2b Production	3	2015	4	2015
Learning Management System - Distributed Learning (LMS-DL): LMS-DL Virtual Classroom Product Licenses	2	2017	2	2017
Learning Management System - Distributed Learning (LMS-DL): LMS-DL System Integrator Task Order Award	2	2017	2	2017
Learning Management System - Distributed Learning (LMS-DL): LMS-DL System Requirement Review / System Functional Review	2	2017	2	2017
Learning Management System - Distributed Learning (LMS-DL): LMS-DL Preliminary Design Review / Critical Design Review	3	2017	3	2017
Learning Management System - Distributed Learning (LMS-DL): LMS-DL Application Test Readiness Review / PRR	3	2017	4	2017
Learning Management System - Distributed Learning (LMS-DL): LMS-DL Pilot Evaluation	4	2017	2	2018
Learning Management System - Distributed Learning (LMS-DL): LMS-DL Pilot Design Review	3	2017	3	2017
Learning Management System - Distributed Learning (LMS-DL): LMS-DL Pilot Test Readiness Review and Pilot Operations	3	2017	2	2018

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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Learning Management System - Distributed Learning (LMS-DL): LMS-DL Pilot Tech Assessment Report	2	2018	2	2018
Learning Management System - Distributed Learning (LMS-DL): LMS-DL Career Profile Management Design	1	2018	2	2018
Learning Management System - Distributed Learning (LMS-DL): LMS-DL Career Profile Management Preliminary Design Review	2	2018	2	2018
Learning Management System - Distributed Learning (LMS-DL): LMS-DL Career Profile Management Development	2	2018	3	2018
Learning Management System - Distributed Learning (LMS-DL): LMS-DL Career Profile Management Critical Design Review	3	2018	3	2018
Learning Management System - Distributed Learning (LMS-DL): LMS-DL Career Profile Management Testing	3	2018	3	2018
Learning Management System - Distributed Learning (LMS-DL): LMS-DL Career Profile Management Production Readiness Review	4	2018	4	2018
Learning Management System - Distributed Learning (LMS-DL): LMS-DL Career Profile Management Deployment	4	2018	4	2018
Learning Management System - Distributed Learning (LMS-DL): LMS-DL Decentralized Learning Delivery & Management Design	1	2019	2	2019
Learning Management System - Distributed Learning (LMS-DL): LMS-DL Decentralized Learning Delivery & Management Preliminary Design Review	2	2019	2	2019
Learning Management System - Distributed Learning (LMS-DL): LMS-DL Decentralized Learning Delivery & Management Development	2	2019	3	2019
Learning Management System - Distributed Learning (LMS-DL): LMS-DL Decentralized Learning Delivery & Management Critical Design Review	3	2019	3	2019
Learning Management System - Distributed Learning (LMS-DL): LMS-DL Decentralized Learning Delivery & Management Testing	3	2019	3	2019
Learning Management System - Distributed Learning (LMS-DL): LMS-DL Decentralized Learning Delivery & Management Production Readiness Review	4	2019	4	2019

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy			Date: February 2016	
Appropriation/Budget Activity	R-1 Program Element (Number/Name)		Project (Number/Name)	
1319 / 5	PE 0605013N / Information Technology Development		2905. / BUPERS IT	
Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Learning Management System - Distributed Learning (LMS-DL): LMS-DL Decentralized Learning Delivery & Management Deployment	4	2019	4	2019
Learning Management System - Distributed Learning (LMS-DL): LMS-DL Advancement Changes Design	1	2020	2	2020
Learning Management System - Distributed Learning (LMS-DL): LMS-DL Advancement Changes Preliminary Design Review	2	2020	2	2020
Learning Management System - Distributed Learning (LMS-DL): LMS-DL Advancement Changes Development	2	2020	3	2020
Learning Management System - Distributed Learning (LMS-DL): LMS-DL Advancement Changes Critical Design Review	3	2020	3	2020
Learning Management System - Distributed Learning (LMS-DL): LMS-DL Advancement Changes Testing	3	2020	3	2020
Learning Management System - Distributed Learning (LMS-DL): LMS-DL Advancement Changes Production Readiness Review	4	2020	4	2020
Learning Management System - Distributed Learning (LMS-DL): LMS-DL Advancement Changes Deployment	4	2020	4	2020
Learning Management System - Distributed Learning (LMS-DL): FY21	1	2021	4	2021
Total Force Manpower Management System (TFMMS)				
TFMMS System Requirement Review / System Functional Review	1	2015	1	2015
TFMMS Iteration 1 Design	1	2015	2	2015
TFMMS Iteration 1 Preliminary Design Review	2	2015	2	2015
TFMMS Iteration 1 Development	2	2015	4	2015
TFMMS Iteration 1 Critical Design Review	4	2015	4	2015
TFMMS Iteration 1 Testing	4	2015	4	2015
TFMMS Iteration 1 Production Readiness Review	4	2015	4	2015
TFMMS Iteration 1 Deployment	4	2015	4	2015
TFMMS Iteration 2 Design	1	2015	2	2015

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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
TFMMS Iteration 2 Preliminary Design Review	4	2015	4	2015
TFMMS Iteration 2 Development	4	2015	3	2016
TFMMS Iteration 2 Critical Design Review	3	2016	3	2016
TFMMS Iteration 2 Testing	4	2016	4	2016
TFMMS Iteration 2 Production Readiness Review	4	2016	4	2016
TFMMS Iteration 2 Deployment	4	2016	4	2016
<i>Personalized Recruiting for Immediate and Delayed Enlistment Modernization II (PRIDE Mod II)</i>				
PRIDE MOD II Award	1	2015	1	2015
PRIDE MOD II Systems Requirements Review	1	2015	1	2015
PRIDE MOD II Preliminary Design Review	2	2015	2	2015
PRIDE MOD II Critical Design Review	2	2015	2	2015
PRIDE MOD II Development and Operational Testing	3	2015	3	2015
PRIDE MOD II Application Test Readiness Review / Application Functional Testing	3	2015	3	2015
PRIDE MOD II Application System Integration Testing	4	2015	4	2015
PRIDE MOD II Deployment	4	2015	4	2015
<i>Analysis of Alternative Economic Analysis (AOA EA)</i>				
AOA EA Phase 1 - Personnel Accountability Processes	1	2015	4	2015
Personnel Manpower Analysis for Sailor 2025 Tool Kit	1	2017	1	2019
AOA for MPT&E Cloud Services	1	2017	4	2018
AOA EA - Personnel Accountability Process Supply Chain Analytics	1	2017	4	2018
<i>MY NAVY PORTAL (MNP)</i>				
MNP Phase 2B Development	2	2015	2	2015
MNP Phase 2B Critical Design Review	4	2015	4	2015
MNP Phase 2B Acceptance Testing	1	2016	1	2016
MNP Phase 2B Production	2	2016	2	2016

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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
MNP Phase 2C System Requirement Review	2	2016	2	2016
MNP Phase 2C Preliminary Design Review	3	2016	3	2016
MNP Phase 2C Initial Development	3	2016	2	2019
MNP Phase 2C Critical Design Review	3	2016	3	2016
MNP Phase 2C Acceptance Testing	2	2019	4	2019
MNP Phase 2C Production	4	2019	4	2021
MNP Mobile Applications Updates	1	2017	4	2017
MNP Phase 2C Intermediate Development	2	2017	3	2018
MNP Develop & Integrate Identified CLE Portlets	2	2017	4	2017
MNP Finalize Platform for MNP Preferred Hosting Solution	2	2017	3	2017
MNP Phase 2C Final Development	3	2018	4	2019
MNP Gather Feedback & Incorporate	3	2017	2	2018
MNP Develop & Integrate Additional CLE Portlets	3	2018	4	2019
MNP Develop, Test & Release Portlets	4	2019	4	2020
MNP Develop, Test & Release Additional Portlets	4	2020	4	2021
<i>BILLET BASED DISTRIBUTION (BBD)</i>				
BBD Phase 1b Developer Testing	1	2015	2	2015
BBD Phase 1b User Acceptance Testing	3	2015	4	2015
BBD Phase 1b Release Review Board/Production Rollout	3	2015	4	2015
BBD Phase 1c Increment 1 Detailed Requirements Analysis	1	2016	1	2016
BBD Phase 1c Increment 1 Preliminary Design Review	2	2016	2	2016
BBD Phase 1c Increment 1 Development	2	2016	4	2016
BBD Phase 1c Increment 1 Critical Design Review	4	2016	4	2016
BBD Phase 1c Increment 1 Application Test Readiness Review	3	2017	2	2018
BBD Phase 1c Increment 1 User Acceptance Functional Testing	1	2017	2	2017

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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
BBD Phase 1c Increment 1 Production Readiness Review/Production Rollout	2	2018	2	2018
BBD Phase 1c Increment 2 Detailed Requirements Analysis	1	2017	1	2017
BBD Phase 1c Increment 2 Preliminary Design Review	2	2017	2	2017
BBD Phase 1c Increment 2 Development	2	2017	4	2018
BBD Phase 1c Increment 2 Critical Design Review	4	2018	4	2018
BBD Phase 1c Increment 2 Application Test Readiness Review	1	2019	1	2019
BBD Phase 1c Increment 2 User Acceptance Functional Testing	1	2019	2	2019
BBD Phase 1c Increment 2 Production Readiness Review/Production Rollout	3	2019	4	2019
BBD Phase 1c Increment 3 Detailed Requirements Analysis	1	2020	1	2020
BBD Phase 1c Increment 3 Preliminary Design Review	2	2020	2	2020
BBD Phase 1c Increment 3 Development	2	2020	4	2020
BBD Phase 1c Increment 3 Critical Design Review	4	2020	4	2020
BBD Phase 1c Increment 3 Application Test Readiness Review	1	2021	1	2021
BBD Phase 1c Increment 3 User Acceptance Functional Testing	1	2021	2	2021
BBD Phase 1c Increment 3 Production Readiness Review/Production Rollout	3	2021	4	2021
NAVY STANDARD INTEGRATED PERSONNEL SYSTEM (NSIPS)				
NSIPS Completed Requirements Analysis of Retirements & Separations (R&S)	2	2015	2	2015
NSIPS Completed Fit / GAP Analysis of R & S Functional Requirements to Peoplesoft 9.2	2	2015	3	2015
NSIPS Completed System Requirements / Functional Review	3	2015	3	2015
NSIPS Critical Design Review - Iteration 1	4	2015	4	2015
NSIPS Application Test Readiness Review - Iteration 1	1	2016	1	2016
NSIPS Tri-Service License Renewal FY16	1	2016	1	2016
NSIPS Task Order Award for Deferred Software Changes	2	2016	2	2016
NSIPS Application Functional Testing / Application System Integration Testing - Iteration 1	1	2016	2	2016

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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
NSIPS Full Deployment - Iteration 1	2	2016	2	2016
NSIPS Critical Design Review - Iteration 2	2	2016	2	2016
NSIPS Application Test Readiness Review - Iteration 2	2	2016	2	2016
NSIPS Application Functional Testing / Application System Integration Testing - Iteration 2	2	2016	3	2016
NSIPS Tri-Service License Renewal FY17	1	2017	1	2017
NSIPS Full Deployment - Iteration 2	3	2016	3	2016
NSIPS Critical Design Review - Iteration 3	3	2016	3	2016
NSIPS Application Test Readiness Review - Iteration 3	3	2016	3	2016
NSIPS Application Functional Testing / Application System Integration Testing - Iteration 3	3	2016	3	2016
NSIPS Full Deployment - Iteration 3	4	2016	4	2016
NSIPS - Acquisition Authority Decision Milestone B	1	2017	1	2017
NSIPS Contract Award for Deferred SW changes	2	2017	2	2017
NSIPS PERS MOD System Requirements Review/System Functional Review,	3	2017	3	2017
NSIPS PERS MOD Preliminary Design Review	4	2017	1	2018
NSIPS PERS MOD Critical Design Review	2	2018	2	2018
NSIPS PERS MOD Application Test Readiness Review	3	2018	3	2018
NSIPS PERS MOD PRR	4	2018	1	2019
NSIPS PERS MOD Deployment	1	2015	4	2018
NSIPS Design	2	2017	1	2018
NSIPS Operational Testing	1	2018	1	2018
NSIPS Full Deployment	2	2018	2	2018
NSIPS Critical Design Review	3	2018	4	2018
NSIPS Application Test Readiness Review	4	2018	1	2019
NSIPS Production Readiness Review	1	2019	2	2019

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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
NSIPS Deployment	2	2019	2	2019
NSIPS PIR	2	2019	2	2020
NSIPS Verify Benefits & Capture Savings	3	2020	3	2021
<i>Risk Management Initiative (RMI)</i>				
RMI Streamlined Incident Reporting Critical Design Review	4	2015	4	2015
RMI Streamlined Incident Reporting Test Readiness Review	1	2016	1	2016
RMI Streamlined Incident Reporting Production Readiness Review	2	2016	2	2016
RMI Streamlined Incident Reporting Limited Deployment	2	2016	2	2016
RMI Streamlined Incident Reporting Full Deployment	4	2016	4	2016
RMI Safety Program Management Award	1	2017	1	2017
RMI Safety Program Management Design	2	2017	2	2017
RMI Safety Program Management System Requirements Review	4	2017	4	2017
RMI Safety Program Management Preliminary Design Review	3	2017	3	2017
RMI Safety Program Management Critical Design Review	4	2017	4	2017
RMI Safety Program Management Acceptance Test Readiness Review	2	2018	2	2018
RMI Safety Program Management Test Readiness Review	4	2018	4	2018
RMI Safety Program Management Post Implementation Review	1	2019	1	2019
RMI Safety Program Management Full Deployment	1	2019	1	2019
RMI Analysis and Dissemination Phase I Award	4	2015	4	2015
RMI Analysis and Dissemination Phase I Design	1	2016	1	2016
RMI Analysis and Dissemination Phase I Preliminary Design Review	2	2016	2	2016
RMI Analysis and Dissemination Phase I Critical Design Review	3	2016	3	2016
RMI Analysis and Dissemination Phase I Acceptance Test Readiness Review	3	2016	3	2016
RMI Analysis and Dissemination Phase I Test Readiness Review	1	2017	1	2017
RMI Analysis and Dissemination Phase I Acceptance Post Implementation Review	2	2017	2	2017

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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
RMI Analysis and Dissemination Phase I Full Deployment	2	2017	1	2018
RMI Analysis and Dissemination Phase II Award	1	2017	1	2017
RMI Analysis and Dissemination Phase II Design	1	2017	1	2017
RMI Analysis and Dissemination Phase II Preliminary Design Review	2	2017	2	2017
RMI Analysis and Dissemination Phase II Critical Design Review	4	2017	1	2018
RMI Analysis and Dissemination Phase II Acceptance Test Readiness Review	1	2018	1	2018
RMI Analysis and Dissemination Phase II Test Readiness Review	3	2018	3	2018
RMI Analysis and Dissemination Phase II Acceptance Post Implementation Review	4	2018	4	2018
RMI Analysis and Dissemination Phase II Full Deployment	4	2018	4	2018
Authoritative Data Environment (ADE)				
ADE Phase 1 Data Marts BI / Visualization / Analytics Products Contract Award	2	2017	2	2017
ADE Phase 1 Data Marts System Integrator Task Order Award	2	2017	2	2017
ADE Phase 1 Data Marts System Requirement Review / System Functional Review	2	2017	2	2017
ADE Phase 1 Data Marts Preliminary Design Review / Critical Design Review	3	2017	3	2017
ADE Phase 1 Data Marts Application Test Readiness Review / Production Readiness Review	3	2017	4	2017
ADE Phase 1 Data Marts Deployment	4	2017	1	2018
ADE Phase 2 Enterprise Service Bus BI / Visualization / Analytics Products Contract Award	1	2018	2	2018
ADE Phase 2 Enterprise Service Bus System Integrator Task Order Award	2	2018	2	2018
ADE Phase 2 Enterprise Service Bus System Requirement Review / System Functional Review	2	2018	2	2018
ADE Phase 2 Enterprise Service Bus Preliminary Design Review / Critical Design Review	3	2018	3	2018
ADE Phase 2 Enterprise Service Bus Application Test Readiness Review / Production Readiness Review	3	2018	4	2018
ADE Phase 2 Enterprise Service Bus Deployment	4	2018	4	2018

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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
ADE Phase 3 Reports Contract Award - Deployment	1	2019	4	2019
ADE Phase 4 Contract Award - Deployment	1	2020	4	2020
ADE Phase 5 Contract Award - Deployment	1	2021	4	2021
<i>Applicant Relationship Management (ARM)</i>				
ARM Phase 1 Systems Requirements Review	1	2016	1	2016
ARM Phase 1 Design / Preliminary Design Review	2	2016	2	2016
ARM Phase 1 Development and Critical Design Review	3	2016	3	2016
ARM Phase 1 Operational Testing	3	2016	4	2016
ARM Phase 1 Production	4	2016	4	2016
ARM Phase 2 Systems Requirements Review	1	2017	1	2017
ARM Phase 2 Design / Preliminary Design Review	2	2017	2	2017
ARM Phase 2 Development and Critical Design Review	3	2017	3	2017
ARM Phase 2 Operational Testing	3	2017	2	2018
ARM Phase 2 Production	4	2017	2	2018
ARM Phase 3 Systems Requirements Review	1	2018	1	2018
ARM Phase 3 Design / Preliminary Design Review	2	2018	2	2018
ARM Phase 3 Development and Critical Design Review	3	2018	3	2018
ARM Phase 3 Operational Testing	3	2018	4	2018
ARM Phase 3 Production	4	2018	4	2018
<i>Navy Manpower Requirements System (NMRS)</i>				
NMRS Contract Award / Project Kick-Off	2	2017	2	2017
NMRS Requirements Analysis	2	2017	2	2017
NMRS Preliminary Design Review	3	2017	3	2017
NMRS Development	1	2018	4	2018
NMRS Critical Design Review	2	2018	2	2019

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
NMRS Acceptance Testing	3	2018	3	2018
NMRS Operational Testing	4	2018	4	2018
NMRS Deployment	1	2019	4	2019
PERSTEMPO-ITEMPO (P-I): FRD: PERSTEMPO-ITEMPO (P-I): FRD	1	2015	4	2016
PERSTEMPO-ITEMPO (P-I): FRD: PERS 1	1	2015	1	2015
PERSTEMPO-ITEMPO (P-I): FRD: PERS 2	4	2015	4	2015
PERSTEMPO-ITEMPO (P-I): FRD: PERS 3	1	2016	1	2016
PERSTEMPO-ITEMPO (P-I): FRD: PERS4	4	2016	4	2016
PP-I Critical Design Review: PP-I Critical Design Review	1	2015	3	2016
PP-I Critical Design Review: PP1 Crit 1	1	2015	1	2015
PP-I Critical Design Review: PP1 Crit 2	3	2015	3	2015
PP-I Critical Design Review: PP1 Crit 3	1	2016	1	2016
PP-I Critical Design Review: PP1 Crit 4	3	2016	3	2016
P-I: User Acceptance Testing: P-I: User Acceptance Testing	3	2015	4	2016
P-I: User Acceptance Testing: P-1 User 1	3	2015	3	2015
P-I: User Acceptance Testing: P-1 User 2	4	2015	4	2015
P-I: User Acceptance Testing: P-1 User 3	3	2016	3	2016
P-I: User Acceptance Testing: P-1 User 4	4	2016	4	2016
P-I: Release Review Board/Production Rollout: P-I: Release Review Board/Production Rollout	4	2015	4	2016
P-I: Release Review Board/Production Rollout: P-1 Rel 1	4	2015	4	2015
P-I: Release Review Board/Production Rollout: P-1 Rel 2	4	2015	4	2015
P-I: Release Review Board/Production Rollout: P-1 Rel 3	4	2016	4	2016
P-I: Release Review Board/Production Rollout: P-1 Rel 4	4	2016	4	2016
PERSTEMPO-Deployment Health Location (P-DHL): FRD: PERSTEMPO-Deployment Health Location (P-DHL): FRD	1	2015	4	2015

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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
PERSTEMPO-Deployment Health Location (P-DHL): FRD: Pers 1	1	2015	1	2015
PERSTEMPO-Deployment Health Location (P-DHL): FRD: Pers 2	4	2015	4	2015
P-DHL: Critical Design Review: P-DHL: Critical Design Review	1	2015	3	2015
P-DHL: Critical Design Review: P-DHL 1	1	2015	1	2015
P-DHL: Critical Design Review: P-DHL 2	3	2015	3	2015
P-DHL: User Acceptance Testing: P-DHL: User Acceptance Testing	3	2015	4	2015
P-DHL: User Acceptance Testing: DHL U 1	3	2015	3	2015
P-DHL: User Acceptance Testing: DHL U 2	4	2015	4	2015
P-DHL: Release Review Board/Production Rollout: P-DHL: Release Review Board/ Production Rollout	4	2015	4	2015
P-DHL: Release Review Board/Production Rollout: DHL R 1	4	2015	4	2015
P-DHL: Release Review Board/Production Rollout: DHL R 2	4	2015	4	2015

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>					Project (Number/Name) 3167 / <i>Joint Technical Data Integration (JTDI)</i>		
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3167: <i>Joint Technical Data Integration (JTDI)</i>	21.348	2.774	8.122	5.514	-	5.514	4.619	3.906	3.987	4.069	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Joint Technical Data Integration (JTDI) Program - JTDI funding supports the evaluation, testing and integration to develop a JTDI Commercial Off-The-Shelf (COTS) solution for installation on Carrier and Amphibious Assault class ships and up to 104 Navy/Marine Corp aviation activities. JTDI is a digital technical data access, delivery and local Organizational & Intermediate level library management toolset and telemaintenance collaboration process enabler. It improves accuracy and timeliness of technical manual and other technical data delivery and minimizes the Fleet's library management burden. JTDI reduces maintenance work hours with a savings Return on Investment of 2.5:1. It facilitates the transition of the Joint Distance Support and Response Advanced Concept Technology Demonstration for telemaintenance and provides for process efficiencies to support ongoing Aviation Fleet Technical Representative reductions.

Marine Aviation Logistics Enterprise Information Technology (MAL-EIT) - MAL-EIT funding supports the evaluation, development, testing and integration of software and hardware solutions across all US Marine Corps Aviation activities to be used in the planning and execution of geographically distributed, expeditionary Aviation Logistics (AVLOG) chains in support of deployed USMC Air Combat Element operations. The MAL-EIT Program is one of four programs contained within the Marine Aviation Logistics Support Program (MALSP) modernization program known as MALSP II. Legacy MALSP is nearly 25 years old and grossly inadequate in IT capability to meet the informational, planning, and C2 needs of a dynamic, geographically distributed nodal AVLOG system. MAL-EIT is a Defense Business System Abbreviated Acquisition Program that will develop and deliver the required IT capability necessary to eliminate the IT related gaps existing in the legacy MALSP. MAL-EIT is a family of IT solutions to be developed and delivered in three increments. These increments are depicted below:

Increment 1. Expeditionary Pack Up Kit (EPUK): Provides Expeditionary Supply Operations to include business administration, inventory, and customer service operations.

Increment 2. Next Generation Buffer Management System: Provides buffer management in a time domain, and buffer sizing analysis.

Increment 3. Logistics Planning Tool and Optimizer Tool: Provides capability to develop tailored Remote Expeditionary Support Packages, consumption forecasts, and Nodal Logistics Lay down designs.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Joint Technical Data Integration (JTDI)	1.650	1.502	1.343	0.000	1.343
Articles:	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 3167 / <i>Joint Technical Data Integration (JTDI)</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p><i>FY 2015 Accomplishments:</i> Conducted development efforts associated with a major release of fully deployed commercial off the shelf (COTS) intensive Joint Technical Data Integration (JTDI) system. Conducted COTS requirements definition, evaluation, integration, and testing of annual baseline releases. Conducted technology insertion of the JTDI system.</p> <p><i>FY 2016 Plans:</i> Conduct development efforts associated with a major release of fully deployed commercial off the shelf (COTS) intensive Joint Technical Data Integration (JTDI) system. Conduct COTS requirements definition, evaluation, integration, and testing of annual baseline releases. Conduct technology insertion of the JTDI system.</p> <p><i>FY 2017 Base Plans:</i> Conduct development efforts associated with a major release of fully deployed COTS intensive JTDI system. Conduct COTS requirements definition, evaluation, integration, and testing of annual baseline releases. Conduct technology insertion of the JTDI system.</p> <p><i>FY 2017 OCO Plans:</i> N/A</p>					
<p><i>Title:</i> Marine Aviation Logistics Enterprise Support Program (MALSP II) / Expeditionary Pack Up Kits (EPUK)</p> <p align="right"><i>Articles:</i></p> <p><i>FY 2015 Accomplishments:</i> Completed procurement, delivery and deployment of EPUK suites to USMC forces. Completed software development of NGBMS. Began delivery and deployment of NGBMS to USMC forces. Awarded contract for Increment 3 commercial off the shelf/government off the shelf and development solution. Conducted test and evaluation of hardware requirements and network connectivity via satellite communication prior to deployment to the fleet based on yearly release/maintenance cycle.</p> <p><i>FY 2016 Plans:</i> Begin software development of Increment 3 solution. Conduct test and evaluation of hardware requirements and network connectivity via satellite communication prior to deployment to the fleet based on a yearly release/maintenance cycle.</p> <p><i>FY 2017 Base Plans:</i></p>	1.124 -	6.620 -	4.171 -	0.000 -	4.171 -

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 3167 / <i>Joint Technical Data Integration (JTDI)</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Continue software development/prototyping and test and evaluation of Increment 3 solution for deployment to the Fleet in FY18. <i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	2.774	8.122	5.514	0.000	5.514

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• OPN/4268/JTDI: <i>Joint Technical Data Integration (JTDI) Other Aviation Support Equipment</i>	1.193	0.859	0.784	-	0.784	2.275	2.326	2.359	2.399	Continuing	Continuing
• OPN/4268/MALSP II: <i>Marine Aviation Logistics Support Program (MALSP II) Aviation Support</i>	0.374	0.213	1.934	-	1.934	0.213	0.220	0.236	0.239	Continuing	Continuing

Remarks

D. Acquisition Strategy

Joint Technical Data Integration (JTDI) Program - The management approach includes the Program Management Office residing in NAVAIR with Milestone Decision Authority delegated to the NAVAIR Command Information Officer (CIO). The evolutionary development approach will be used to execute requirements. Contracting for the prime integrator will be via competitively awarded indefinite delivery - indefinite quantity contracts.

Marine Aviation Logistics Support Program (MALSP II)/Marine Aviation Logistics Enterprise Information Technology (MAL-EIT) Program - The management approach includes the Program Management Office residing within NAVAIR 6.0 and Milestone Decision Authority delegated to NAVAIR 6.7. The evolutionary development approach will be used to execute requirements. Contracting for the prime integrator will be via competitively awarded firm fixed priced contracts.

E. Performance Metrics

Joint Technical Data Integration (JTDI) and Marine Aviation Logistics Support Program (MALSP II) Expeditionary Pack Up Kit (EPUK) Program - Successfully achieve government testing of annual software release.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
1319 / 5				PE 0605013N / Information Technology Development				3167 / Joint Technical Data Integration (JTDI)							
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development for Joint Technical Data Integration (JTDI)	C/FFP	ARANEA : Huntsville, AL	7.688	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Software Development for JTDI	MIPR	DTIC : Fort Belvoir, VA	0.000	0.327	Jan 2015	1.501	Jan 2016	1.342	Jan 2017	-		1.342	Continuing	Continuing	Continuing
Software Development/ Hardware Integration for Marine Aviation Logistics Enterprise Information Technology (MAL-EIT)	C/CPFF	Wyle : Patuxent River, MD	2.087	0.391	Apr 2015	4.665	Jan 2016	2.549	Jan 2017	-		2.549	Continuing	Continuing	Continuing
Software Development/ Hardware Integration for MAL-EIT	C/T&M	Applied Research : Penn State	0.274	0.137	Mar 2015	0.150	Jan 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Prior year support no longer funded in the FYDP	Various	Various : Various	7.638	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Software Development/ Hardware Integration MAL-EIT	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.181	Nov 2015	0.185	Nov 2016	-		0.185	Continuing	Continuing	Continuing
Software Development/ Hardware Integration MAL-EIT	WR	NEDC : New Orleans, LA	0.000	0.103	Feb 2015	0.141	Oct 2015	0.144	Oct 2016	-		0.144	Continuing	Continuing	Continuing
Subtotal			17.687	0.958		6.638		4.220		-		4.220	-	-	-
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation for MAL-EIT	WR	SPAWAR : Norfolk, VA	1.629	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Developmental Test & Evaluation for MAL-EIT	C/CPFF	Wyle : Patuxent River, MD	0.000	0.106	Jun 2015	0.600	Jan 2016	0.600	Jan 2017	-		0.600	Continuing	Continuing	Continuing
Prior year Test & Eval no longer funded in the FYDP	Various	Various : Various	0.909	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
1319 / 5				PE 0605013N / Information Technology Development				3167 / Joint Technical Data Integration (JTDI)								
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Developmental Test & Evaluation, MAL-EIT	WR	NAWCAD : Patuxent River, MD	0.000	0.205	Jun 2015	0.453	Nov 2015	0.259	Nov 2016	-		0.259	Continuing	Continuing	Continuing	
Subtotal			2.538	0.311		1.053		0.859		-		0.859	-	-	-	
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Program Management Support for Marine Aviation Logistics Enterprise Information Technology (MAL-EIT)	WR	SPAWAR : Norfolk, VA	0.650	0.182	Nov 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing	
Program Management Support MAL-EIT	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.231	Nov 2015	0.185	Nov 2016	-		0.185	Continuing	Continuing	Continuing	
Program Management Support MAL-EIT	C/CPFF	Wyle : Patuxent River, MD	0.000	0.000		0.200	Jan 2016	0.250	Jan 2017	-		0.250	Continuing	Continuing	Continuing	
Prior year Mgmt Svcs Cost no longer funded in the FYDP	Various	Various : Various	0.473	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing	
Systems Engineering Support - Joint Technical Data Integration	WR	NAWCAD : Patuxent River, MD	0.000	1.323	Nov 2015	0.000		0.000		-		0.000	0.000	1.323	-	
Subtotal			1.123	1.505		0.431		0.435		-		0.435	-	-	-	
Project Cost Totals			21.348	2.774		8.122		5.514		-		5.514	-	-	-	
Remarks																

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 3167 / <i>Joint Technical Data Integration (JTDI)</i>
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JTDI	FY 2015			FY 2016			FY 2017			FY 2018			FY 2019			FY 2020			FY 2021					
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Requirements Determination	Rel. 2.0.5.5			Rel. 2.0.6.0			Rel. 2.0.6.5			Rel. 2.0.7.0			Rel. 2.0.7.5			Rel. 2.0.8.0								
Contract Award	Rel. 2.0.5.0 ●			Rel. 2.0.5.5 ●			Rel. 2.0.6.0 ●			Rel. 2.0.6.5 ●			Rel. 2.0.7.0 ●			Rel. 2.0.7.5 ●			Rel. 2.0.8.0 ●					
Development	Rel. 2.0.5.0			Rel. 2.0.5.5			Rel. 2.0.6.0			Rel. 2.0.6.5			Rel. 2.0.7.0			Rel. 2.0.7.5			Rel. 2.0.8.0					
DT&E				Rel. 2.0.5.0			Rel. 2.0.5.5			Rel. 2.0.6.0			Rel. 2.0.6.5			Rel. 2.0.7.0			Rel. 2.0.7.5			Rel. 2.0.8.0		
Engineering Change Package				Rel. 2.0.5.0 ▼			Rel. 2.0.5.5 ▼			Rel. 2.0.6.0 ▼			Rel. 2.0.6.5 ▼			Rel. 2.0.7.0 ▼			Rel. 2.0.7.5 ▼			Rel. 2.0.8.0 ▼		

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 3167 / <i>Joint Technical Data Integration (JTDI)</i>
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MALSP II EPUK	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestone																												
Contract Award	MAL-EIT Inc 2 ●				MAL-EIT Inc 2 & 3 ●				MAL-EIT Inc 3 ●				MAL-EIT Inc 3 ●				MAL-EIT Inc 3 ●											
Analysis of Alternatives																												
Milestone Decision (B)					MAL-EIT Inc 3 ▼																							
Prototyping	MAL-EIT Inc 2								MAL-EIT Inc 3																			
Milestone Decision (C)					MAL-EIT Inc 2 ▼								MAL-EIT Inc 3 ▼															
Systems Development																												
Software Development					MAL-EIT Inc 3								MAL-EIT Inc 3															
Test & Evaluation																												
Technical Evaluation DT&E	MAL-EIT Inc 2								MAL-EIT Inc 3																			
Limited Fielding	MAL-EIT Inc 2												MAL-EIT Inc 3															
Deliveries																												
Fielding/Deployment					MAL-EIT Inc 2												MAL-EIT Inc 3											
Full Operating Capability					MAL-EIT Inc 1 & 2 ▼												MAL-EIT Inc 3 ▼											

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 3167 / <i>Joint Technical Data Integration (JTDI)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
JTDI				
Requirements Determination: Release 2.0.5.5	1	2015	2	2015
Requirements Determination: Release 2.0.6.0	2	2016	4	2016
Requirements Determination: Release 2.0.6.5	2	2017	4	2017
Requirements Determination: Release 2.0.7.0	2	2018	4	2018
Requirements Determination: Release 2.0.7.5	2	2019	4	2019
Requirements Determination: Release 2.0.8.0	2	2020	4	2020
Contract Award: Contract Award, Release 2.0.5.0	1	2015	1	2015
Contract Award: Contract Award, Release 2.0.5.5	1	2016	1	2016
Contract Award: Contract Award, Release 2.0.6.0	1	2017	1	2017
Contract Award: Contract Award, Release 2.0.6.5	1	2018	1	2018
Contract Award: Contract Award, Release 2.0.7.0	1	2019	1	2019
Contract Award: Contract Award, Release 2.0.7.5	1	2020	1	2020
Contract Award: Contract Aware, Release 2.0.8.0	1	2021	1	2021
Development: Software Code & Integration: Release 2.0.5.0	1	2015	3	2015
Development: Software Code & Integration: Release 2.0.5.5	1	2016	3	2016
Development: Software Code & Integration: Release 2.0.6.0	1	2017	3	2017
Development: Software Code & Integration: Release 2.0.6.5	1	2018	3	2018
Development: Software Code & Integration: Release 2.0.7.0	1	2019	3	2019
Development: Software Code & Integration: Release 2.0.7.5	1	2020	3	2020
Development: Software Code & Integration: Release 2.0.8.0	1	2021	3	2021
DT&E: Developmental Test & Evaluation: Release 2.0.5.0	3	2015	4	2015

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 3167 / <i>Joint Technical Data Integration (JTDI)</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
DT&E: Developmental Test & Evaluation: Release 2.0.5.5	3	2016	4	2016
DT&E: Developmental Test & Evaluation: Release 2.0.6.0	3	2017	4	2017
DT&E: Developmental Test & Evaluation: Release 2.0.6.5	3	2018	4	2018
DT&E: Developmental Test & Evaluation: Release 2.0.7.0	3	2019	4	2019
DT&E: Developmental Test & Evaluation: Release 2.0.7.5	3	2020	4	2020
DT&E: Developmental Test & Evaluation: Release 2.0.8.0	3	2021	4	2021
DT&E: Engineering Change Package: Release 2.0.5.0	4	2015	4	2015
DT&E: Engineering Change Package: Release 2.0.5.5	4	2016	4	2016
DT&E: Engineering Change Package: Release 2.0.6.0	4	2017	4	2017
DT&E: Engineering Change Package: Release 2.0.6.5	4	2018	4	2018
DT&E: Engineering Change Package: Release 2.0.7.0	4	2019	4	2019
DT&E: Engineering Change Package: Release 2.0.7.5	4	2020	4	2020
DT&E: Engineering Change Package: Release 2.0.8.0	4	2021	4	2021
MALSP II EPUK				
Acquisition Milestone: Contract Award: Contract Award (3)	2	2015	2	2015
Acquisition Milestone: Contract Award: Contract Award (4)	2	2016	2	2016
Acquisition Milestone: Contract Award: Contract Award (5)	2	2017	2	2017
Acquisition Milestone: Contract Award: Contract Award (6)	2	2018	2	2018
Acquisition Milestone: Contract Award: Contract Award (7)	2	2019	2	2019
Acquisition Milestone: Milestone Decision (B): Milestone B Decision (2)	1	2016	1	2016
Acquisition Milestone: Prototyping: Prototyping (2)	2	2015	3	2015
Acquisition Milestone: Prototyping: Prototyping (3)	1	2017	2	2017
Acquisition Milestone: Milestone Decision (C): Milestone C Decision (1)	4	2015	4	2015
Acquisition Milestone: Milestone Decision (C): Milestone C Decision (2)	2	2018	2	2018
Systems Development: Software Development: Software Development (3)	2	2016	2	2018

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 3167 / <i>Joint Technical Data Integration (JTDI)</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Systems Development: Software Development: Software Development (4)	1	2019	3	2019
Test & Evaluation: Technical Evaluation DT&E: Technical Evaluation DT&E (2)	2	2015	3	2015
Test & Evaluation: Technical Evaluation DT&E: Technical Evaluation DT&E (3)	1	2017	2	2017
Test & Evaluation: Limited Fielding: Limited Fielding (2)	1	2015	4	2015
Test & Evaluation: Limited Fielding: Limited Fielding (3)	1	2018	2	2018
Deliveries: Fielding/Deployment: Fielding/Deployment (1)	1	2016	1	2016
Deliveries: Fielding/Deployment: Fielding/Deployment (2)	3	2018	2	2019
Deliveries: Full Operating Capability: Full Operating Capability (2)	1	2016	1	2016
Deliveries: Full Operating Capability: Full Operating Capability (3)	3	2019	3	2019

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>				Project (Number/Name) 3185 / <i>Joint Airlift Information System (JALIS)</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3185: <i>Joint Airlift Information System (JALIS)</i>	1.045	0.325	0.340	0.329	-	0.329	0.352	0.361	0.368	0.375	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

JALIS is an operational scheduling and aircraft management system that facilitates real-time data analysis. JALIS is a critical element in the management of DoD air logistics assets. JALIS is an operational scheduling, aircraft management and data analysis system that allows:

- (1) DoD Service Personnel to submit airlift requirements for DoD Personnel and cargo
- (2) Air Logistics Flying Units to communicate their aircraft availability in a real-time graphic display
- (3) Designated Scheduling Organizations to compare airlift requirements with available aircraft
- (4) Designated Scheduling Organizations to create mission assignments

JALIS informs applicable users of mission details and modifications by using a combination of system displays and email updates. JALIS is geographically distributed and has a user base in excess of 4,000 members. JALIS facilitates the movement of thousands of DoD Personnel and tons of cargo annually in support of the following:

- (1) Navy Unique Fleet Essential Airlift
- (2) Army's Operational Support Airlift Agency (OSAA)
- (3) United States Transportation Command (USTRANSCOM)
- (4) United States Marine Corps (USMC)

The Joint Chiefs of Staff mandates JALIS as the official DoD Airlift scheduling system for Operational Support Airlift (OSA). JALIS meets the requirement for multi-service coordinated Air Logistics scheduling as directed by Chairman, Joint Chiefs of Staff. The Navy is designated as lead agency for sponsoring and funding the JALIS program.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Joint Air Logistic Information System (JALIS)	0.325	0.340	0.329	0.000	0.329
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					
- Provided enhanced reporting and data gathering capabilities					
- Implemented CAC login for all users					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 3185 / <i>Joint Airlift Information System (JALIS)</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
- Integrated additional airport data from the National Geospatial-Intelligence Agency into JALIS functions					
<i>FY 2016 Plans:</i> - Develop improved aircraft management tools - Develop capability to schedule lifts on with aircraft transfers					
<i>FY 2017 Base Plans:</i> - Provide changes and enhancements as directed by the JALIS configuration control board - Integrate user functions between JALIS and JALIS Dashboard					
<i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	0.325	0.340	0.329	0.000	0.329

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

JALIS exercised a CPFF development contract option in the second quarter of FY15. This acquisition strategy was efficiently executed, enabling the development, analysis and quality assurance support required by the program and will be continued via award of follow-on's CPFF contract in the second quarter of FY16 and FY17.

Contract activities will focus on developing the following capabilities:

- (1) Improved functionality for flight scheduling
- (2) Improved coordination between JALIS scheduling organizations
- (3) Integration of JALIS and JALIS Dashboard functions

E. Performance Metrics

Performance metrics for JALIS include:

- (1) Completion of system change request requirements enabling production of articles as itemized in Section B.
- (2) Increase operational efficiency
 - (a) Reduce time to train scheduling personnel by 15%

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 3185 / <i>Joint Airlift Information System (JALIS)</i>
(b) Reduce time to search for scheduling solutions 10%		
(c) Reduce time to train new JALIS users by 20%		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 3185 / <i>Joint Airlift Information System (JALIS)</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Development, Analysis and QA support	C/CPFF	Navy Air Logistics Office (AHA) : New Orleans, LA	1.045	0.325	Feb 2015	0.340	Feb 2016	0.329	Feb 2017	-		0.329	Continuing	Continuing	Continuing
Subtotal			1.045	0.325		0.340		0.329		-		0.329	-	-	-

Remarks
Includes Design, Development, Testing, Analysis and Quality Assurance efforts.

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	1.045	0.325	0.340	0.329	-	0.329	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 3185 / <i>Joint Airlift Information System (JALIS)</i>

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Proj 3185																												
JALIS 2.18: JALIS - 2.18 Development	■																											
JALIS 2.18: JALIS - 2.18 Test Readiness Review	■																											
JALIS 2.18: JALIS - 2.18 Production Readiness Review	■																											
JALIS 2.19: JALIS - 2.19 Configuration Control Board	■																											
JALIS 2.19: JALIS - 2.19 Preliminary Design Review	■																											
JALIS 2.19: JALIS - 2.19 Development	■																											
JALIS 2.19: JALIS - 2.19 Test Readiness Review				■																								
JALIS 2.19: JALIS - 2.19 Production Readiness Review				■																								
JALIS 2.19: JALIS - 2.20 Configuration Control Board				■																								
JALIS 2.19: JALIS - 2.20 Preliminary Design Review				■																								
JALIS 2.19: JALIS - 2.20 Development				■																								
JALIS 2.19: JALIS - 2.20 Test Readiness Review						■																						
JALIS 2.19: JALIS - 2.20 Production Readiness Review						■																						
JALIS 2.19: JALIS - 2.21 Configuration Control Board						■																						

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 3185 / <i>Joint Airlift Information System (JALIS)</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
JALIS 2.19: JALIS - 2.21 Preliminary Design Review						■																							
JALIS 2.19: JALIS - 2.21 Development						■	■	■																					
JALIS 2.19: JALIS - 2.21 Test Readiness Review												■																	
JALIS 2.19: JALIS - 2.21 Production Readiness Review												■																	
JALIS 2.19: JALIS - 2.22 Configuration Control Board												■																	
JALIS 2.19: JALIS - 2.22 Preliminary Design Review												■																	
JALIS 2.19: JALIS - 2.22 Development												■	■	■	■														
JALIS 2.19: JALIS - 2.22 Test Readiness Review													■																
JALIS 2.19: JALIS - 2.22 Production Readiness Review													■																
JALIS 2.19: JALIS - 2.23 Configuration Control Board													■																
JALIS 2.19: JALIS - 2.23 Development													■	■	■	■													
JALIS 2.19: JALIS - 2.23 Test Readiness Review																■													
JALIS 2.19: JALIS - 2.23 Preliminary Design Review													■																
JALIS 2.19: JALIS - 2.23 Production Readiness Review																■													
JALIS 2.19: JALIS - 2.24 Configuration Control Board																■													

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 3185 / <i>Joint Airlift Information System (JALIS)</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
JALIS 2.19: JALIS - 2.24 Preliminary Design Review																												
JALIS 2.19: JALIS - 2.24 Development																												
JALIS 2.19: JALIS - 2.24 Test Readiness Review																												
JALIS 2.19: JALIS - 2.24 Production Readiness Review																												
JALIS 2.19: JALIS - 2.25 Configuration Control Board																												
JALIS 2.19: JALIS - 2.25 Preliminary Design Review																												
JALIS 2.19: JALIS - 2.25 Development																												
JALIS 2.19: JALIS - 2.25 Test Readiness Review																												
JALIS 2.19: JALIS - 2.25 Production Readiness Review																												
JALIS 2.19: JALIS - 2.26 Configuration Control Board																												
JALIS 2.19: JALIS - 2.26 Preliminary Design Review																												
JALIS 2.19: JALIS - 2.26 Development																												
JALIS 2.19: JALIS - 2.26 Test Readiness Review																												
JALIS 2.19: JALIS - 2.26 Production Readiness Review																												
JALIS 2.19: JALIS - 2.27 Configuration Control Board																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 3185 / <i>Joint Airlift Information System (JALIS)</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
JALIS 2.19: JALIS - 2.27 Preliminary Design Review																												
JALIS 2.19: JALIS - 2.27 Development																												
JALIS 2.19: JALIS - 2.27 Test Readiness Review																												
JALIS 2.19: JALIS - 2.27 Production Readiness Review																												
JALIS 2.19: JALIS - 2.28 Configuration Control Board																												
JALIS 2.19: JALIS - 2.28 Preliminary Design Review																												
JALIS 2.19: JALIS - 2.28 Development																												
JALIS 2.19: JALIS - 2.28 Test Readiness Review																												
JALIS 2.19: JALIS - 2.28 Production Readiness Review																												
JALIS 2.19: JALIS - 2.29 Configuration Control Board																												
JALIS 2.19: JALIS - 2.29 Preliminary Design Review																												
JALIS 2.19: JALIS - 2.29 Development																												
JALIS 2.19: JALIS - 2.29 Test Readiness Review																												
JALIS 2.19: JALIS - 2.29 Production Readiness Review																												
JALIS 2.19: JALIS - 2.30 Configuration Control Board																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 3185 / <i>Joint Airlift Information System (JALIS)</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
JALIS 2.19: JALIS - 2.30 Preliminary Design Review	■																											

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 3185 / <i>Joint Airlift Information System (JALIS)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3185				
JALIS 2.18: JALIS - 2.18 Development	1	2015	2	2015
JALIS 2.18: JALIS - 2.18 Test Readiness Review	2	2015	2	2015
JALIS 2.18: JALIS - 2.18 Production Readiness Review	2	2015	2	2015
JALIS 2.19: JALIS - 2.19 Configuration Control Board	2	2015	2	2015
JALIS 2.19: JALIS - 2.19 Preliminary Design Review	2	2015	2	2015
JALIS 2.19: JALIS - 2.19 Development	2	2015	4	2015
JALIS 2.19: JALIS - 2.19 Test Readiness Review	4	2015	4	2015
JALIS 2.19: JALIS - 2.19 Production Readiness Review	4	2015	4	2015
JALIS 2.19: JALIS - 2.20 Configuration Control Board	4	2015	4	2015
JALIS 2.19: JALIS - 2.20 Preliminary Design Review	4	2015	4	2015
JALIS 2.19: JALIS - 2.20 Development	4	2015	2	2016
JALIS 2.19: JALIS - 2.20 Test Readiness Review	2	2016	2	2016
JALIS 2.19: JALIS - 2.20 Production Readiness Review	2	2016	2	2016
JALIS 2.19: JALIS - 2.21 Configuration Control Board	2	2016	2	2016
JALIS 2.19: JALIS - 2.21 Preliminary Design Review	2	2016	2	2016
JALIS 2.19: JALIS - 2.21 Development	2	2016	4	2016
JALIS 2.19: JALIS - 2.21 Test Readiness Review	4	2016	4	2016
JALIS 2.19: JALIS - 2.21 Production Readiness Review	4	2016	4	2016
JALIS 2.19: JALIS - 2.22 Configuration Control Board	4	2016	4	2016
JALIS 2.19: JALIS - 2.22 Preliminary Design Review	4	2016	4	2016
JALIS 2.19: JALIS - 2.22 Development	4	2016	2	2017

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 3185 / <i>Joint Airlift Information System (JALIS)</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
JALIS 2.19: JALIS - 2.22 Test Readiness Review	2	2017	2	2017
JALIS 2.19: JALIS - 2.22 Production Readiness Review	2	2017	2	2017
JALIS 2.19: JALIS - 2.23 Configuration Control Board	2	2017	2	2017
JALIS 2.19: JALIS - 2.23 Development	2	2017	4	2017
JALIS 2.19: JALIS - 2.23 Test Readiness Review	4	2017	4	2017
JALIS 2.19: JALIS - 2.23 Preliminary Design Review	2	2017	2	2017
JALIS 2.19: JALIS - 2.23 Production Readiness Review	4	2017	4	2017
JALIS 2.19: JALIS - 2.24 Configuration Control Board	4	2017	4	2017
JALIS 2.19: JALIS - 2.24 Preliminary Design Review	4	2017	4	2017
JALIS 2.19: JALIS - 2.24 Development	4	2017	2	2018
JALIS 2.19: JALIS - 2.24 Test Readiness Review	2	2018	2	2018
JALIS 2.19: JALIS - 2.24 Production Readiness Review	2	2018	2	2018
JALIS 2.19: JALIS - 2.25 Configuration Control Board	2	2018	2	2018
JALIS 2.19: JALIS - 2.25 Preliminary Design Review	2	2018	2	2018
JALIS 2.19: JALIS - 2.25 Development	2	2018	4	2018
JALIS 2.19: JALIS - 2.25 Test Readiness Review	4	2018	4	2018
JALIS 2.19: JALIS - 2.25 Production Readiness Review	4	2018	4	2018
JALIS 2.19: JALIS - 2.26 Configuration Control Board	4	2018	4	2018
JALIS 2.19: JALIS - 2.26 Preliminary Design Review	4	2018	4	2018
JALIS 2.19: JALIS - 2.26 Development	4	2018	2	2019
JALIS 2.19: JALIS - 2.26 Test Readiness Review	2	2019	2	2019
JALIS 2.19: JALIS - 2.26 Production Readiness Review	2	2019	2	2019
JALIS 2.19: JALIS - 2.27 Configuration Control Board	2	2019	2	2019
JALIS 2.19: JALIS - 2.27 Preliminary Design Review	2	2019	2	2019
JALIS 2.19: JALIS - 2.27 Development	2	2019	4	2019

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 3185 / <i>Joint Airlift Information System (JALIS)</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
JALIS 2.19: JALIS - 2.27 Test Readiness Review	4	2019	4	2019
JALIS 2.19: JALIS - 2.27 Production Readiness Review	4	2019	4	2019
JALIS 2.19: JALIS - 2.28 Configuration Control Board	4	2019	4	2019
JALIS 2.19: JALIS - 2.28 Preliminary Design Review	4	2019	4	2019
JALIS 2.19: JALIS - 2.28 Development	4	2019	2	2020
JALIS 2.19: JALIS - 2.28 Test Readiness Review	2	2020	2	2020
JALIS 2.19: JALIS - 2.28 Production Readiness Review	2	2020	2	2020
JALIS 2.19: JALIS - 2.29 Configuration Control Board	2	2020	2	2020
JALIS 2.19: JALIS - 2.29 Preliminary Design Review	2	2020	2	2020
JALIS 2.19: JALIS - 2.29 Development	2	2020	4	2020
JALIS 2.19: JALIS - 2.29 Test Readiness Review	4	2020	4	2020
JALIS 2.19: JALIS - 2.29 Production Readiness Review	4	2020	4	2020
JALIS 2.19: JALIS - 2.30 Configuration Control Board	4	2020	4	2020
JALIS 2.19: JALIS - 2.30 Preliminary Design Review	4	2020	4	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>				Project (Number/Name) 9406 / <i>Maintenance Data Warehouse</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
9406: <i>Maintenance Data Warehouse</i>	14.094	13.094	11.131	10.171	-	10.171	7.982	6.202	6.283	6.396	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Aviation Data Warehouse/NAVAIR Decision Knowledge Programming for Logistics Analysis and Technical Evaluation (DECKPLATE) - The development of the DECKPLATE program is the next generation data warehouse for aircraft maintenance, flight, and usage data. It provides a web-based interface to a single source of information currently being stored in multiple Naval Aviation Logistics Data Analysis systems. Through the use of analysis, query, and reporting tools the user has the capabilities to effectively obtain readiness data in a near real-time environment, as well as providing historical data for long range planning, trend analysis and records analysis, records reconstruction, and compliance with technical directives. DECKPLATE supports the mission of the warfighter who requires a single source of near real-time aviation data in which to base critical readiness decisions. This requires collecting data from authoritative sources into a data warehouse. Because the warfighter only needs to access one database, the time consuming task of collecting various pieces of data from various sources will be reduced and ultimately eliminated. This improves data quality because it reduces the possibility of two systems providing identical data elements, but slightly different data. Data availability is improved through continuous near real-time feeds from the data sources, giving the warfighter the most current information to base decisions. In addition, this also accomplishes a reduction in legacy systems mandated by Office of the Chief of Naval Operations. DECKPLATE manages total inventory for two major categories of assets, Aircraft and Engine/Propulsion Systems/Modules (EPSMs). DECKPLATE is comprised of the Aircraft Inventory and Readiness Reporting (DECK-AIRRS) and the Engine Transaction Reporting (DECK-ETR) subsystems which provide the complete lifecycle for aircraft and Engine/ Propulsion System/Modules (EPSMs). Both DECK-ETR and DECK-AIRRS are undergoing a FISCAM assessment (FY16) and audit (FY17) and are undergoing review for designation as the Accountable Property System of Record (APSR) for aircraft and uninstalled engines.

Condition Based Maintenance Plus (CBM+) - Funding supports the automated analysis and decision making processes, for the CBM+ Initiative which provides Naval Aviation Enterprise with common enabling capabilities which deliver timely data-driven decisional information to optimize aircraft availability and materiel readiness by incorporating health and usage leading indicators into the failure mode mitigation process, enabling the Warfighter to more efficiently meet mission requirements. The CBM+ Initiative increases readiness by streamlining maintenance processes, provide the sustainment base with timely, actionable logistics data not previously available, and enable engineers and acquisition professionals to support system improvements based on CBM+ acquired data results. CBM+ provides the enabling solutions needed to extend the life of current and new acquisition aircraft, realizing savings from reductions in field (organizational and intermediate) maintenance actions, reduced functional check flight hours, mishap mitigation, and reduced parts usage.

Integrated Logistics Support Management System (ILSMS) - This is a new start program. Funding supports the development of the ILSMS program is the next generation analytical tool set for Unit, Aircraft, Engines, Component Readiness and Cost metrics. It will be a web-based tool that will provide the user with validated and aggregated data. ILSMS provides analysts with the means to pull data on type/model/series (TMS) readiness, run detailed component analysis, manage aircraft life by

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 9406 / <i>Maintenance Data Warehouse</i>
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bureau number, request lists of TMSs' top degraders, model the impacts of degraded components on readiness and cost, generate production scenarios, and manage the incorporation of technical directives. ILSMS institutionalizes a data analysis process that is repeatable and establishes a common understanding of readiness and cost degraders among its users. This is also the foundation for working with provider organizations to establish metrics, actionable mitigation plans and milestones. Integrated Logistics Support Management System (ILSMS) will give its users a one stop shop to proactively identify readiness and cost degraders quickly with a consistent methodology across all TMS thus providing a standardized tool to assist programs in reducing total ownership costs.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Title: Aviation Data Warehouse/NAVAIR Decision Knowledge Programming for Logistics Analysis and Technical Evaluation (DECKPLATE)</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: Continued transition of Auto Log Set (ALS) functionality into DECKPLATE and continued transition of original equipment manufacturer (OEM)and depot functionality. Additionally, funding increased in FY15 and FY16 for support of Integrated Logistics Support Management System (ILSMS) which developed a web-based business intelligence tool to allow all users to access and utilize the same data on a nearly real-time basis thus allowing queries across multiple type/model/series to identify systemic issues. Increased funding in FY15 and FY16 for ALS which is a DECKPLATE component that provided a central repository for aircraft maintenance information into DECKPLATE.</p> <p>FY 2016 Plans: Continue transition of ALS functionality into DECKPLATE and continue transition of OEM and depot functionality. Additionally, an increase in funding in FY15 and FY16 for support of ILSMS which will develop a web-based business intelligence tool to allow all users to access and utilize the same data on a nearly real-time basis thus allowing queries across multiple type/model/series to identify systemic issues. Increase funding in FY15 and FY16 for ALS which is a DECKPLATE component that provides a central repository for aircraft maintenance information into DECKPLATE.</p> <p>FY 2017 Base Plans: Continue the transition of ALS functionality into DECKPLATE so as to establish a central repository for aircraft maintenance and component information into DECKPLATE. Perform modifications to the DECKPLATE system to include Financial Improvement Audit Readiness data elements and Key Supporting Documentation to meet audit standards for Accountable Property System of Record (APSR) systems and meet additional Risk Management Framework (RMF) system controls..</p> <p>FY 2017 OCO Plans:</p>	3.421	2.626	2.556	0.000	2.556
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 9406 / <i>Maintenance Data Warehouse</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
Title: Condition Based Maintenance Plus (CBM+) <p align="right">Articles:</p>	6.173	5.438	7.615	0.000	7.615
FY 2015 Accomplishments: Completed regime recognition efforts in support of CH-53E one time reassessment of life limited components. Continued CBM+ Proof of Concept reutilization/down-selection efforts, completed Component tracking integration, and finalize smart aircraft/CBM+ data standardization and management strategy in support of Enterprise CBM+ end state.	-	-	-	-	-
FY 2016 Plans: Complete AIR 4.3.3 one time platform reassessment of all life limited components, and migrate CH-53E Regime Recognition Capability to production system of record (a component of NAVAIR's Aviation Logistics Environment). Perform required enhancements to integrated component tracking capability, and begin extending this capability to H-53, H-60, H-1 and V-22 platforms. Begin standup of CBM+ SDR in production, and continue evolving other required CBM+ enablers identified by Systems Integration Process physical architecture and design outputs. Continue execution of CBM+ Engineering Analysis Tool consolidation and reuse plan, and finalize NAVAIR Enterprise CBM+ BCA. Perform final assessment of CBM+ Proof of Concept efforts (down selection decisions), and begin standup of Enterprise common CBM+ enabled RCM implementations (beyond NAVAIR Rotorcraft community). Finalize standardized CBM+ Business Process and execute resource plan.					
FY 2017 Base Plans: Complete NAVAIR Structures one-time platform reassessment of all SH-60R/S life limited components, and expand Regime Recognition Capability to include H-1 platform. Begin expansion of CBM+ Standard Data Repository (based on the Hadoop Distributed File System) in production to accommodate and make accessible all BIT/Parametric/Mechanical/Diagnostics data across NAVAIR smart weapon system platforms, and continue evolving other required CBM+ enablers identified by Systems Integration Process physical architecture and design outputs. Continue enhancements to the Enterprise Common CBM+ Environment (Ozone Widget Framework) and the integration of the environment's best-of-breed analytical tools, per the CBM+ Engineering Analysis Tool consolidation and reuse plan, with the large scale Distributed File System storage and analytics infrastructure. Further enable NAVAIR's Core Data Science IPT with massively large scale advanced Statistical Analysis capabilities (COTS and GOTS), while enabling select Organizational Level Maintenance activities with the wireless infrastructure, connectivity, and integrated technologies to improve the on-weapon system maintenance process. Continue the execution of CBM+ pilots and Proof of Concept efforts for identifying					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 9406 / <i>Maintenance Data Warehouse</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
affordable/supportable Business Processes, Common IT Solutions, and data/tool integration to streamline the RCM process and expedite decision support using smart aircraft (HUMS) and other data sources within the Enterprise CBM+ Environment. FY 2017 OCO Plans: N/A					
Title: Integrated Logistics Support Management System (ILSMS) Articles:	3.500 -	3.067 -	0.000 -	0.000 -	0.000 -
FY 2015 Accomplishments: Developed Integrated Logistics Support Management System (ILSMS) environment for continued version 3 development, testing and migration to NAVAIR demilitarized zone environment. Integrated an aircraft and engine management module for inventory and enterprise supply parts forecasting. Performed validation and verification testing of design and development. FY 2016 Plans: Release ILSMS Version 3 Enterprise Analytical Module through web enabled Business Intelligence Solution FY 2017 Base Plans: N/A FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	13.094	11.131	10.171	0.000	10.171

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017	FY 2017	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Cost To	
			Base	OCO	Total					Complete	Total Cost
• OPN/4268/DECKPLATE: <i>Other Aviation Support Equipment</i>	0.736	3.325	1.794	-	1.794	1.996	2.041	2.074	2.109	Continuing	Continuing
• OPN/4268/CBM: <i>Other Aviation Support Equipment</i>	0.000	0.222	0.198	-	0.198	0.214	0.217	0.285	0.291	Continuing	Continuing

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 9406 / <i>Maintenance Data Warehouse</i>

D. Acquisition Strategy

Aviation Data Warehouse/NAVAIR Decision Knowledge Programming for Logistics Analysis and Technical Evaluation (DECKPLATE) - Development services will be awarded using a competitively awarded contract under the Seaport Contract System containing a matrix of tasks and required levels of performance. Follow on Contract will utilize the same competitive system. The Services provided under the contract support acquisition will not encompass tasks inherently Governmental in nature. The Statement of Work will include a matrix that establishes the minimum acceptable performance standards.

Condition Based Maintenance Plus (CBM+) - Development services will be provided using a competitively awarded contracts coordinated via NAVAIR's Aviation Logistics Environment (ALE) Program Management and supporting Contract Business Office, and will contain a matrix of tasks and required levels of performance. Follow on Contracts will utilize the same competitive system. The Services provided under the contract support acquisition will not encompass tasks inherently Governmental in nature, and Statements of Work will include a matrix that establishes the minimum acceptable performance standards.

Integrated Logistics Support Management System (ILSMS) - Development services will be awarded using a competitively awarded contract containing a matrix of tasks and required levels of performance. Follow on Contracts will utilize the same competitive system. The Services provided under the contract support acquisition will not encompass tasks inherently Governmental in nature. The Statement of Work will include a matrix that establishes the minimum acceptable performance standards.

E. Performance Metrics

The following performance metrics apply to Aviation Data Warehouse/NAVAIR Decision Knowledge Programming for Logistics Analysis and Technical Evaluation (DECKPLATE), Condition Based Maintenance (CBM+) and Integrated Logistics Support Management System (ILSMS):

1. Metric - During the life of the contract verify conformance with agency specific information processing standards and functional requirements. Prior to delivery of enhanced software, demonstrate the operational capability of the system software. Standard - Functionality of the software to meet required systems architecture and processing capabilities. Max Deviation Allowed - All requirements mandated by law or regulation must be 100% compliant. Quality Assurance - Independent Verification and Validation (IV&V) for testing new releases of software to determine that previous functionality is maintained. Customer satisfaction as measured through limited validated customer complaints, feedback, and surveys.
2. Metric - Interfaces must maintain compatibility among system components in the operational environment. Standard - Service Levels for software: Throughput in terms of processing response time, number of transactions processed per second; volume of data processed over time. Compatibility with particular hardware and software within the existing processing environment. Functionality of software to meet required systems architecture and processing capabilities. Max Deviation Allowed - None. Quality Assurance - Customer satisfaction as measured through limited validated customer complaints, feedback and surveys. Operational monitoring by use of system statistics and logs. IV&V for testing new software, including verifying results to determine that requirements and specifications are met.
3. Metric - Documentation for deliverables must match the agency specific system processing and operational procedures. Standard - Documentation meets agency specific formats for accuracy and completeness. Max Deviation Allowed - None. Quality Assurance - IV&V for determining that documentation delivered by the contractor matches the system processing and operational procedures.
4. Metric - Meet delivery dates/milestones. Period of Performance will be 12 months from the date of award. Standard - Delivery dates are met, or exceeded. Max Deviation Allowed - None. Quality Assurance - 100% inspection.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 9406 / <i>Maintenance Data Warehouse</i>
<p>5. Metric - Security. Standard - Meet all Government and agency specific requirements. Max Deviation Allowed - None. Quality Assurance - 100% inspection to ensure that all Government and Agency specific requirements have been met. Independent verification of security procedures defined by agency (could be performed by a third party, or another agency according to current security regulations and measures).</p> <p>6. Metric - Enhancement to software shall not adversely affect system performance. Standard - Standards affecting system performance include but are not limited to: response time for resolving problems; central processing unit busy; response time; memory utilization; storage utilization. Max Deviation Allowed - Base line functionality is met at 100%. Non critical functionality is met at 95%. Quality Assurance - Operational monitoring by use of system statistics and logs.</p> <p>7. Metric - New releases of software must maintain previously provided functionality, while providing enhanced capabilities, or systems corrections. Standard - Software adds value and improves existing functionality without negatively impacting the existing operational environment. Max Deviation Allowed - Base line functionality is met at 100%. Non critical functionality is met at 95%. Quality Assurance - Independent Verification and Validation for testing new releases of software to determine that previous functionality is improved. Customer satisfaction is measured through validated customer complaints and surveys.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)					Project (Number/Name)						
1319 / 5				PE 0605013N / Information Technology Development					9406 / Maintenance Data Warehouse						
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	C/CPFF	Wyle : Lexington Park, MD	8.740	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Software Development for Decision Knowledge Programming for Logistics Analysis and Technical Evaluation (DECKPLATE)	C/CPFF	Spalding : Lexington Park, MD	0.000	2.321	Nov 2014	1.526	Nov 2015	1.911	Nov 2016	-		1.911	Continuing	Continuing	Continuing
Software Development for Integrated Logistics Support Management System (ILSMS)	C/CPFF	Wyle : Lexington Park, MD	0.000	3.140	Nov 2014	2.707	Nov 2015	0.000		-		0.000	0.000	5.847	-
Software Development for Condition Based Maintenance Plus (CBM+)	Various	Various : Various	0.000	5.573	Nov 2014	4.838	Nov 2015	6.984	Nov 2016	-		6.984	0.000	17.395	-
Prior year Prod Def no longer funded in the FYDP	Various	Various : Various	1.668	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			10.408	11.034		9.071		8.895		-		8.895	-	-	-
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support for DECKPLATE	WR	NAWCAD : Patuxent River, MD	3.086	1.100	Oct 2014	1.100	Oct 2015	0.917	Oct 2016	-		0.917	Continuing	Continuing	Continuing
Program Management Support for ILSMS	WR	NAWCAD : Patuxent River, MD	0.000	0.360	Oct 2014	0.360	Oct 2015	0.000		-		0.000	0.000	0.720	-
Program Management Support for CBM+	WR	NAWCAD : Patuxent River, MD	0.600	0.600	Oct 2014	0.600	Oct 2015	0.359	Oct 2016	-		0.359	0.000	2.159	-
Subtotal			3.686	2.060		2.060		1.276		-		1.276	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy										Date: February 2016			
Appropriation/Budget Activity 1319 / 5				R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>				Project (Number/Name) 9406 / <i>Maintenance Data Warehouse</i>					
	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	14.094	13.094		11.131		10.171		-		10.171	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 9406 / <i>Maintenance Data Warehouse</i>

FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

DECKPLATE Aviation Data Warehouse Auto Log Set (ALS)	
Systems Development: Software Development: Contract Award ALS Functionality & Reporting into Deckplate	■
Systems Development: Software Development: ALS Requirements Development	■■■■
Systems Development: Software Development: ALS Design & Schema Architecture	■■■■
Systems Development: Software Development: ALS Software Development	■
Systems Development: Software Development: Contract Award ALS Functionality & Reporting into DECKPLATE Base	■
Systems Development: Software Development: ALS Software Development Base	■■■■
Test & Evaluation: ALS IV&V Testing Base	■
Test & Evaluation: ALS Customer Acceptance Testing Base	■■■■
Deliveries: ALS Production Release Delivery Base	■
DECKPLATE Aviation Data Warehouse OEM/DEPOT	

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 9406 / <i>Maintenance Data Warehouse</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Systems Development: Software Development: Contract Award OEM/DEPOT Reporting into Deckplate Base					■																							
Systems Development: Software Development: OEM/DEPOT Reporting Requirements Development Base					■	■	■	■																				
Systems Development: Software Development: OEM/DEPOT Design & Schema Architecture Base									■	■	■	■																
Systems Development: Software Development: OEM/DEPOT Software Development Base											■	■																
Systems Development: Software Development: Contract Award OEM/DEPOT Reporting into DECKPLATE OY1													■	■	■	■												
Systems Development: Software Development: OEM/DEPOT Software Development OY1													■	■	■	■												
Test & Evaluation: OEM/DEPOT IV&V Testing OY1											■	■																
Test & Evaluation: OEM/DEPOT Customer Acceptance Testing OY1													■	■	■	■												
Deliveries: OEM/DEPOT Production Release Delivery OY1																	■	■	■	■								
DECKPLATE Aviation Data Warehouse RAMP																												
Systems Development: Software Development: Contract Award RAMP Functionality into Deckplate OY1	■																											

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 9406 / <i>Maintenance Data Warehouse</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Systems Development: Software Development: RAMP Requirements Development OY1	██████████																											
Systems Development: Software Development: RAMP Design & Schema Architecture OY1					██████████																							
Systems Development: Software Development: RAMP Software Development OY1									██████████																			
Systems Development: Software Development: Contract Award RAMP Functionality into DECKPLATE OY2									██████████																			
Systems Development: Software Development: RAMP Software Development OY2					██████████																							
Test & Evaluation: RAMP IV&V Testing OY2									██████████																			
Test & Evaluation: RAMP Customer Acceptance Testing OY2									██████████																			
Deliveries: RAMP Production Release Delivery OY2									██████████																			
DECKPLATE IT EXXCOMM Portfolio Consolidation																												
Systems Development: Software Development: Contract Award-DECKPLATE IT EXXCOMM Portfolio Functionality									██████████																			
Systems Development: Software Development: DECKPLATE IT EXXCOMM Portfolio Consolidation									██████████																			

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 9406 / <i>Maintenance Data Warehouse</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Systems Development: Software Development: DECKPLATE Design and Schema Architecture																												
Systems Development: Software Development: DECKPLATE Software Development																												
Systems Development: Software Development: Contract Award-DECKPLATE IT EXXCOMM Portfolio Consolidation Functionality																												
Systems Development: Software Development: DECKPLATE Software Development 2																												
Systems Development: Software Development: Contract Award-DECKPLATE IT EXXCOMM Portfolio Consolidation Functionality 2																												
Systems Development: Software Development: DECKPLATE Software Development 3																												
Test & Evaluation: DECKPLATE IV&V Testing																												
Test & Evaluation: DECKPLATE Customer Acceptance Testing																												
Deliveries: DECKPLATE Production Release Delivery																												
Condition Based Maintenance Plus (CBM+)																												
Systems Development: Software Development: Contract Award-CBM+ Environment Proof of Concept H-1																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 9406 / <i>Maintenance Data Warehouse</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Systems Development: Software Development: CBM+ Environment Proof of Concept H-1																												
Systems Development: Software Development: Contract Award CBM/CBM+ Requirements Development 2																												
Systems Development: Software Development: Contract Award-CBM+ Component Tracking Integration 2																												
Systems Development: Software Development: CBM+ Component Tracking Integration 2																												
Systems Development: Software Development: Contract Award-CBM+ Regime Recognition Production Capability Dev																												
Systems Development: Software Development: CBM+ Regime Recognition Production Capability Dev																												
Systems Development: Software Development: Contract Award-CBM+ Distributed File Storage and Analytics Dev and Test																												
Systems Development: Software Development: CBM+ Distributed File Storage and Analytics Dev and Test																												
Systems Development: Software Development: CBM+Requirements Development 3																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 9406 / <i>Maintenance Data Warehouse</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Systems Development: Software Development: Contract Award-CBM+ Component Tracking Integration 3							■																					
Systems Development: Software Development: CBM+ Component Tracking Integration 3							■	■																				
Systems Development: Software Development: Contract Award-CBM+ Regime Recognition Production Capability Integration and Test								■																				
Systems Development: Software Development: CBM+ Regime Recognition Production Capability Integration and Test								■																				
Systems Development: Software Development: Contract Award-CBM+ Distributed File Storage and Analytics Production											■																	
Systems Development: Software Development: CBM+ Distributed File Storage and Analytics Production											■	■																
Systems Development: Software Development: CBM+ Requirements Development 4											■	■																
Systems Development: Software Development: Contract Award-CBM+ Component Tracking Integration 4												■																
Systems Development: Software Development: CBM+ Component Tracking Integration 4												■																

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 9406 / <i>Maintenance Data Warehouse</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Systems Development: Software Development: Contract Award-CBM+ Regime Recognition Production Capability 4																												
Systems Development: Software Development: CBM+ Regime Recognition Production Capability 4																												
Systems Development: Software Development: Contract Award-CBM+ Distributed File Storage and Analytics Enhancements 4																												
Systems Development: Software Development: CBM+ Distributed File Storage and Analytics Enhancements 4																												
Systems Development: Software Development: CBM+ Requirements Development 5																												
Systems Development: Software Development: Contract Award-CBM+ Component Tracking Integration 5																												
Systems Development: Software Development: CBM+ Component Tracking Integration 5																												
Systems Development: Software Development: Contract Award-CBM+ Regime Recognition Production Capability 5																												
Systems Development: Software Development: CBM+ Regime Recognition Production Capability 5																												
Systems Development: Software Development: Contract Award-CBM+																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 9406 / <i>Maintenance Data Warehouse</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Distributed File Storage and Analytics Enhancements 5																												
Systems Development: Software Development: CBM+ Distributed File Storage and Analytics Enhancements 5																												
Systems Development: Software Development: CBM+ Requirements Development 6																												
Systems Development: Software Development: Contract Award-CBM+ Component Tracking Integration 6																												
Systems Development: Software Development: CBM+ Component Tracking Integration 6																												
Systems Development: Software Development: Contract Award-CBM+ Regime Recognition Production Capability 6																												
Systems Development: Software Development: CBM+ Regime Recognition Production Capability 6																												
Systems Development: Software Development: Contract Award-CBM+ Distributed File Storage and Analytics Enhancements 6																												
Systems Development: Software Development: CBM+ Requirements Development 7																												
Systems Development: Software Development: Contract Award-CBM+ Component Tracking Integration 7																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 9406 / <i>Maintenance Data Warehouse</i>
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	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Deliveries: ILSMS V2.2.2 Power and Propulsion Production Release				■																								
Deliveries: ILSMS V3.0 Web Interface Release								■																				

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 9406 / <i>Maintenance Data Warehouse</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
DECKPLATE Aviation Data Warehouse Auto Log Set (ALS)				
Systems Development: Software Development: Contract Award ALS Functionality & Reporting into Deckplate	1	2015	1	2015
Systems Development: Software Development: ALS Requirements Development	1	2015	4	2015
Systems Development: Software Development: ALS Design & Schema Architecture	3	2015	4	2015
Systems Development: Software Development: ALS Software Development	4	2015	4	2015
Systems Development: Software Development: Contract Award ALS Functionality & Reporting into DECKPLATE Base	1	2016	1	2016
Systems Development: Software Development: ALS Software Development Base	1	2016	3	2016
Test & Evaluation: ALS IV&V Testing Base	3	2016	3	2016
Test & Evaluation: ALS Customer Acceptance Testing Base	3	2016	4	2016
Deliveries: ALS Production Release Delivery Base	4	2016	4	2016
DECKPLATE Aviation Data Warehouse OEM/DEPOT				
Systems Development: Software Development: Contract Award OEM/DEPOT Reporting into Deckplate Base	1	2016	1	2016
Systems Development: Software Development: OEM/DEPOT Reporting Requirements Development Base	1	2016	4	2016
Systems Development: Software Development: OEM/DEPOT Design & Schema Architecture Base	3	2016	4	2016
Systems Development: Software Development: OEM/DEPOT Software Development Base	4	2016	4	2016
Systems Development: Software Development: Contract Award OEM/DEPOT Reporting into DECKPLATE OY1	1	2017	1	2017

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy			Date: February 2016	
Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)		
1319 / 5	PE 0605013N / <i>Information Technology Development</i>	9406 / <i>Maintenance Data Warehouse</i>		
Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Systems Development: Software Development: OEM/DEPOT Software Development OY1	1	2017	3	2017
Test & Evaluation: OEM/DEPOT IV&V Testing OY1	3	2016	3	2016
Test & Evaluation: OEM/DEPOT Customer Acceptance Testing OY1	3	2016	4	2016
Deliveries: OEM/DEPOT Production Release Delivery OY1	4	2016	4	2016
DECKPLATE Aviation Data Warehouse RAMP				
Systems Development: Software Development: Contract Award RAMP Functionality into Deckplate OY1	1	2015	1	2015
Systems Development: Software Development: RAMP Requirements Development OY1	1	2015	4	2015
Systems Development: Software Development: RAMP Design & Schema Architecture OY1	3	2015	4	2015
Systems Development: Software Development: RAMP Software Development OY1	4	2015	4	2015
Systems Development: Software Development: Contract Award RAMP Functionality into DECKPLATE OY2	1	2016	1	2016
Systems Development: Software Development: RAMP Software Development OY2	1	2016	3	2016
Test & Evaluation: RAMP IV&V Testing OY2	3	2016	3	2016
Test & Evaluation: RAMP Customer Acceptance Testing OY2	3	2016	4	2016
Deliveries: RAMP Production Release Delivery OY2	4	2016	4	2016
DECKPLATE IT EXXCOMM Portfolio Consolidation				
Systems Development: Software Development: Contract Award-DECKPLATE IT EXXCOMM Portfolio Functionality	1	2017	1	2017
Systems Development: Software Development: DECKPLATE IT EXXCOMM Portfolio Consolidation	1	2017	4	2017
Systems Development: Software Development: DECKPLATE Design and Schema Architecture	3	2017	4	2017
Systems Development: Software Development: DECKPLATE Software Development	4	2017	4	2017

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 9406 / <i>Maintenance Data Warehouse</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Systems Development: Software Development: Contract Award-DECKPLATE IT EXXCOMM Portfolio Consolidation Functionality	1	2018	1	2018
Systems Development: Software Development: DECKPLATE Software Development 2	1	2018	4	2018
Systems Development: Software Development: Contract Award-DECKPLATE IT EXXCOMM Portfolio Consolidation Functionality 2	1	2019	1	2019
Systems Development: Software Development: DECKPLATE Software Development 3	1	2019	4	2019
Test & Evaluation: DECKPLATE IV&V Testing	1	2020	1	2020
Test & Evaluation: DECKPLATE Customer Acceptance Testing	1	2020	3	2020
Deliveries: DECKPLATE Production Release Delivery	4	2020	4	2020
Condition Based Maintenance Plus (CBM+)				
Systems Development: Software Development: Contract Award-CBM+ Environment Proof of Concept H-1	1	2015	1	2015
Systems Development: Software Development: CBM+ Environment Proof of Concept H-1	1	2015	1	2017
Systems Development: Software Development: Contract Award CBM/CBM+ Requirements Development 2	1	2015	1	2015
Systems Development: Software Development: Contract Award-CBM+ Component Tracking Integration 2	3	2015	3	2015
Systems Development: Software Development: CBM+ Component Tracking Integration 2	3	2015	3	2016
Systems Development: Software Development: Contract Award-CBM+ Regime Recognition Production Capability Dev	4	2015	4	2015
Systems Development: Software Development: CBM+ Regime Recognition Production Capability Dev	4	2015	4	2016
Systems Development: Software Development: Contract Award-CBM+ Distributed File Storage and Analytics Dev and Test	1	2016	1	2016
Systems Development: Software Development: CBM+ Distributed File Storage and Analytics Dev and Test	1	2016	4	2016

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 9406 / <i>Maintenance Data Warehouse</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Systems Development: Software Development: CBM+Requirements Development 3	1	2016	4	2016
Systems Development: Software Development: Contract Award-CBM+ Component Tracking Integration 3	3	2016	3	2016
Systems Development: Software Development: CBM+ Component Tracking Integration 3	3	2016	3	2017
Systems Development: Software Development: Contract Award-CBM+ Regime Recognition Production Capability Integration and Test	4	2016	4	2016
Systems Development: Software Development: CBM+ Regime Recognition Production Capability Integration and Test	4	2016	4	2017
Systems Development: Software Development: Contract Award-CBM+ Distributed File Storage and Analytics Production	1	2017	1	2017
Systems Development: Software Development: CBM+ Distributed File Storage and Analytics Production	1	2017	4	2017
Systems Development: Software Development: CBM+ Requirements Development 4	1	2017	4	2017
Systems Development: Software Development: Contract Award-CBM+ Component Tracking Integration 4	3	2017	3	2017
Systems Development: Software Development: CBM+ Component Tracking Integration 4	3	2017	3	2018
Systems Development: Software Development: Contract Award-CBM+ Regime Recognition Production Capability 4	1	2018	1	2018
Systems Development: Software Development: CBM+ Regime Recognition Production Capability 4	1	2018	3	2018
Systems Development: Software Development: Contract Award-CBM+ Distributed File Storage and Analytics Enhancements 4	1	2018	1	2018
Systems Development: Software Development: CBM+ Distributed File Storage and Analytics Enhancements 4	1	2018	4	2018
Systems Development: Software Development: CBM+ Requirements Development 5	1	2018	4	2018

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 9406 / <i>Maintenance Data Warehouse</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Systems Development: Software Development: Contract Award-CBM+ Component Tracking Integration 5	3	2018	3	2018
Systems Development: Software Development: CBM+ Component Tracking Integration 5	3	2018	3	2019
Systems Development: Software Development: Contract Award-CBM+ Regime Recognition Production Capability 5	4	2019	4	2019
Systems Development: Software Development: CBM+ Regime Recognition Production Capability 5	4	2019	4	2020
Systems Development: Software Development: Contract Award-CBM+ Distributed File Storage and Analytics Enhancements 5	1	2019	1	2019
Systems Development: Software Development: CBM+ Distributed File Storage and Analytics Enhancements 5	1	2019	4	2019
Systems Development: Software Development: CBM+ Requirements Development 6	3	2019	3	2020
Systems Development: Software Development: Contract Award-CBM+ Component Tracking Integration 6	3	2020	3	2020
Systems Development: Software Development: CBM+ Component Tracking Integration 6	3	2020	3	2021
Systems Development: Software Development: Contract Award-CBM+ Regime Recognition Production Capability 6	4	2020	4	2020
Systems Development: Software Development: CBM+ Regime Recognition Production Capability 6	4	2020	4	2021
Systems Development: Software Development: Contract Award-CBM+ Distributed File Storage and Analytics Enhancements 6	1	2020	1	2020
Systems Development: Software Development: CBM+ Requirements Development 7	3	2020	3	2021
Systems Development: Software Development: Contract Award-CBM+ Component Tracking Integration 7	3	2020	3	2020
Systems Development: Software Development: CBM+ Component Tracking Integration 7	4	2020	4	2020

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy			Date: February 2016	
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 9406 / <i>Maintenance Data Warehouse</i>		
	Start		End	
Events by Sub Project	Quarter	Year	Quarter	Year
Systems Development: Software Development: Contract Award-CBM+ Regime Recognition Production Capability 7	4	2020	4	2021
<i>Integrated Logistics Support Management System (ILSMS)</i>				
System Development: Software Development: Contract Award-ILSMS Software Development	1	2015	1	2015
System Development: Software Development: V2.2.2 ILSMS Power and Propulsion Software Development	1	2015	2	2015
System Development: Software Development: V3.0 ILSMS Web Development Requirements Interface	3	2015	4	2015
System Development: Software Development: ILSMS and RAMP Integration Design Development	1	2015	4	2015
Test and Evaluation: ILSMS V2.2.2 Power and Propulsion Test and Evaluation	2	2015	2	2015
Test and Evaluation: ILSMS V2.2.2 Customer Acceptance Testing	3	2015	4	2015
Test and Evaluation: ILSMS V3.0 Web Web Interface Test and Evaluation	1	2016	1	2016
Test and Evaluation: ILSMS V3.0 Customer Acceptance Testing	2	2016	3	2016
Deliveries: ILSMS V2.2.2 Power and Propulsion Production Release	1	2016	1	2016
Deliveries: ILSMS V3.0 Web Interface Release	4	2016	4	2016

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 9999 / <i>Congressional Adds</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
9999: <i>Congressional Adds</i>	0.000	0.000	4.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	4.000
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Congressional Add

A. Mission Description and Budget Item Justification

Congressional Add: The enterprise Product Lifecycle Management (ePLM) Integrated Decision Environment (IDE) will serve as a central knowledge repository for process and product evolution and history. It will promote integration, data exchange, and analysis among all business users and information systems that will interact with any Weapon System Configuration Item (CI) during its lifecycle. The ePLM IDE will cost effectively address each weapon system program requirement for an IDE as stated in the Defense Acquisition Guidebook.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016
Congressional Add: Information Technology Development Increase	0.000	4.000
FY 2015 Accomplishments: N/A		
FY 2016 Plans: Development and configuration of ePLM IDE capability which includes expanded product data management capability, enhancement of predictive analytics, and enhancement and integration of SBIR Phase 3 Technologies. Further integration of the capabilities necessary to deliver an enterprise based decision support solution and continued development and integration of additional software capabilities, development of human capital solutions and refinement of the acquisition processes and sustainment approaches.		
Congressional Adds Subtotals	0.000	4.000

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

FY16 - ePLM: NSWC-PHD will lead the integration of FY15 SBIR-developed technologies through the utilization of an existing Phase 3 SBIR contract (MDA, awarded date 29 Sept 2015, \$40M available ceiling) and two FY16 planned Phase 3 SBIR contracts (NSWC-PHD, Q3 FY16 award, \$39M ceiling & ARDEC, Q3 FY16 award, \$250M ceiling). SBIR technologies will be enhanced and integrated into the ePLM tool suite and will result in execution of a competitive, full acquisition strategy.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 9999 / <i>Congressional Adds</i>

<u>E. Performance Metrics</u> N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 9999 / <i>Congressional Adds</i>
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Proj 9999	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
JTDI/DISA						Contract Award ◆																						
					SW Dev/HW Integ																							
									DT&E																			

2017PB - 0605013N - 9999

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605013N / <i>Information Technology Development</i>	Project (Number/Name) 9999 / <i>Congressional Adds</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 9999				
Enterprise Lifecycle Management (ePLM) Integrated Decision Environment (IDE): Develop Requirements for Increment 2.0 & 1.0 Enhancements	3	2016	3	2016
Enterprise Lifecycle Management (ePLM) Integrated Decision Environment (IDE): Develop Increment 2.0 and Implement 1.0 Enhancements	4	2016	1	2017
Enterprise Lifecycle Management (ePLM) Integrated Decision Environment (IDE): Test and Evaluate Increment 2.0	1	2017	1	2017
Enterprise Lifecycle Management (ePLM) Integrated Decision Environment (IDE): Implement Increment 2.0 and 1.0 enhancements with Programs	4	2016	3	2017
Enterprise Lifecycle Management (ePLM) Integrated Decision Environment (IDE): Develop Requirements and Update Product Support Packages (Increment 2.0 & 1.0 Enhancements)	3	2016	3	2017
Enterprise Lifecycle Management (ePLM) Integrated Decision Environment (IDE): Support Program of Record Development	3	2016	3	2017
Enterprise Lifecycle Management (ePLM) Integrated Decision Environment (IDE): Award NSWC- PHD Phase 3 SBIR	3	2016	3	2016
Enterprise Lifecycle Management (ePLM) Integrated Decision Environment (IDE): Award ARDEC Phase 3 SBIR	3	2016	3	2016

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605024N / (U) <i>Anti-Tamper Technology Support</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	0.000	2.500	-	2.500	3.400	4.300	4.900	5.800	Continuing	Continuing
3414: <i>Anti-Tamper Technology Support</i>	0.000	0.000	0.000	2.500	-	2.500	3.400	4.300	4.900	5.800	Continuing	Continuing

A. Mission Description and Budget Item Justification

The details of this program element are classified SECRET and are submitted annually to Congress in the classified budget justification books.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	2.500	-	2.500
Total Adjustments	0.000	0.000	2.500	-	2.500
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Rate/Misc Adjustments	0.000	0.000	2.500	-	2.500

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605212N / CH-53K
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	4,280.397	538.192	592.317	404.810	-	404.810	233.861	175.668	184.642	188.426	0.000	6,598.313
3059: <i>CH-53K Development</i>	4,280.397	538.192	592.317	404.810	-	404.810	233.861	175.668	184.642	188.426	0.000	6,598.313

Program MDAP/MAIS Code: 390

A. Mission Description and Budget Item Justification

The CH-53 is the only marinized heavy-lift helicopter in the world and is the Marine Corps only heavy-lift helicopter. The CH-53 mission is the conduct of expeditionary heavy-lift assault transport of armored vehicles, equipment and personnel to support distributed operations deep inland from a sea-based center of operations. The CH-53E "Super Stallion" was introduced into operations in 1980 as an upgrade version of the CH-53D. The CH-53E has developed performance degradation, fatigue life, interoperability, maintenance supportability, and other operational concerns. An improved CH-53 is needed to support Marine Air-Ground Task Force heavy-lift requirements in the 21st century joint environment. The CH-53K "King Stallion" will provide improvements in range and payload, performance, cargo handling, turn-around times, reliability and maintainability, interoperability, and survivability. The CH-53K program is required to provide full system capability, including shipboard compatibilities, at Initial Operational Capability (IOC).

Total aircraft quantities for the CH-53K program are 205 helicopters. This includes one Ground Test Vehicle (GTV) and four Engineering Development Models (EDMs) for System Development and Demonstration (SDD), to be purchased with Research, Development, Test & Evaluation (RDT&E) funds. Of the remaining 200 aircraft, six will be System Demonstration Test Articles (SDTAs) and will be incrementally funded using RDT&E funds. The SDTAs will be used to prove out production and integration processes on a pilot production line, and to provide aircraft for Initial Operational Test and Evaluation. The remaining 194 aircraft will be Aircraft Procurement, Navy funded.

FY17 RDT&E funds CH-53K SDD activities which include: ground and flight test of GTV, EDMs and SDTAs, associated subsystems and components, and the continued fabrication and assembly of remaining SDTAs. Additionally, the program takes delivery of the first (4) SDTA aircraft.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under SYSTEM DEVELOPMENT AND DEMONSTRATION because it includes those projects that have passed Milestone B approval and are conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full-rate production decision.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605212N / CH-53K
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	559.687	632.092	475.087	-	475.087
Current President's Budget	538.192	592.317	404.810	-	404.810
Total Adjustments	-21.495	-39.775	-70.277	-	-70.277
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-39.775			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-5.000	0.000			
• SBIR/STTR Transfer	-16.495	0.000			
• Program Adjustments	0.000	0.000	-1.596	-	-1.596
• Rate/Misc Adjustments	0.000	0.000	-68.681	-	-68.681

Change Summary Explanation

The FY 2017 funding request was reduced by \$60.943M to account for the availability of prior year execution balances.

Technical: Not applicable.

Schedule: Driven primarily by component re-design, re-qualification and re-test the Developmental and Initial Operational T&E programs have lengthened, resulting in CH-53K Milestone C moving into 2nd quarter FY2017, and IOC into 1st quarter FY2020.

LRIP 1 Advance Acquisition Contract (AAC) award moved into 2nd quarter FY2016 to align with release of funds for new-start CH-53K production program. This delay does not impact FY2017 LRIP 1 award.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0605212N / CH-53K				Project (Number/Name) 3059 / CH-53K Development			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3059: CH-53K Development	4,280.397	538.192	592.317	404.810	-	404.810	233.861	175.668	184.642	188.426	0.000	6,598.313
Quantity of RDT&E Articles		2	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The CH-53 is the only marinized heavy-lift helicopter in the world and is the Marine Corps only heavy-lift helicopter. The CH-53 mission is the conduct of expeditionary heavy-lift assault transport of armored vehicles, equipment and personnel to support distributed operations deep inland from a sea-based center of operations. The CH-53E "Super Stallion" was introduced into operations in 1980 as an upgrade version of the CH-53D. The CH-53E has developed performance degradation, fatigue life, interoperability, maintenance supportability, and other operational concerns. An improved CH-53 is needed to support Marine Air-Ground Task Force heavy-lift requirements in the 21st century joint environment. The CH-53K "King Stallion" will provide improvements in range and payload, performance, cargo handling, turn-around times, reliability and maintainability, interoperability, and survivability. The CH-53K program is required to provide full system capability, including shipboard compatibilities, at Initial Operational Capability (IOC).

Total aircraft quantities for the CH-53K program are 205 helicopters. This includes one Ground Test Vehicle (GTV) and four Engineering Development Models (EDMs) for System Development and Demonstration (SDD), to be purchased with Research, Development, Test & Evaluation (RDT&E) funds. Of the remaining 200 aircraft, six will be System Demonstration Test Articles (SDTAs) and will be incrementally funded using RDT&E funds. The SDTAs will be used to prove out production and integration processes on a pilot production line, and to provide aircraft for Initial Operational Test and Evaluation. SDTAs are shown in the year of contract award vice year of delivery. The remaining 194 aircraft will be Aircraft Procurement, Navy funded.

FY17 RDT&E funds CH-53K SDD activities which include: ground and flight test of GTV, EDMs and SDTAs, associated subsystems and components, and the continued fabrication and assembly of remaining SDTAs. Additionally, the program takes delivery of the first (4) SDTA aircraft.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Air Vehicle Development	449.801	492.875	315.126	0.000	315.126
Articles:	2	-	-	-	-
FY 2015 Accomplishments: Perform ground and flight test of the CH-53K GTV, EDMs and their associated subsystems and components. Evaluate and implement producibility, reliability and capability improvements. Continued fabrication and assembly of System Demonstration Test Articles.					
FY 2016 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605212N / CH-53K	Project (Number/Name) 3059 / CH-53K Development
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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Perform ground and flight test of the CH-53K GTV, EDMs and their associated subsystems and components. Evaluate and implement producability, reliability and capability improvements. Continued fabrication and assembly of System Demonstration Test Articles.

FY 2017 Base Plans:

Ramp-down of Contractor air vehicle development and ground test activities of the CH-53K GTV, EDMs and associated subsystems and components as developmental test is being conducted. Continue to evaluate and implement producability, reliability and capability improvements as fabrication and assembly of System Demonstration Test Articles (SDTA) is completed. Government accepts delivery of SDTAs 1-4 in preparation for IOT&E.

FY 2017 OCO Plans:

N/A

Title: Integrated Logistics Support and Test & Evaluation (T&E)	41.382	48.797	56.078	0.000	56.078
Articles:	-	-	-	-	-

FY 2015 Accomplishments:

Perform in-house, field activity, and contractor support of Integrated Logistic support. T&E activities include further component qualification and validation of Supportability Test Plans during ground and flight test. Continue to further develop Product Support Packages in preparation for an Integrated Logistics Assessment as required for Milestone C decision.

FY 2016 Plans:

Perform in-house, field activity, and contractor support of Integrated Logistic support. T&E activities include further component qualification and validation of Supportability Test Plans during ground and flight test. Continue to further develop Product Support Packages in preparation for an Integrated Logistics Assessment as required for Milestone C decision.

FY 2017 Base Plans:

Perform in-house, field activity and contractor support of Integrated Logistic support. Continue to refine Product Support Packages in preparation for IOT&E. Increase Government Test Team in order to support ramp-up of ground and flight test activities, as well as continued component qualification and validation of Supportability Test Plans.

FY 2017 OCO Plans:

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605212N / CH-53K	Project (Number/Name) 3059 / CH-53K Development

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
Title: Systems Engineering & Project Management Articles: FY 2015 Accomplishments: Perform in-house, field activity, and contractor support of Integrated Product Teams to allow for the examination and certification of equipment and avionics for the CH-53K. Efforts include Engineering Development Model flight test certification, component reliability and producibility improvements in support of System Demonstration Test Articles (SDTA's), engineering support, program management support, and travel for the CH-53K program. FY 2016 Plans: Perform in-house, field activity, and contractor support of Integrated Product Teams to allow for the examination and certification of equipment and avionics for the CH-53K. Efforts include Engineering Development Model flight test certification, component reliability and producibility improvements in support of System Demonstration Test Articles (SDTA's), monitor LRIP Lot 1 Advance Acquisition Contract, engineering support, program management support, and travel for the CH-53K program. FY 2017 Base Plans: Perform in-house, field activity and contractor support of test program Integrated Product Teams as workforce and resources begin to transition to the CH-53K production program. Efforts include engineering and program management support, as well as travel for the CH-53K program. FY 2017 OCO Plans: N/A	47.009	50.645	33.606	0.000	33.606
Accomplishments/Planned Programs Subtotals	538.192	592.317	404.810	0.000	404.810

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APN / 0158: CH-53K (Heavy Lift)	0.000	41.300	436.980	-	436.980	721.756	1,170.267	1,655.998	1,773.536	16,065.597	21,865.434
• APN / 0605: CH-53K	0.000	0.000	51.000	-	51.000	32.244	51.836	95.525	33.867	433.542	698.014
- Initial Spares											

Remarks

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy Date: February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605212N / CH-53K	Project (Number/Name) 3059 / CH-53K Development
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D. Acquisition Strategy

On 31 October 2005, the Defense Acquisition Board reviewed the CH-53K program for a Milestone (MS) B decision on entry to Systems Design and Development (SDD). The Under Secretary of the Defense (Acquisition, Technology and Logistics) signed the Acquisition Decision Memorandum allowing the program to proceed with SDD on 22 December 2005. The CH-53K program was initiated as an Acquisition Category 1D program, based on total estimated costs for Research, Development, Test and Evaluation and Aircraft Procurement, Navy. The SDD prime contract was awarded sole-source contract to Sikorsky Aircraft Corporation on 5 April, 2006, following the MS B decision. SDD efforts will develop and document technology maturations, selections, and integration into CH-53E design modifications for a new CH-53K variant; produce one CH-53K Ground Test Vehicle and four CH-53K Engineering Developmental Models; and conduct and support Test and Evaluation activities fulfilling milestone exit criteria. In FY13 the SDD contract was modified to include four System Demonstration Test Articles (SDTAs). In FY15 the SDD contract was modified to add the long-lead/critical parts for the two additional SDTA aircraft. The T408-GE-400 engines for SDTAs 1-4, which were converted from Contractor Furnished Equipment to Government Furnished Equipment, were placed on contract in FY14. Additionally, a contract option was exercised in FY15 to provide engines for SDTAs 5-6.

E. Performance Metrics

Since MS B, the program team has followed a disciplined, event-driven, design and development process. The program completed Preliminary Design Review in September 2008 and conducted Critical Design Review in July 2010. System meets or exceeds all Key Performance Parameters.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605212N / CH-53K	Project (Number/Name) 3059 / CH-53K Development
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary Hardware Development: SDD / SDTA Air Vehicle	SS/CPPIF	Sikorsky : Stratford, CT	3,472.341	376.557	Dec 2014	438.119	Jan 2016	274.229	Dec 2016	-		274.229	563.610	5,124.856	5,124.856
Ancillary Hardware Development: DECM	SS/CPFF	Northrup Grumman : Falls Church, VA	8.925	8.864	Jan 2015	12.048	Jan 2016	0.000		-		0.000	0.000	29.837	29.837
GFE: Various	Various	Various : Various	56.955	5.207	Dec 2014	8.860	Dec 2015	1.955	Dec 2016	-		1.955	5.237	78.214	-
GFE: Engines	SS/CPFF	GE : Lynn, MA	41.603	45.581	Jan 2015	20.448	Jan 2016	27.553	Jan 2017	-		27.553	0.000	135.185	135.185
Incentive Fees	SS/CPPIF	Sikorsky : Stratford, CT	77.879	13.592	Dec 2014	13.400	Dec 2015	11.389	Dec 2016	-		11.389	5.161	121.421	121.421
Prior year Prod Dev cost no longer funded in the FYDP	Various	Various : Various	73.400	0.000		0.000		0.000		-		0.000	0.000	73.400	-
Subtotal			3,731.103	449.801		492.875		315.126		-		315.126	574.008	5,562.913	-

Remarks
 Primary Hardware Development Target Value of Contract includes System Demonstration Test Articles (SDTAs).
 Ancillary Hardware Development: Defensive Electronic Countermeasures (DECM) contract requirements (FY14-FY16) added to R3/Product Development.
 Government Furnished Equipment/Engines provides funding for SDTA engine contract.
 FY15 Incentive Fees represent potential Schedule Incentives based on continued progress of the Engineering Development Model (EDM) aircraft.
 FY16-17 Incentive Fees represent potential Schedule Incentives based on continued progress of the System Demonstration Test Article (SDTA) aircraft.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Development Support	Various	NAWCAD : Lakehurst, NJ	5.361	0.540	Dec 2014	1.828	Dec 2015	1.519	Dec 2016	-		1.519	21.233	30.481	-
Integrated Logistics Support	WR	NAWCAD : Lakehurst, NJ	12.376	4.113	Dec 2014	5.409	Dec 2015	4.989	Dec 2016	-		4.989	11.619	38.506	-
Integrated Logistics Support	WR	NADEP : Cherry Point, NC	8.300	4.559	Dec 2014	3.493	Dec 2015	3.057	Dec 2016	-		3.057	5.860	25.269	-
Integrated Logistics Support	C/CPFF	GDIT : Fairfax, VA	11.284	3.201	Apr 2015	3.001	Apr 2016	2.906	Apr 2017	-		2.906	5.449	25.841	25.841

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605212N / CH-53K	Project (Number/Name) 3059 / CH-53K Development
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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Integrated Logistics Support	WR	Various : Various	38.086	2.077	Dec 2014	3.169	Dec 2015	3.325	Dec 2016	-		3.325	6.295	52.952	-
Studies & Analyses	WR	NSWC : Crane, IN	3.500	0.000		0.000		0.000		-		0.000	0.000	3.500	-
Studies & Analyses	Various	Various : Various	22.127	0.000		0.000		0.000		-		0.000	0.000	22.127	-
Subtotal			101.034	14.490		16.900		15.796		-		15.796	50.456	198.676	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Developmental Test & Evaluation	WR	Various : Various	19.808	2.985	Dec 2014	2.391	Dec 2015	4.250	Dec 2016	-		4.250	24.879	54.313	-
Developmental Test & Evaluation	WR	NAWCAD : Pax River, MD	27.006	19.342	Dec 2014	24.610	Dec 2015	31.443	Dec 2016	-		31.443	30.476	132.877	-
Operational Test & Evaluation	WR	COMPTEVFOR : Norfolk, VA	2.492	0.433	Dec 2014	0.961	Dec 2015	1.157	Dec 2016	-		1.157	15.499	20.542	-
Live Fire Test & Evaluation	WR	NAWCWD : China Lake, CA	5.996	4.132	Dec 2014	3.935	Dec 2015	3.432	Dec 2016	-		3.432	7.594	25.089	-
Subtotal			55.302	26.892		31.897		40.282		-		40.282	78.448	232.821	-

Remarks
Test and Evaluation requirements increase in FY17 as System Demonstration Test Articles (SDTAs) are delivered to the CH-53K Integrated Test Team (ITT).

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Contractor Engineering Support	Various	Various : Various	18.086	3.481	Dec 2014	4.163	Dec 2015	4.197	Dec 2016	-		4.197	4.579	34.506	-
Government Engineering Support	WR	NAWCAD : Pax River, MD	265.860	35.679	Dec 2014	38.720	Dec 2015	23.554	Dec 2016	-		23.554	53.293	417.106	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605212N / CH-53K	Project (Number/Name) 3059 / CH-53K Development
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support	C/CPFF	Camber : Huntsville, AL	41.708	0.000		0.000		0.000		-		0.000	0.000	41.708	41.708
Program Management Support	C/CPFF	Zenetix : Herndon, VA	1.000	6.528	Jan 2015	6.328	Jan 2016	4.451	Jan 2017	-		4.451	13.349	31.656	31.656
Program Management Support	Various	Various : Various	60.855	1.052	Dec 2014	1.159	Dec 2015	1.129	Dec 2016	-		1.129	6.789	70.984	-
Travel	WR	NAWCAD : Pax River, MD	3.499	0.269	Dec 2014	0.275	Dec 2015	0.275	Dec 2016	-		0.275	1.675	5.993	-
Prior year Mgmt cost no longer funded in the FYDP	Various	Various : Various	1.950	0.000		0.000		0.000		-		0.000	0.000	1.950	-
Subtotal			392.958	47.009		50.645		33.606		-		33.606	79.685	603.903	-

Remarks
Management Services requirements decrease in FY17 as both Government and Contractor support begin to transition to the CH-53K Production program.

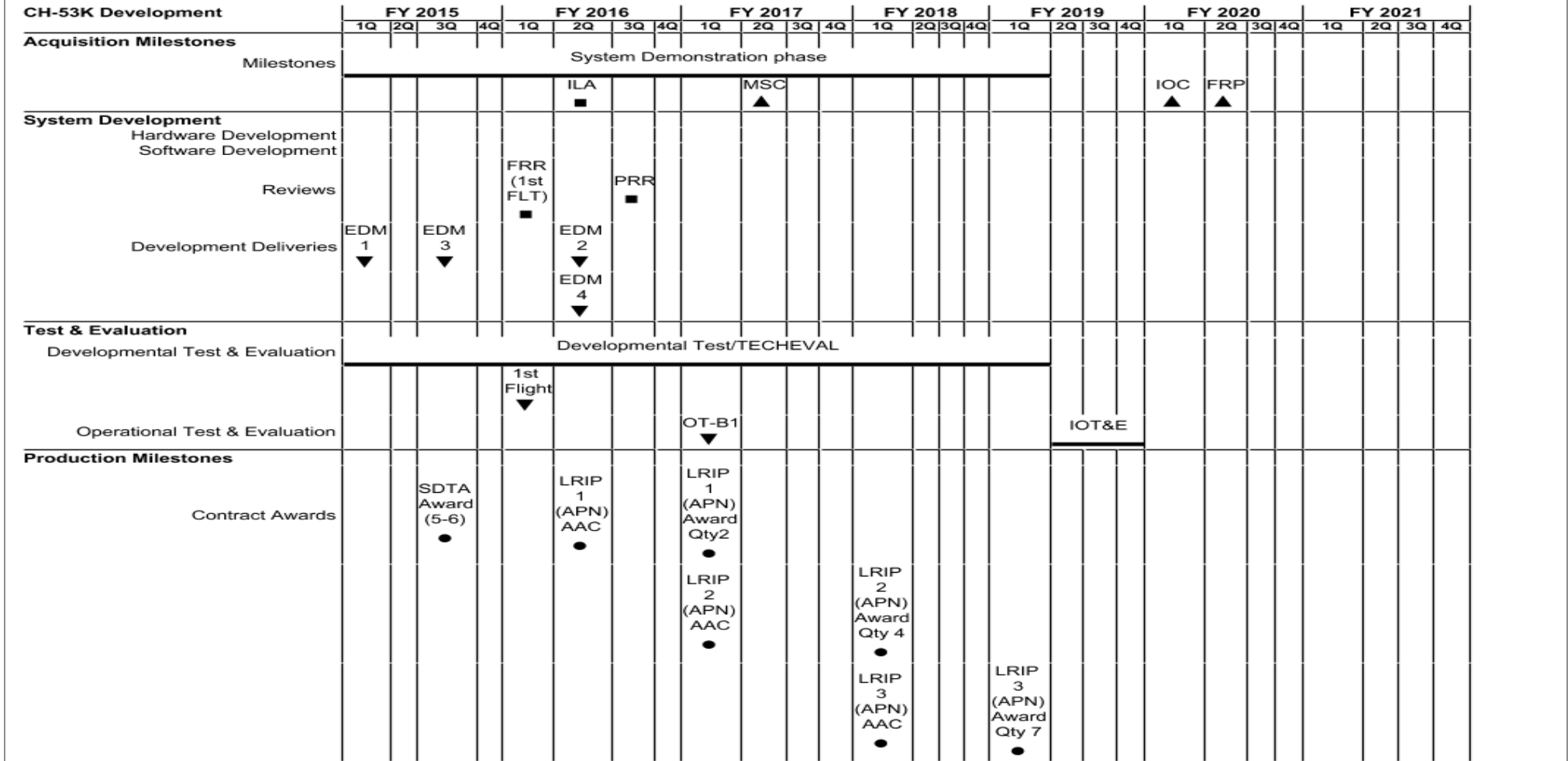
	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	4,280.397	538.192	592.317	404.810	-	404.810	782.597	6,598.313	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605212N / CH-53K	Project (Number/Name) 3059 / CH-53K Development
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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605212N / CH-53K	Project (Number/Name) 3059 / CH-53K Development
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
CH-53K Development				
Acquisition Milestones: Milestones: System Demonstration phase	1	2015	1	2019
Acquisition Milestones: Milestones: Integrated Logistics Assessment (ILA)	2	2016	2	2016
Acquisition Milestones: Milestones: Milestone C	2	2017	2	2017
Acquisition Milestones: Milestones: Initial Operational Capability	1	2020	1	2020
Acquisition Milestones: Milestones: Full Rate Production	2	2020	2	2020
System Development: Reviews: Flight Readiness Review (FRR) - 1st Flight	1	2016	1	2016
System Development: Reviews: Production Readiness Review (PRR)	3	2016	3	2016
System Development: Development Deliveries: Engineering Development Model (EDM) #1 delivery	1	2015	1	2015
System Development: Development Deliveries: Engineering Development Model (EDM) #2 delivery	2	2016	2	2016
System Development: Development Deliveries: Engineering Development Model (EDM) #3 delivery	3	2015	3	2015
System Development: Development Deliveries: Engineering Development Model (EDM) #4 delivery	2	2016	2	2016
Test & Evaluation: Developmental Test & Evaluation: Developmental Test / TECHEVAL	1	2015	1	2019
Test & Evaluation: Developmental Test & Evaluation: First Flight	1	2016	1	2016
Test & Evaluation: Operational Test & Evaluation: Operational Test & Evaluation (OT) B1 (OT-B1)	1	2017	1	2017
Test & Evaluation: Operational Test & Evaluation: IOT&E	2	2019	4	2019
Production Milestones: Contract Awards: System Demonstration Test Articles (SDTA) Award (5-6)	3	2015	3	2015

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605212N / CH-53K	Project (Number/Name) 3059 / CH-53K Development
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Production Milestones: Contract Awards: LRIP Advance Acquisition Contract (lot 1) - APN	2	2016	2	2016
Production Milestones: Contract Awards: LRIP 1 Contract Award - APN Qty 2	1	2017	1	2017
Production Milestones: Contract Awards: LRIP Advance Acquisition Contract (lot 2) - APN	1	2017	1	2017
Production Milestones: Contract Awards: LRIP 2 Contract Award - APN Qty 4	1	2018	1	2018
Production Milestones: Contract Awards: LRIP Advance Acquisition Contract (lot 3) - APN	1	2018	1	2018
Production Milestones: Contract Awards: LRIP 3 Contract Award - APN Qty 7	1	2019	1	2019
Production Milestones: Contract Awards: LRIP Advance Acquisition Contract (lot 4) - APN	1	2019	1	2019
Production Milestones: Contract Awards: LRIP 4 Contract Award - APN Qty 13	1	2020	1	2020
Production Milestones: Contract Awards: FRP Advance Acquisition Contract (lot 5) - APN	1	2020	1	2020
Production Milestones: Contract Awards: FRP 5 Contract Award - APN Qty 14	1	2021	1	2021
Production Milestones: Contract Awards: FRP Advance Acquisition Contract (lot 6) - APN	1	2021	1	2021
Deliveries: Sys. Dem. Test Articles (RDT&E): System Demonstration Test Articles (SDTA) #1	1	2017	1	2017
Deliveries: Sys. Dem. Test Articles (RDT&E): System Demonstration Test Articles (SDTA) #2	2	2017	2	2017
Deliveries: Sys. Dem. Test Articles (RDT&E): System Demonstration Test Articles (SDTA) #3	3	2017	3	2017
Deliveries: Sys. Dem. Test Articles (RDT&E): System Demonstration Test Articles (SDTA) #4	4	2017	4	2017
Deliveries: Sys. Dem. Test Articles (RDT&E): System Demonstration Test Articles (SDTA) #5	2	2019	2	2019
Deliveries: Sys. Dem. Test Articles (RDT&E): System Demonstration Test Articles (SDTA) #6	3	2019	3	2019

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605212N / CH-53K	Project (Number/Name) 3059 / CH-53K Development
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Deliveries: LRIP (APN): LRIP Lot #1 1st delivery of 2	1	2020	1	2020
Deliveries: LRIP (APN): LRIP Lot #1 2nd delivery of 2	2	2020	2	2020
Deliveries: LRIP (APN): LRIP Lot #2 1st delivery of 4	1	2021	1	2021
Deliveries: LRIP (APN): LRIP Lot #2 2nd delivery of 4	2	2021	2	2021
Deliveries: LRIP (APN): LRIP Lot #2 3rd delivery of 4	3	2021	3	2021
Deliveries: LRIP (APN): LRIP Lot #2 4th delivery of 4	4	2021	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605215N / (U) <i>Mission Planning</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	0.000	33.570	-	33.570	34.230	33.860	33.905	34.612	Continuing	Continuing
2213: <i>Mission Planning</i>	0.000	0.000	0.000	21.779	-	21.779	21.771	21.673	21.539	21.988	Continuing	Continuing
2311: <i>Stores Planning and Weaponeering Module</i>	0.000	0.000	0.000	11.153	-	11.153	11.788	11.502	11.667	11.911	Continuing	Continuing
2312: <i>Common Helicopters</i>	0.000	0.000	0.000	0.638	-	0.638	0.671	0.685	0.699	0.713	Continuing	Continuing

Note

Prior to FY17, Mission Planning (PU 2213) was funded under PE 0604231N; Stores Planning and Weaponeering Module (PU 2311) and Common Helicopters (PU 2312) were funded under PE 0604215N.

A. Mission Description and Budget Item Justification

Mission Planning develops automated mission planning systems to support Naval Aviation.

Joint Mission Planning System (JMPS) is the designated automated mission planning system for the Navy, supporting over 40 T/M/S and expeditionary forces. JMPS-M enables weapon system employment by providing the information, automated tools, and decision aids needed to rapidly plan aircraft, weapon, or sensor missions, load mission data into aircraft and weapons, and conduct mission rehearsal and post-mission analysis. JMPS-E is a scalable, tailorable, mission planning and execution monitoring tool for Amphibious Squadron staffs.

Stores Planning and Weaponeering Module, also referred to as Weaponeering and Stores Planning (WASP), is an integrated software product that allows aircrew to determine the best combinations of weapons and delivery conditions to achieve the desired level of target damage, eliminate weapon delivery solutions that violate aircraft Type/Model/Series (T/M/S) specific safety-of-flight envelopes, and perform detailed weapons employment planning for F/A-18 and E/A-18G aircraft.

Common Helicopters focus on developing the unique planning requirements for helicopters. The unique and enhanced automated mission planning functionality requirements that must be developed and implemented for helicopters will be developed and then implemented into Joint Mission Planning System (JMPS).

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under MISSION PLANNING because it includes those projects that have passed Milestone B approval and are conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full-rate production decision.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605215N / (U)Mission Planning
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	33.570	-	33.570
Total Adjustments	0.000	0.000	33.570	-	33.570
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	0.000	0.000	38.277	-	38.277
• Rate/Misc Adjustments	0.000	0.000	-4.707	-	-4.707

Change Summary Explanation

Decrease in (U) Mission Planning by \$1.41M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

Technical: N/A

Schedule:

2213:

Prior to FY17, schedule for the Joint Mission Planning Systems (JMPS) profile is under PE 0604231N.

2311:

Prior to FY17, schedule for Stores Planning and Weaponing Module profile is under PE 0604215N.

2312:

Prior to FY17, schedule for the Common Helicopter profile is under PE 0604215N.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0605215N / (U)Mission Planning				Project (Number/Name) 2213 / Mission Planning			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2213: Mission Planning	0.000	0.000	0.000	21.779	-	21.779	21.771	21.673	21.539	21.988	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Prior to FY17, Mission Planning (PU 2213) was budgeted under Tactical Command System PE 0604231N.

A. Mission Description and Budget Item Justification

Joint Mission Planning System (JMPS) is the designated automated mission planning system for the Navy, supporting over 40 T/M/S. Future JMPS platforms include: MQ-4C (Triton), P-8 and CH-53K. JMPS enables weapon system employment by providing the information, automated tools, and decision aids needed to rapidly plan aircraft, weapon, or sensor missions, load mission data into aircraft and weapons, and conduct post-mission analysis. JMPS is a mission critical system which is a co-development effort between the United States Navy (USN) and United States Air Force (USAF). Common requirements are identified and capabilities are developed and prioritized in an evolutionary approach. An individual JMPS Mission Planning Environment (MPE) is a combination of the JMPS framework, common components, unique planning components (UPCs), federated applications, and the necessary system hardware required to satisfy mission planning objectives. Most Tactical Naval Aviation platforms are dependent solely on JMPS to plan precision guided munitions, sensor systems, tactical data links, secure voice communications, and basic Safety of Flight functions. The JMPS Increment 4 will support mission planning for over 40 T/M/S. Increment 4, which includes 64-bit, delivers JMPS FW 1.5 and will transition JMPS from Windows 7/32-bit Operating System (OS) to Windows 10/64-bit OS. Transition to 64-bit allows for memory space expansion to accommodate future Microsoft Operating Systems, emerging technologies, and critical Cybersecurity updates. Funding profile includes JMPS baseline efforts for all existing T/M/S on Windows 7/32-bit framework while concurrently re-architecting to a 64-bit framework. Increment 4 development requires software conversion and refactoring to address memory limitations and system errors resulting in JMPS computer crashes. The transition from the current 32-bit architecture (4GB RAM) to a 64-bit architecture (192GB RAM) provides additional memory access, increased planning efficiencies; creating a increased stability in the architecture resulting in fewer system crashes. Delaying JMPS 64-bit transition (Increment 4) will allow existing system crashes to continue, and will decrease system stability in the future due to platform capability enhancements that require increased amounts of data and processing power.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Joint Mission Planning System Expeditionary (JMPS-E)	0.000	0.000	0.908	0.000	0.908
Articles:	-	-	-	-	-
Description: JMPS Expeditionary (JMPS-E): The goal of JMPS-E is to produce a scalable, tailorable, mission planning and execution monitoring tool for Amphibious Squadron staffs. The primary focus of this system is to provide an automated capability to assist planners with mission analysis, course of action development and automated creation of doctrinal orders based on planning data in the system. Current expeditionary planning is done manually on paper charts. JMPS-E provides a digital map enabling better response times to changing plans, easier distribution of planning artifacts and a reduction in human error during the planning process. The					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605215N / (U)Mission Planning	Project (Number/Name) 2213 / Mission Planning
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>variety and geographically separated nature of forces involved with Ship to Shore Maneuver amplifies the need for web-based technologies to enable collaborative planning, improve overall situational awareness and enable the monitoring of mission execution from different locations. The primary outputs are tasking orders, route plans, battlespace geometries and decision briefs. The system will also incorporate modeling and simulation tools to rehearse and deconflict mission plans.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans: Complete testing of JMPS- MPE Version 2.1. Development, integration and testing of JMPS-E MPE Version 3.0</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Mission Planning Environment Program Mgmt, Integration, and Test</p> <p align="right">Articles:</p> <p>Description: Mission Planning Environment (MPE) Integration and Test efforts support the Navy's developmental testing/operational testing, integration and system of system testing for MPE fielding, integrating, testing, and managing the Electronic Kneeboard (EKB) efforts. Life-cycle management efforts consist of integration of components provided by various developers into a platform-centric MPE and testing of the integrated MPE. MPE integration and testing results in a consistent and repeatable system configuration that enables stability and reliability.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans: Continue integration and testing, project management and systems engineering for current MPEs as well as supporting future releases of JMPS and Electronic Kneeboard (EKB) software to the fleet.</p> <p>FY 2017 OCO Plans:</p>	0.000 -	0.000 -	11.471 -	0.000 -	11.471 -

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605215N / (U)Mission Planning	Project (Number/Name) 2213 / Mission Planning
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
<p>Title: JMPS Framework (FW) and Common Components (CC) Development</p> <p align="right">Articles:</p> <p>Description: Continue integration of JMPS 64-bit FW Version 1.3.5 which incorporates Windows OS 7 and provides additional capabilities for all naval aircraft to include air drop, air refueling and enhanced installation. Funding for FW will be used to support system engineering processes, management interface controls, software architectural analysis, requirements management and a centralized website for Mission Planning Environment (MPE) developers. As platform(s) requirements emerge for new and enhanced mission planning capabilities, the demand for more complex integrated applications and software products increases. Without this planned transition to a 64-Bit architecture, the volume of integrated mission planning capability for the fleet will be limited. Common Components software updates augment core mission planning capabilities across multiple T/M/S.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans: Continue implementation of the Increment-4 JMPS Framework Core 64-bit development transition activities. Major events include the development of Cybersecurity safeguards addressing IA mandates, development of additional JMPS help features, and code conversion for the JMPS Core Framework (Basic Flight Planning Capabilities) and Common Components for MPE/UPCs including significant efforts for the F/A-18 A-F and E/A-18G platforms. In addition, efforts include initiation of 64-bit transition development for JMPS Common Components used by multiple platforms. The transition of the JMPS Common Components are aligned to meet platform(s) requirements for new and enhanced mission planning capability in a 64-bit environment. The 64-bit transition is required to address system performance issues (RAM) with the fielded Mission Planning Environment (MPE); thus reducing system crashes while improving mission planning performance for the fleet.</p> <p>FY 2017 OCO Plans: N/A</p>	0.000	0.000	9.400	0.000	9.400
	-	-	-	-	-
Accomplishments/Planned Programs Subtotals	0.000	0.000	21.779	0.000	21.779

C. Other Program Funding Summary (\$ in Millions) N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy Date: February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605215N / (U)Mission Planning	Project (Number/Name) 2213 / Mission Planning
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C. Other Program Funding Summary (\$ in Millions)

Remarks

D. Acquisition Strategy

The initial Joint Mission Planning System (JMPS) development effort was a phased evolutionary approach. Multiple contracts were awarded during initial development. During the down-select process, one contractor was selected to develop the JMPS architecture work and Version 1.0 basic flight planning components. Additional phases focused on strike planning requirements (i.e., support Precision Guided Missions and other tactical data intensive missions) in order to migrate platforms from legacy mission planning systems to JMPS. The USAF continued development of JMPS Framework Versions 1.3 and 1.5 and owns the Mission Planning Enterprise Contract, which is used for JMPS Framework software development. The USN integration and fielding strategy supports a Mission Planning Environment (MPE) focus, where the JMPS Framework and other software components are integrated, tested, and fielded by T/M/S. The USN Increment 4, and beyond, will address increased Mission Planning system capabilities required by the 21st Century Warfighter and modernizes the architecture of JMPS to address technological obsolescence. As platforms plan their migration to newer versions of JMPS, the acquisition strategy, plan, and program baseline will be updated in order to divest legacy mission planning systems, meet the evolving requirements for integrated mission planning, and lower total life cycle cost.

E. Performance Metrics

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

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

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605215N / (U)Mission Planning	Project (Number/Name) 2213 / Mission Planning
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary Software Development/JMPS Expeditionary	C/CPFF	various : various	0.000	0.000		0.000		0.400	Feb 2017	-		0.400	Continuing	Continuing	Continuing
Primary Software Development, Inc 4	C/CPFF	Northrop Grumman : Long Beach, CA	0.000	0.000		0.000		4.500	Feb 2017	-		4.500	Continuing	Continuing	Continuing
Primary Software Development MPE	C/CPFF	Leidos : Orlando, FL	0.000	0.000		0.000		1.800	Feb 2017	-		1.800	Continuing	Continuing	Continuing
Primary Software Development/(Human Factors)	C/CPFF	Georgia Technical Research Institute (GTRI) : Atlanta, GA	0.000	0.000		0.000		1.500	Mar 2017	-		1.500	Continuing	Continuing	Continuing
Primary Software Development Increment 4	C/CPFF	TBD : TBD	0.000	0.000		0.000		1.600	Jan 2017	-		1.600	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		9.800		-		9.800	-	-	-

Remarks
The FY17 Increment 4 Primary Software Development effort is a competitive NAVAIR Multiple Award Contract (MAC) award therefore the performing activity and location are currently TBD to support a competitive contracting strategy.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Integrated Logistics Support	WR	NAWCWD : Point Mugu, CA	0.000	0.000		0.000		0.208	Nov 2016	-		0.208	Continuing	Continuing	Continuing
Systems Eng & Integration	WR	NAWCWD : Point Mugu, CA	0.000	0.000		0.000		2.487	Nov 2016	-		2.487	Continuing	Continuing	Continuing
Systems Engineering	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.000		1.000	Nov 2016	-		1.000	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		3.695		-		3.695	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605215N / (U)Mission Planning	Project (Number/Name) 2213 / Mission Planning
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Test & Evaluation	WR	NAWCWD : Point Mugu, CA	0.000	0.000		0.000		5.860	Nov 2016	-		5.860	Continuing	Continuing	Continuing
Test & Evaluation	WR	COMOPTEVFOR : Norfolk, VA	0.000	0.000		0.000		0.700	Jan 2017	-		0.700	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		6.560		-		6.560	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support and Travel	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.000		1.400	Nov 2016	-		1.400	Continuing	Continuing	Continuing
Program Management Support	C/CPFF	TBD : TBD	0.000	0.000		0.000		0.324	Jan 2017	-		0.324	0.000	0.324	-
Subtotal			0.000	0.000		0.000		1.724		-		1.724	-	-	-

Remarks
The FY17 Program Management Support contract will be a competitive award in FY17 so the performing activity and location are currently TBD due to the competitive contracting strategy.

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000	0.000	21.779	-	21.779	-	-	-

Remarks
Prior to FY17, the Mission Planning PU 2213 was funded under PE 0604231N

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605215N / (U)Mission Planning	Project (Number/Name) 2213 / Mission Planning
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Joint Mission Planning Systems (JMPS)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestone																												
Milestones																												
Primary Software Development																												
Framework Development																												
Mission Planning Environment (MPE) Development																												
MPE Integration and Test																												

Increment
4/64-bit
IOC
▲

Increment
4/64bit
development

V1.3.5 MPE Integration

V1.5.x MPE Integration

2017DON - 0605215N - 2213

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605215N / (U)Mission Planning	Project (Number/Name) 2213 / Mission Planning
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Joint Mission Planning Systems (JMPS)				
Acquisition Milestone: JMPS FW Increment 4/ 64 Bit Initial Operational Capability (IOC)	2	2020	2	2020
Primary Software Development: Framework Development: JMPS FW Increment 4/ 64 Bit Architecture Development	1	2017	4	2017
Mission Planning Environment (MPE) Development: MPE Integration and Test: JMPS 64-bit Mission-Planning Environment (MPE) Integration/Validation	1	2017	4	2019
Mission Planning Environment (MPE) Development: MPE Integration and Test: JMPS FW 64 Bit Integration/Validation	4	2017	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0605215N / (U)Mission Planning				Project (Number/Name) 2311 / Stores Planning and Weaponing Module			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2311: Stores Planning and Weaponing Module	0.000	0.000	0.000	11.153	-	11.153	11.788	11.502	11.667	11.911	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Prior to FY17, Stores Planning and Weaponing Module (PU 2311) was budgeted under Standards Development (PE 0604215N).

A. Mission Description and Budget Item Justification

The Weaponing and Stores Planning (WASP) components, are integrated software products that allow aircrew to determine the best combinations of weapons and delivery conditions to achieve the desired level of target damage, eliminate weapon delivery solutions that violate aircraft Type/Model/Series (T/M/S) specific safety-of-flight envelopes, and perform detailed weapons employment planning. WASP is approved by Air Warfare Division (N98) as a flight clearance implementation system for the F/A-18 A, A+, B, C, D, D (RC), E, F, EA-18G; potential support for other platforms, to include F-35. WASP components will alert pilots if their planned weapon release conditions meet flight clearance limits, will result in bomb-to-bomb collisions, bomb-to-aircraft collisions, aircraft overstress, or excessive risk of aircraft loss/damage in the event of fuze early bursts. Weapon employment planning is fundamental to the Joint Capability Area of Force Application and joint mission areas of Strike and Amphibious Warfare. WASP provides the Navy and Marine Corp with weaponing capabilities that are critical requirements for Interdiction, Armed Reconnaissance and Close Air Support mission planning. Therefore, WASP product availability is critical to successful employment of the Joint Mission Planning System (JMPS) for the F/A-18 A-F and EA-18G. The WASP product encompasses a multitude of Government Furnished Information software components and tools (aircraft target maneuver simulations, weapon flyout models, target probability of damage calculators). WASP products will require updates as emergent requirements for new aircraft T/M/S, stores and weapons are approved, new flight clearances and flight restrictions are issued by Naval Air Systems Command Headquarters (NAVAIRSYSCOM), and developing WASP as a software application.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Product Development	0.000	0.000	5.876	0.000	5.876
Articles:	-	-	-	-	-
Description: Includes associated system engineering design, development, installation, integration and software development for Weaponing and Stores Planning (WASP) components v3.x and v4.x to support F/A-18 A-F and EA-18G. Naval Air Warfare Center Weapons Division (NAWCWD), Joint Software Support Activity (JSSA) will develop and maintain the AV-8B Weapons and Release Planning (WARP) tool. Define requirements to integrate WASP components into the Joint Mission Planning System (JMPS). Provide domain engineering support for weapons separation, aircraft loads, flutter, fuzing and safe escape for application to WASP. Provide analysis of new requirements, allocation of requirements, design oversight, and life cycle management of					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605215N / (U)Mission Planning	Project (Number/Name) 2311 / Stores Planning and Weaponneering Module

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>the WASP program. Develop new aircraft configuration, aircraft loading, weapon optimization, store release and delivery planning components for F/A-18 A-F and EA-18G new flight clearances and flight restrictions issued by NAVAIRSYSCOM. Provide configuration management, system administration, quality assurance, documentation, metrics and software risk management for WASP. Acquire, integrate and modify numerous Government Furnished Information (GFI) software components and tools (aircraft target maneuver simulations, weapon flyout models, target probability of damage calculators, etc.) that are used for the WASP software development. Integrate WASP with Joint Standoff Weapon/Joint Direct Attack Munitions/Standoff Land-Attack Missile - Expanded Response and other weapons mission planning systems as required.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans: Continue WASP v4.0 development and release multiple database updates.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Test and Evaluation (T&E)</p> <p align="right">Articles:</p> <p>Description: Provide test and evaluation for unit and system level testing; functional qualification testing; safety of flight certification testing; integration and standards compliance testing for Weaponneering and Stores Planning (WASP) versions v3.x and v4.x. Provide Joint Mission Planning System Mission Planning Environment Integration test support. Provide testing and test support to ensure all (to include internally developed software, externally developed GFI) components comply with Department of Navy (DoN) and Department of Defense (DoD) software mandates and directives. These include Integrated Shipboard Network System IT-21, DoD Information Assurance Certification and Accreditation Process, Navy Marine Corps Intranet (NMCI) and DoD Information Technology Portfolio Repository. All Fleet released software must comply with DoN and DoD software directives or will not be allowed to run on ship Local Area Networks or NMCI.</p> <p>FY 2015 Accomplishments:</p>	0.000	0.000	2.266	0.000	2.266
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605215N / (U)Mission Planning	Project (Number/Name) 2311 / Stores Planning and Weaponering Module

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A FY 2016 Plans: N/A FY 2017 Base Plans: Complete test and evaluation of WASP major v3.3 and release to the Fleet. Begin testing of WASP major v4.0. Complete test and evaluation of multiple database updates. FY 2017 OCO Plans: N/A					
Title: Program Management/Systems Engineering Description: Provide program management and systems engineering support, which includes requirements definition and analysis, compliance with Naval Air Systems Command systems engineering technical review processes, acquisition documentation development, cost, schedule and performance management, and compliance with external directives. Provide travel for government personnel. FY 2015 Accomplishments: N/A FY 2016 Plans: N/A FY 2017 Base Plans: Continue project management and systems engineering support to the WASP for future software releases to the fleet. Additional support will be required for multiple database releases. FY 2017 OCO Plans: N/A	0.000 <i>Articles:</i> -	0.000 -	3.011 -	0.000 -	3.011 -
Accomplishments/Planned Programs Subtotals	0.000	0.000	11.153	0.000	11.153

C. Other Program Funding Summary (\$ in Millions) N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605215N / (U)Mission Planning	Project (Number/Name) 2311 / Stores Planning and Weaponering Module

C. Other Program Funding Summary (\$ in Millions)

Remarks

D. Acquisition Strategy

Weaponering and Stores Planning (WASP) products, delivered annually, were developed in-house by NAVAIR consisting of Naval Air Warfare Center Aircraft Division and Naval Air Warfare Center Weapons Division engineers and support contractors. The team has now migrated to a smaller government team that provides functional expertise in aircraft safety-of-flight (air-vehicle stores compatibility, weapons separation, aircraft aerodynamic flutter, ground/flight loads, authorized fuze arm times, aircraft safe escape), guided weapons employment and weapons effects against targets, with the majority of the software development conducted by various contractors. The Government, engineering, test, and support teams (test facilities, functional qualification testing and certification/accreditation test) are supplemented with contractor labor.

E. Performance Metrics

Average time to plan a flight: Threshold value is < 1 hour average time to plan a flight that includes full aircraft loadout and weapons delivery safe escape planning. Objective value is < 15 minutes average time to plan a flight that includes full aircraft loadout and weapons delivery safe escape planning. End product is a pilot's z-diagram knee board card.

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

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy											Date: February 2016				
Appropriation/Budget Activity 1319 / 5						R-1 Program Element (Number/Name) PE 0605215N / (U)Mission Planning					Project (Number/Name) 2311 / Stores Planning and Weaponering Module				

Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Product Development	WR	Naval Air Warfare Center Aircraft Division NAWCAD : Patuxent River, MD	0.000	0.000		0.000		0.177	Nov 2016	-		0.177	Continuing	Continuing	Continuing
Product Development	WR	Air Force Seek Eagle : Hill Air Force Base, UT	0.000	0.000		0.000		0.083	Mar 2017	-		0.083	Continuing	Continuing	Continuing
Primary Software Development	C/CPFF	DCS Corp : Alexandria, VA	0.000	0.000		0.000		1.721	Feb 2017	-		1.721	0.000	1.721	1.721
Product Development	C/CPFF	TBD : TBD	0.000	0.000		0.000		3.895	Mar 2017	-		3.895	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		5.876		-		5.876	-	-	-

Remarks
The FY17 Product Development contract will be a competitive award in FY17 so the performing activity and location are currently TBD due to the competitive contracting strategy.

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test & Evaluation (Gov't)	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.000		1.142	Nov 2016	-		1.142	Continuing	Continuing	Continuing
Test & Evaluation (Contractor)	C/CPFF	ManTech : Fairfax, VA	0.000	0.000		0.000		1.124	Mar 2017	-		1.124	0.000	1.124	1.124
Subtotal			0.000	0.000		0.000		2.266		-		2.266	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
System Engineering and Program Support	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.000		1.100	Nov 2016	-		1.100	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy											Date: February 2016				
Appropriation/Budget Activity 1319 / 5						R-1 Program Element (Number/Name) PE 0605215N / (U)Mission Planning					Project (Number/Name) 2311 / Stores Planning and Weaponering Module				

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support	C/CPFF	TBD : TBD	0.000	0.000		0.000		0.441	Jan 2017	-		0.441	0.000	0.441	0.441
Government Engineering Support: Guided Weapons	WR	Naval Air Warfare Center Weapons Division NAWCWD : China Lake, CA	0.000	0.000		0.000		0.023	Jan 2017	-		0.023	Continuing	Continuing	Continuing
Systems Engineering Support	C/CPFF	Wyle : Huntsville, AL	0.000	0.000		0.000		1.357	Jan 2017	-		1.357	0.000	1.357	1.357
Govt Engineering Support: Mission Planning Environment Integration	WR	NAWCWD : Point Mugu, CA	0.000	0.000		0.000		0.080	Nov 2016	-		0.080	Continuing	Continuing	Continuing
Travel	Various	NAVAIR : Patuxent River, MD	0.000	0.000		0.000		0.010	Nov 2016	-		0.010	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		3.011		-		3.011	-	-	-

Remarks
The FY17 Program Management Support contract will be a competitive award in FY17 so the performing activity and location are currently TBD due to the competitive contracting strategy.

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000	0.000	11.153	-	11.153	-	-	-

Remarks
Prior to FY17, PU 2311 was budgeted under PE 0604215N.

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605215N / (U)Mission Planning	Project (Number/Name) 2311 / Stores Planning and Weaponering Module
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Stores Planning and Weaponering Module	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021											
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q								
Systems Development																																				
WASP v4.0 (F/A-18A/B/C/D/E/F, EA-18G)									—————																											
WASP v4.1 (F/A-18A/B/C/D/E/F, EA-18G)													—————																							
WASP v4.2 (F/A-18A/B/C/D/E/F, EA-18G)																	—————																			
WASP v5.0 (F/A-18A/B/C/D/E/F, EA-18G)																									—————											
Test & Evaluation Milestones																																				
WASP v3.3 (F/A-18A/B/C/D/E/F, EA-18G)									——▲																											
WASP v4.0 (F/A-18A/B/C/D/E/F, EA-18G)													—————																							
WASP v4.1 (F/A-18A/B/C/D/E/F, EA-18G)																	——▲																			
WASP v4.2 (F/A-18A/B/C/D/E/F, EA-18G)																									——▲											
WASP v5.0 (F/A-18A/B/C/D/E/F, EA-18G)																													—————							
Production Milestones																																				
WASP v3.3 (F/A-18A/B/C/D/E/F, EA-18G) IOC:									▲																											
WASP v4.0 (F/A-18A/B/C/D/E/F, EA-18G) IOC:																	▲																			
WASP v4.1 (F/A-18A/B/C/D/E/F, EA-18G) IOC:																					▲															
WASP v4.2 (F/A-18A/B/C/D/E/F, EA-18G) IOC:																													▲							
Ongoing Database Updates																																				

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605215N / (U)Mission Planning	Project (Number/Name) 2311 / Stores Planning and Weaponering Module

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Stores Planning and Weaponering Module				
Systems Development: WASP v4.0 (F/A-18A/B/C/D/E/F, EA-18G):	2	2017	2	2018
Systems Development: WASP v4.1 (F/A-18A/B/C/D/E/F, EA-18G):	2	2018	1	2019
Systems Development: WASP v4.2 (F/A-18A/B/C/D/E/F, EA-18G):	3	2019	2	2020
Systems Development: WASP v5.0 (F/A-18A/B/C/D/E/F, EA-18G):	2	2020	3	2021
Test & Evaluation Milestones: WASP v3.3 (F/A-18A/B/C/D/E/F, EA-18G):	1	2017	1	2017
Test & Evaluation Milestones: WASP v4.0 (F/A-18A/B/C/D/E/F, EA-18G):	3	2017	3	2018
Test & Evaluation Milestones: WASP v4.1 (F/A-18A/B/C/D/E/F, EA-18G):	1	2019	2	2019
Test & Evaluation Milestones: WASP v4.2 (F/A-18A/B/C/D/E/F, EA-18G):	2	2020	3	2020
Test & Evaluation Milestones: WASP v5.0 (F/A-18A/B/C/D/E/F, EA-18G):	4	2020	4	2021
Production Milestones: WASP v3.3 (F/A-18A/B/C/D/E/F, EA-18G) IOC::	2	2017	2	2017
Production Milestones: WASP v4.0 (F/A-18A/B/C/D/E/F, EA-18G) IOC::	4	2018	4	2018
Production Milestones: WASP v4.1 (F/A-18A/B/C/D/E/F, EA-18G) IOC::	3	2019	3	2019
Production Milestones: WASP v4.2 (F/A-18A/B/C/D/E/F, EA-18G) IOC::	4	2020	4	2020
Production Milestones: Ongoing Database Updates:	1	2017	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0605215N / (U)Mission Planning				Project (Number/Name) 2312 / Common Helicopters			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2312: Common Helicopters	0.000	0.000	0.000	0.638	-	0.638	0.671	0.685	0.699	0.713	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Prior to FY17, Common Helicopters (PU 2312) was budgeted under Standards Development (PE 0604215N).

A. Mission Description and Budget Item Justification

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

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Product Development	0.000	0.000	0.638	0.000	0.638
Articles:	-	-	-	-	-
Description: Development of Common Helicopter functionality and integration with JMPS Framework Versions 1.3.x and 64-bit Operating System. Common Components include Common Mission Data Loader (CMDL), Weapon Employment Zone Overlays Tool (WEZOT) and Point Selection Tool (PST).					
FY 2015 Accomplishments: N/A					
FY 2016 Plans: N/A					
FY 2017 Base Plans: Continue the development, test, and integration of Common Mission Data Loader (CMDL), Point Selection Tool (PST), and Weapon Employment Zone Overlays Tool (WEZOT).					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.000	0.000	0.638	0.000	0.638

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy Date: February 2016

Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
1319 / 5	PE 0605215N / (U)Mission Planning	2312 / Common Helicopters

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

Not applicable.

E. Performance Metrics

Export Mission Data to Data Transfer Device: Threshold value is < 12 minutes to transfer navigation, communication, weapon system initialization settings and intelligence data. Interoperability: Threshold value is 100% of top level Information Exchange Requirements (IERs) designated critical will be satisfied. Objective value is 100% of top level IERs will be satisfied.

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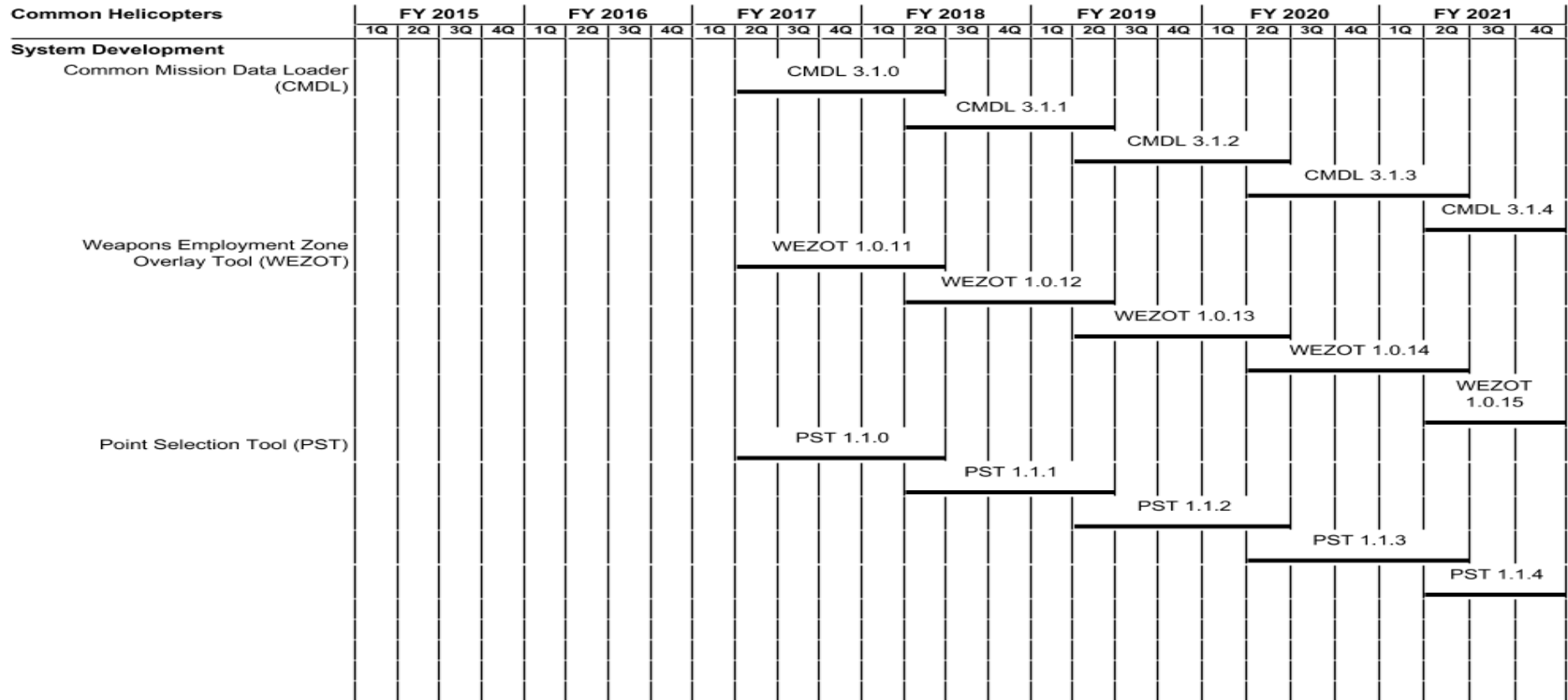
Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy

Date: February 2016

Appropriation/Budget Activity
1319 / 5

R-1 Program Element (Number/Name)
PE 0605215N / (U)Mission Planning

Project (Number/Name)
2312 / Common Helicopters



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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605215N / (U)Mission Planning	Project (Number/Name) 2312 / Common Helicopters
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Common Helicopters				
System Development: Common Mission Data Loader (CMDL): CMDL 3.1.0	2	2017	2	2018
System Development: Common Mission Data Loader (CMDL): CMDL 3.1.1	2	2018	2	2019
System Development: Common Mission Data Loader (CMDL): CMDL 3.1.2	2	2019	2	2020
System Development: Common Mission Data Loader (CMDL): CMDL 3.1.3	2	2020	2	2021
System Development: Common Mission Data Loader (CMDL): CMDL 3.1.4	2	2021	4	2021
System Development: Weapons Employment Zone Overlay Tool (WEZOT): WEZOT 1.0.11	2	2017	2	2018
System Development: Weapons Employment Zone Overlay Tool (WEZOT): WEZOT 1.0.12	2	2018	2	2019
System Development: Weapons Employment Zone Overlay Tool (WEZOT): WEZOT 1.0.13	2	2019	2	2020
System Development: Weapons Employment Zone Overlay Tool (WEZOT): WEZOT 1.0.14	2	2020	2	2021
System Development: Weapons Employment Zone Overlay Tool (WEZOT): WEZOT 1.0.15	2	2021	4	2021
System Development: Point Selection Tool (PST): PST 1.1.0	2	2017	2	2018
System Development: Point Selection Tool (PST): PST 1.1.1	2	2018	2	2019
System Development: Point Selection Tool (PST): PST 1.1.2	2	2019	2	2020
System Development: Point Selection Tool (PST): PST 1.1.3	2	2020	2	2021
System Development: Point Selection Tool (PST): PST 1.1.4	2	2021	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605217N / (U) <i>Common Avionics</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	0.000	51.599	-	51.599	63.898	56.027	57.190	56.981	Continuing	Continuing
0572: <i>JT Service/NV Std Avionics CP/SB</i>	0.000	0.000	0.000	51.599	-	51.599	63.898	56.027	57.190	56.981	Continuing	Continuing

Note
(U) Common Avionics schedule FY16 and prior is reflected in PE 0604215N, Project Unit 0572.

A. Mission Description and Budget Item Justification

Decrease in (U)COMMON AVIONICS by \$2.252M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

This project provides for the identification, study, design, development, demonstration, test, evaluation, and qualification of standard avionics capabilities for Navy use, and wherever practicable, use across all Services and Foreign Military Sales. Such air combat electronics developments include communications and airborne networking, navigation and sensors, flight avionics, safety systems, and flight mission information systems for both forward fit and retrofit aircraft. These efforts continue to maintain federated systems while encouraging transition of procurements to support a modular system for enhanced performance and affordability. Consideration is given up front to reduce acquisition costs through larger procurement quantities that satisfy multi-aircraft customer requirements and that reduce life cycle costs in the areas of reliability, maintainability, and training.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under SYSTEM DEVELOPMENT AND DEMONSTRATION because it includes those projects that have passed Milestone B approval and are conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full-rate production decision.

<u>B. Program Change Summary (\$ in Millions)</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	51.599	-	51.599
Total Adjustments	0.000	0.000	51.599	-	51.599
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	0.000	0.000	58.287	-	58.287

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy I BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605217N I (U) <i>Common Avionics</i>
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• Rate/Misc Adjustments	0.000	0.000	-6.688	-	-6.688
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Change Summary Explanation

Technical: Not applicable.

Schedule:

Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM): Extended Evaluate Automatic Dependent Surveillance-Broadcast Out from 4Q/18 to 4Q/21 and continue to Develop CNS/ATM Common Components to support Required Navigation Performance Area Navigation development of platform requirements from 4Q/18 to 4Q/21 to include Unmanned Systems.

Tactical Communications: Title corrected from Joint Precision And Landing System (JPALS) Software (S/W) Integration to Operational Flight Plan (OFP) Software Integration. Extended Crypto Engine Design from 2Q/19 to 4Q/19. Added Tactical Anti-Jam Second-Generation Anti-Jam Tactical Ultra High Frequency Radio for NATO 1Q/17 to 4Q/19. Name change from JPALS S/W to OFP S/W 1Q/17. Name change from IW2 S/W to Mobile User Objective System S/W in 1Q/19. Added Joint Interoperability Test Command/National Security Agency Certification in 3Q/17.

Ground Proximity Warning System/Terrain Awareness System (GPWS/TAWS II): Align the start of V-22 TAWS II Requirements Development from 1Q/17 to 1Q/18 based on platform schedule requirements to provide capability to the fleet. Align the start of V-22 TAWS II S/W Development from 1Q/18 to 1Q/19 due to platform integration schedule. V-22 Controlled Flight Into Terrain Study moved from 1Q/17 to 1Q/18. V-22 Test and Evaluation moved from 1Q/20 to 1Q/21. Due to MH-60R/S platform integration schedule slip, moved the MS C decision for H-60 from 1Q/18 to 3Q/18. H-60 TAWS II DT Phase I and II DT extended from 3Q/ FY17 to 1Q/18.

Mid Air Collision Avoidance Capability: Re-planned FY16-FY21 program due to a Business Case Analysis to properly align program. Material Development Decision/Acquisition Strategy Review (MDD/ASR) moved from 2Q/16 to 1Q/17. Capability Development Document (CDD) moved from 2Q/17 to 4Q/17. Specifications Review Board/Systems Readiness Review (SRB/SRR) moved from 1Q/17 to 2Q/17. Systems Functional Review (SFR) from 2Q/17 to 3Q/17. Software Design and Development (SDD) 3Q/18 to 2Q/18, Platform Integration shifted from 1Q/19 to 3Q/19. Test and Evaluation of MH-60R/S from 3Q/19 to 3Q/21, Test and Evaluation for UH-1Y/AH-1Z removed, new schedule is outside the FYDP.

(U) Common Avionics schedule FY16 and prior is reflected in PE 0604215N, Project Unit 0572.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605217N / (U)Common Avionics	Project (Number/Name) 0572 / JT Service/NV Std Avionics CP/SB
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
0572: JT Service/NV Std Avionics CP/SB	0.000	0.000	0.000	51.599	-	51.599	63.898	56.027	57.190	56.981	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note
(U) Common Avionics schedule FY16 and prior is reflected in PE 0604215N, Project Unit 0572.

A. Mission Description and Budget Item Justification

Joint Services/Navy Standard Avionics Components and Subsystems: This project provides for the identification, study, design, development, demonstration, test, evaluation, and qualification of standard avionics capabilities for Navy use, and wherever practicable, use across all Services and Foreign Military Sales. Standard avionics capabilities under development include the Joint Service Review Committee for Avionics Standardization (JSRC-AS), Communication Navigation Surveillance/Air Traffic Management (CNS/ATM), Tactical Communications (TACCOM), Ground Proximity Warning System/Terrain Awareness Warning System (GPWS/TAWS II), Collaborative Warfare (CW), Avionics Component Improvement Program (AvCIP), Mid Air Collision Avoidance Capability (MCAC), and Avionics Architectures Team (AAT). Participation in Human Factors Quality Management Board ensures Navy safety upgrades and mandatory safety improvements for naval aircraft.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Joint Service Review Committee for Avionics Standardization (JSRC-AS)	0.000	0.000	0.998	0.000	0.998
Articles:	-	-	-	-	-
Description: The JSRC-AS program supports Congressional and Assistant Secretary of the Navy for Research, Development and Acquisition direction to control the growing proliferation of unique avionics and improve coordination among the services through the identification, development, and promotion of investigative and development efforts across the services and U.S. Coast Guard. The JSRC-AS supports the development, analysis and review of new avionics requirements with potential for joint service application. The JSRC-AS consists of an O-6 Level principal from each service and U.S. Coast Guard, as well as the appropriate staff, to support joint service working group efforts. The JSRC-AS reports to the O-7 level tri-service Aviation Common Systems Board who reports to the O-9 level Joint Aeronautical Commanders Group.					
FY 2015 Accomplishments: N/A					
FY 2016 Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605217N / (U)Common Avionics	Project (Number/Name) 0572 / JT Service/NV Std Avionics CP/SB
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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<p>N/A</p> <p>FY 2017 Base Plans: Provide leadership in support of the Navy's interest to the Joint Services Review Committee for Avionics Standardization (JSRC-AS) tri-service committee promoting commonality and joint programs with focus on interoperability, communications, navigation, Joint Services avionics obsolescence management, and update of the Core Avionics Master Plan.</p> <p>FY 2017 OCO Plans: N/A</p>					
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<p>Title: Communication Navigation Surveillance/Air Traffic Management (CNS/ATM)</p> <p align="right">Articles:</p> <p>Description: This program will conduct and support CNS/ATM research, studies, development, integration, demonstration, test and evaluation efforts for naval aviation platforms in development. Platform integration of Mode Select (S), 8.33 kHz, Reduced Vertical Separation Minimum (RVSM), Required Navigation Performance Area Navigation (RNP/RNAV) to include M Code, and Automatic Dependent Surveillance-Broadcast Out (ADS-BO) functional integration and certification efforts into naval aircraft. Assist with insertion of communication, navigation, surveillance, and supporting technologies and conduct capability certification on developmental platforms such as F-35, CH-53K, and Unmanned Air Systems. Capabilities include Mode S, 8.33 kHz, RVSM, RNP/RNAV, ADS-BO, and other civil and military capabilities.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans: Assist with insertion and integration of CNS/ATM technologies and certification of developmental platforms. Evaluate technologies and develop solutions to support platform integrations. Develop CNS/ATM Common Components to support RNP RNAV developmental platform requirements. Continue integration/certification of Mode Select, 8.33 kHz, RVSM, RNP/RNAV, and ADS-BO into CH-53K. Research and develop Global Positioning System (GPS) enhancements to support CNS/ATM RNP RNAV improvements. Research and</p>	0.000	0.000	2.812	0.000	2.812
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605217N / (U)Common Avionics	Project (Number/Name) 0572 / JT Service/NV Std Avionics CP/SB
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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develop ADS-BO System Design Assurance requirements as well as compatibility with the emerging GPS M Code and its impact on RNP RNAV.

FY 2017 OCO Plans:
N/A

Title: Tactical Communications (TACCOM)

Articles:

Description: This program will conduct research, studies, development, integration, demonstration, test and evaluation efforts to ensure tactical communication systems and capabilities are developed and available to support naval aviation requirements. Perform tactical communication platform integration studies and activities to determine technical and cost effective solutions across naval aviation. Develop tactical communications (voice/data) requirements, concepts and systems which have application across naval aviation. Support all necessary tasks to ensure evolution of legacy communications systems incorporating programmable Communication Security/Information Assurance, mandated National Security Agency (NSA) Crypto Modernization initiatives, Combat Net Radio (CNR) Variable Message Format (VMF), Beyond Line-of-Sight, Satellite Communication (SATCOM) Modernization including Mobile User Objective System (MUOS), High Frequency, Second Generation Anti-Jam Tactical UHF Radio for NATO (SATURN) civil interoperability, and Joint Precision Approach Landing System (JPALS) data link into the ARC-210 system. Support for networking requirements development and prototyping, Integrated Waveform (IW), Intelligence Broadcast System over modern Code Division Multiple Access based satellite channels, Tactical Networks, Data Links, and Link 16.

	0.000	0.000	17.311	0.000	17.311
	-	-	-	-	-

FY 2015 Accomplishments:
N/A

FY 2016 Plans:
N/A

FY 2017 Base Plans:
Continue development of SATCOM S/W Development with MUOS capabilities. Submit Apollo crypto engine for Legacy NSA and Information Assurance (IA) certification. Develop Combat Net radio interoperability with Second-Generation Anti-Jam Tactical Ultra High Frequency (UHF) Radio for NATO (SATURN) waveform.

FY 2017 OCO Plans:

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605217N / (U)Common Avionics	Project (Number/Name) 0572 / JT Service/NV Std Avionics CP/SB
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
<p>Title: Ground Proximity Warning System/Terrain Awareness Warning System (GPWS/TAWS II)</p> <p align="right">Articles:</p> <p>Description: This program will conduct research, studies, development, integration, demonstration, test and evaluation efforts to meet naval aviation GPWS/TAWS II requirements. These requirements span all operational modes and operational environments, to include Degraded Visual Environment. Perform GPWS/TAWS II platform integration studies and activities to determine technical and cost effective solutions across naval aviation. Develop GPWS/TAWS II solutions tailored to platform performance and range of military operations. Develop simulation models for use at Manned Flight Simulator (MFS) or other simulation environments as required for platform tailoring, including procurement of test article hardware. Evaluate aircraft simulation models for suitability in GPWS/TAWS II development effort. Develop GPWS/TAWS II algorithms utilizing simulation environments as real-time hardware and pilot in the loop tool. Develop and evaluate algorithm interfaces necessary for integration of the algorithm within platform host computer. Develop software code to execute GPWS/TAWS II algorithm in host platforms.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans: Develop and deliver the second formal software build of TAWS II system to H-60. Continue Phase II Developmental Testing (DT) in MH-60R/S.</p> <p>FY 2017 OCO Plans: N/A</p>	0.000	0.000	7.834	0.000	7.834
	-	-	-	-	-
<p>Title: Collaborative Warfare (CW)</p> <p align="right">Articles:</p> <p>Description: The CW component is a Research & Development effort to identify targeting gaps and determine the warfighting benefit of integrating networked capabilities into naval aircraft to fill those gaps. The CW component also addresses targeting gaps for naval aircraft to operate more effectively with other military services. The following efforts are included: 1) A comprehensive naval aviation Tactical Networking Requirements Strategy that maps fleet gaps and requirements to cross-platform naval aviation solutions. The</p>	0.000	0.000	0.219	0.000	0.219
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605217N / (U)Common Avionics	Project (Number/Name) 0572 / JT Service/NV Std Avionics CP/SB
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
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Naval Effects Cross Domain Targeting Capabilities Based Assessment concept refinement Joint Capability Integration Development System activity will be integrated into this effort. 2) Netted sensors proof of concept prototype demonstrations leveraging the Navy's Fleet Experimentation campaign. 3)Support of integration of Netted Sensors/Sensor Fusion into naval aviation Integrated Capabilities Packages supporting multi-mission capability enhancements to include input to the N81 Offensive Anti-Surface Warfare Targeting and Weapons Control study that ensures naval aviation Intelligence, Surveillance and Reconnaissance delivers a complete kill chain. 4)Provide resource sponsor oversight on an Office of Naval Research Future Naval Capability Enabling Capability for an Advanced Tactical Data Link (ATDL) for naval aviation. 5) Continue work on the Joint Tactical Networking Concept of Employment (JTN CONEMP) that aligns Navy ATDL and Joint Aerial Layer Network - Maritime with USAF future strategies.

FY 2015 Accomplishments:

N/A

FY 2016 Plans:

N/A

FY 2017 Base Plans:

Continue executing tactical networking strategy activities to define future Program Objective Memorandums and analytic agendas. Develop requirements, standards, and architectures in support of new and updated netted-sensors' Concept of Operations and capabilities.

FY 2017 OCO Plans:

N/A

Title: Avionics Component Improvement Program (AvCIP)	0.000	0.000	4.668	0.000	4.668
Articles:	-	-	-	-	-

Description: Investigate high value Return On Investment component improvement candidate projects in support of NAVAIR Commander's third focus area - Improve "capital A" Affordability. Stop operating and sustainment cost growth by reducing costs for fielded systems and implementing life-cycle cost reduction initiatives as part of new systems development. This program positions resources for next year application to fast-track corrections to existing problematic systems. Projects address critical readiness issues (significant back-orders or impending sustainability failures that threaten

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605217N / (U)Common Avionics	Project (Number/Name) 0572 / JT Service/NV Std Avionics CP/SB
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>to down aircraft), functional performance obsolescence issues (system failing to support mission requirement), and top sustainment cost drivers (out of proportion annual maintenance or repair costs). Resources enable design and development of technology insertion and product redesign or replacement to meet readiness goals, meet mission objectives, or reduce overall sustainment costs. Candidate projects are submitted via a rigorous template, reviewed by a panel of Avionics professionals, and selected based upon urgency, warfighting contributions, breadth of application and scope of Return On Investment. Resources cover non-recurring engineering elements (including design and development, prototypes, platform integration, test and evaluation), program management and associated logistics elements (including data preparation, support equipment, provisioning, and training). Analysis shows that funding applied under this program between 2006 and 2016 will enable sustainment and procurement cost avoidances exceeding a five to one margin by 2025.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans: Address current fleet problem avionics systems (top readiness degraders, cost drivers, obsolescence-driven sustainability, capability loss, fleet head-hurters).</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Mid Air Collision Avoidance Capability (MCAC)</p> <p align="right">Articles:</p> <p>Description: This program will conduct research, studies, and development, integration, demonstration, test and evaluation</p>	0.000 -	0.000 -	3.550 -	0.000 -	3.550 -

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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605217N / (U)Common Avionics	Project (Number/Name) 0572 / JT Service/NV Std Avionics CP/SB
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>efforts to meet Naval Aviation MCAC requirements. These requirements span all operational modes and operational environments, to include Degraded Visual Environment. Perform MCAC platform integration studies and activities to determine technical and cost effective solutions across Naval Aviation. Develop MCAC solutions tailored to platform performance and range of military operations. Develop simulation models for use at Manned Flight Simulator (MFS) or other simulation environments as required for platform tailoring, including procurement of test article hardware. Evaluate aircraft simulation models for suitability in MCAC development effort. Develop MCAC solutions utilizing simulation environments as real-time hardware and pilot in the loop tools. Develop and evaluate interfaces necessary for integration of MCAC within platform host environment.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans: Conduct Material Development Decision/Acquisition Strategy Review (MDD/ASR). Finalize and approve Capability Development Document (CDD). Conduct Specification Review Boards (SRB/System Readiness Review (SRR) and System Functional Review (SFR).</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Avionics Architectures Team (AAT)</p> <p align="right">Articles:</p> <p>Description: The Avionics Architecture Team (AAT) provides hardware and software (HW/SW) standards and product line development and management for a common HW/SW operating environments to establish testable open architecture requirements in accordance with NDAA Section 801 Open Architecture language, DoD Directive 5000.1, N6/N7 Naval Open Architecture Requirements Letter 9010, Ser. N6N7/5U916276, and SECNAVINST 5000.2E. The Future Airborne Capability Environment (FACE) Technical Standard is developed through Navy, Army, Air Force, Industry and Academia collaboration in accordance with Public Law 104-113. The Hardware Open Systems Technologies (HOST) standard is being developed through government and</p>	0.000	0.000	14.207	0.000	14.207
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605217N / (U)Common Avionics	Project (Number/Name) 0572 / JT Service/NV Std Avionics CP/SB
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>academia collaboration and will be provided to industry for prototyping efforts. It will include a Functional Architecture for Strategic Reuse (FASTR). The AAT provides Subject Matter Experts to define and architect a set of Open Architecture Standards and product lines, design guidance, development and integration tools, acquisition strategy, contracting guidance and cost estimates. The results will enable Department of Defense (DoD) weapons systems to systematically reuse HW/SW and deliver scalable, portable and interoperable war fighting capabilities at a faster rate, reducing redundant development costs and increasing competition. Infrastructure components and frameworks built to these standards will support CNS/ATM capability upgrades on various platforms by enabling integration of common, non-proprietary applications. The AAT initiatives enable the government's role as Lead Systems Integrator, per the Weapons System Acquisition Reform Act (WSARA) 2009, and cost effectively manage data rights for reuse across the DoD.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans: Provide development support, mission based engineering, systems engineering and program management for design and acquisition strategy implementation guidance. Develop conformance tools for Edition 3.0 of the FACE Technical Standard and incorporate revisions to the standard based on issues identified by government and industry consortium. Research new hardware technologies and develop Tier 2 HOST specifications to support widely adopted commercial technologies and platform requirements. Assist platforms with strategies for modular functional architectures and implementation of FACE and HOST standards. Subject Matter Expert support for platform integration and competitive source selection. Academia prototyping and demonstration efforts for FACE, FASTR and HOST initiatives.</p> <p>FY 2017 OCO Plans: N/A</p>					
Accomplishments/Planned Programs Subtotals	0.000	0.000	51.599	0.000	51.599

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605217N / (U)Common Avionics	Project (Number/Name) 0572 / JT Service/NV Std Avionics CP/SB
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APN/0577: <i>Common Avionics Changes</i>	146.084	169.590	164.839	-	164.839	148.275	156.777	113.777	137.956	302.860	3,506.643

Remarks

D. Acquisition Strategy

Communication Navigation Surveillance/Air Traffic Management (CNS/ATM) program is a system of systems. The program will encompass the integration of various systems which will be procured utilizing existing contracts for integration on forward-fit and retrofit platforms to provide CNS/ATM functionality. Tactical Communications (TACCOM) is utilizing a firm fixed price contract to Rockwell Collins for research and development of the ARC-210 Gen 5/6 and other Navy contract vehicles for integration studies. The Navy will integrate systems and components to satisfy platform requirements to achieve tactical communication capability as determined by analyses. Ground Proximity Warning System/Terrain Awareness Warning System (GPWS/TAWS II) Software Modules will be developed by a Government Software Product Team in collaboration with Industry where required. Avionics Component Improvement Program (AvCIP) will annually review, compete and select candidate component improvement proposals according to urgency, criticality of warfighting contributions, technical risk, breadth of application, and scope of Return On Investment (ROI). Projects are selected by a panel of Avionics management experts, including representatives from OPNAV N98, NAVAIR, NAVICP, and the Fleet. Projects are executed by managers in platform or commodity offices that own the component. The AvCIP program management team manages project selection, allocates funds, monitors multiple project executions against proposed spend plans, and tracks solution performance and achievement of projected ROIs over time using Fleet maintenance and component performance databases. Cost avoidances are coordinated with OPNAV N98 to balance Flying Hour Program costs. Component improvement solutions include modular hardware, software and material upgrades. Resources cover engineering elements (including design and development, prototypes, platform integration, test and evaluation), program management and associated logistics elements (including technical data preparation, support equipment, provisioning, and training). Mid Air Collision Avoidance Capability (MCAC) is the capability umbrella which encompasses all systems designed and developed which aid in air-to-air collision avoidance. Systems include but are not limited to Traffic Collision Avoidance Systems and Mid Air Collision Avoidance Systems. MCAC Software Modules will be developed by a Government Software Product Team in collaboration with Industry where required. Avionics Architectures Team (AAT) will provide acquisition strategy guidance and support to platforms implementing open systems architectures to address open architecture requirements.

E. Performance Metrics

Joint Service Review Committee for Avionics (JSRC-AS) - Provide leadership in support of the Navy's interest to the JSRC tri-service committee promoting commonality and joint programs with focus on interoperability, communications, Communication Navigation Surveillance/Air Traffic Management (CNS/ATM), Joint Services avionics obsolescence management and the update of the Core Avionics Master Plan. Support and participate in Naval Aviation Requirements Group panels, Operational Advisory Group, and Human Factors Quality Management Board.

Communication, Navigation, Surveillance/Air Traffic Management (CNS/ATM) - Successfully complete platform integration, test, and certifications.

Tactical Communications (TACCOM) - Achieve Joint Interoperability Test Command and National Security Agency certifications on system developmental efforts to meet operational requirements.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605217N / (U)Common Avionics	Project (Number/Name) 0572 / JT Service/NV Std Avionics CP/SB
<p>Ground Proximity Warning System/Terrain Awareness Warning System (GPWS/TAWS II) - Develop algorithm and software to meet platform specific requirements, successfully complete flight test, and deliver product on schedule. Successfully complete Milestone B.</p> <p>Collaborative Warfare (CW) - Identify collaborative warfighting capability gaps and ensure the development of the most intelligent, cost effective, and timely solutions to fill those gaps.</p> <p>Avionics Component Improvement Program (AvCIP) - Successful project competition and selection, execution of allocated funds, fielding of solutions, and documentation of component performance enhancement and benefits.</p> <p>Mid Air Collision Avoidance Capability (MCAC) - Achieve program acquisition milestones on cost and schedule meeting platform requirements.</p> <p>Avionics Architectures Team (AAT) - Provide leadership in support of the Navy's interest to the Future Airborne Capability Environment (FACE) Consortium. Participate in technical and business working groups within the FACE Consortium to foster solutions that promote interoperable and integrated warfighting capability for all services. Successfully functionally decompose, prototype and demonstrate FACE conformant applications and FACE compatible operating environments. Develop technical specifications for Hardware Open System Technologies (HOST). Prototype and demonstrate HOST avionics components.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
1319 / 5				PE 0605217N / (U)Common Avionics				0572 / JT Service/NV Std Avionics CP/SB							
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Dev CNS/ATM	SS/CPFF	Sikorsky : Stratford, CT	0.000	0.000		0.000		1.792	Mar 2017	-		1.792	0.000	1.792	1.792
Primary Hardware Dev	Various	NAWCAD : Patuxent River, MD	0.000	0.000		0.000		1.421	Mar 2017	-		1.421	0.000	1.421	1.421
Primary Hardware Dev	Various	Various : Various	0.000	0.000		0.000		4.907	Mar 2017	-		4.907	Continuing	Continuing	Continuing
Aircraft Integration TACCOM	SS/FFP	Rockwell Collins : Cedar Rapids, IA	0.000	0.000		0.000		4.875	Mar 2017	-		4.875	0.000	4.875	4.875
Aircraft Integration GPWS/TAWS	SS/CPFF	Lockheed Martin : Owego, NY	0.000	0.000		0.000		4.937	Nov 2016	-		4.937	0.000	4.937	4.937
Systems Engineering AAT	MIPR	DTIC : Fort Belvoir, VA	0.000	0.000		0.000		8.811	Jan 2017	-		8.811	Continuing	Continuing	Continuing
Systems Engineering	Various	Various : Various	0.000	0.000		0.000		1.578	Mar 2017	-		1.578	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		28.321		-		28.321	-	-	-
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development TACCOM	SS/FFP	Rockwell : Cedar Rapids, IA	0.000	0.000		0.000		6.742	Mar 2017	-		6.742	0.000	6.742	6.742
Integrated Logistics Support	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.000		1.094	Mar 2017	-		1.094	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		7.836		-		7.836	-	-	-
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test and Evaluation	Various	Various : Various	0.000	0.000		0.000		2.152	Mar 2017	-		2.152	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		2.152		-		2.152	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605217N / (U)Common Avionics	Project (Number/Name) 0572 / JT Service/NV Std Avionics CP/SB
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Contractor Engineering Support	Various	Various : Various	0.000	0.000		0.000		6.468	Jan 2017	-		6.468	Continuing	Continuing	Continuing
Government Engineering Support	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.000		3.760	Mar 2017	-		3.760	Continuing	Continuing	Continuing
Program Management Support	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.000		3.011	Mar 2017	-		3.011	Continuing	Continuing	Continuing
Travel	WR	NAVAIR : Patuxent River, MD	0.000	0.000		0.000		0.051	Dec 2016	-		0.051	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		13.290		-		13.290	-	-	-
Project Cost Totals			0.000	0.000		0.000		51.599		-		51.599	-	-	-

Remarks
(U) Common Avionics schedule FY16 and prior is reflected in PE 0604215N, Project Unit 0572.

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy Date: February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605217N / (U)Common Avionics	Project (Number/Name) 0572 / JT Service/NV Std Avionics CP/SB
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GROUND PROXIMITY WARNING SYSTEM/TERRAIN AWARENESS WARNING SYSTEM (GPWS/TAWS)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestones																												
Milestones																												
Systems Development																												
Developmental Testing																												
Production Milestones																												
Deliveries																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605217N / (U)Common Avionics	Project (Number/Name) 0572 / JT Service/NV Std Avionics CP/SB
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COLLABORATIVE WARFARE	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestones																												
	JCIDS Activities																											
	CONOPS, Standards and Architectures/Requirements Development																											
	Naval Aviation Tactical Networking Requirements																											
Systems Development																												
Test and Evaluation																												
Production Milestones																												
Deliveries																												

2017PB - 0605217N - 0572

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605217N / (U)Common Avionics	Project (Number/Name) 0572 / JT Service/NV Std Avionics CP/SB
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AVIONICS COMPONENT IMPROVEMENT PROGRAM (AvCIP)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestones																												
Funding Allocation									▼				▼				▼				▼				▼			
Proposal Collection									—				—				—				—							
Proposal Evaluation										▼				▼				▼				▼				▼		
Proposal Prioritization and Selection											▼				▼				▼				▼				▼	
Contract Establishment & Execution Plan									—				—				—				—							
Systems Development																												
Test and Evaluation																												
Production Milestones																												
Deliveries																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605217N / (U)Common Avionics	Project (Number/Name) 0572 / JT Service/NV Std Avionics CP/SB
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MID AIR COLLISION AVOIDANCE (MCAC)	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
Acquisition Milestones									MDD/ASR ▼								ILA ▼	MS B ▲														
Systems Development										SRB/SRRSFR ■	SFR ■		PDR ■	Software Design and Development																		
																			CDR ■													
																					Platform Integration and Test Support											
Test and Evaluation																																
Production Milestones																																
Deliveries																																

2017PB - 0605217N - 0572

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605217N / (U)Common Avionics	Project (Number/Name) 0572 / JT Service/NV Std Avionics CP/SB

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
COMMUNICATIONS, NAVIGATION, SURVEILLANCE/AIR TRAFFIC MGMT (CNS/ATM)				
Systems Development: Evaluate ADS-BO technologies/develop solutions to support platform integrations	1	2017	4	2021
Systems Development: Develop CNS/ATM Common Component to support RNP RNAV developmental platform requirements	1	2017	4	2021
Test and Evaluation: CNS/ATM technologies/certification of developmental platforms	1	2017	4	2021
Test and Evaluation: Integration/Certification of 8.33 kHz, MODE S, Reduced Vertical Separation Minimums (RVSM), RNP/RNAV, and ADS-B (Out): Integration/Cert 8.33 kHz, MODE S, RVSM, RNP/RNAV, ADS-B Out	1	2017	4	2018
TACTICAL COMMUNICATIONS (TACCOM)				
Systems Development: GEN5 Integrated Waveform Satellite Communications (SATCOM) S/W Development	1	2017	3	2018
Systems Development: Operational Flight Plan	1	2017	3	2018
Systems Development: Crypto Engine Design	1	2017	4	2019
Systems Development: MIL Standard Evolution (VMF)	1	2020	4	2021
Systems Development: Tactical Anti-Jam (Saturn)	1	2017	4	2019
Systems Development: Crypto Modernization (Suite B)	1	2020	4	2021
Test and Evaluation: JITC/NSA Cert	1	2019	1	2019
Test and Evaluation: JITC/NSA Cert 1	1	2021	1	2021
Test and Evaluation: JITC/NSA Cert 2	3	2017	3	2017
Production Milestones: OFP S/W	1	2017	1	2017
Production Milestones: MUOS S/W	1	2019	1	2019
GROUND PROXIMITY WARNING SYSTEM/TERRAIN AWARENESS WARNING SYSTEM (GPWS/TAWS)				

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605217N / (U)Common Avionics	Project (Number/Name) 0572 / JT Service/NV Std Avionics CP/SB
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Acquisition Milestones: Milestones: H-60 TAWS II MS C	3	2018	3	2018
Systems Development: H-60 TAWS II Software Development	1	2017	1	2017
Systems Development: V-22 TAWS II Requirements Development	1	2018	4	2018
Systems Development: V-22 TAWS II Software Development	1	2019	4	2020
Systems Development: V-22 CFIT Integration Study	1	2018	1	2018
Test and Evaluation: Developmental Testing: H-60 TAWS II DT (Phase I and II)	1	2017	1	2018
Test and Evaluation: Developmental Testing: V-22 TAWS II DT	1	2021	4	2021
COLLABORATIVE WARFARE				
Acquisition Milestones: JCIDS Activities	1	2017	4	2021
Acquisition Milestones: Netted Sensors CONOPS, Standards and Architectures/ Requirements Development	1	2017	4	2021
Acquisition Milestones: Naval Aviation Tactical Networking Requirements	1	2017	4	2021
AVIONICS COMPONENT IMPROVEMENT PROGRAM (AvCIP)				
Acquisition Milestones: Funding Allocation: Funding Allocation1	1	2017	1	2017
Acquisition Milestones: Funding Allocation: Funding Allocation2	1	2018	1	2018
Acquisition Milestones: Funding Allocation: Funding Allocation3	1	2019	1	2019
Acquisition Milestones: Funding Allocation: Funding Allocation4	1	2020	1	2020
Acquisition Milestones: Funding Allocation: Funding Allocation5	1	2021	1	2021
Acquisition Milestones: Proposal Collection: Proposal Collection1	1	2017	2	2017
Acquisition Milestones: Proposal Collection: Proposal Collection2	1	2018	2	2018
Acquisition Milestones: Proposal Collection: Proposal Collection3	1	2019	2	2019
Acquisition Milestones: Proposal Collection: Proposal Collection4	1	2020	2	2020
Acquisition Milestones: Proposal Collection: Proposal Collection5	1	2021	2	2021
Acquisition Milestones: Proposal Evaluation: Proposal Evaluation1	2	2017	2	2017
Acquisition Milestones: Proposal Evaluation: Proposal Evaluation2	2	2018	2	2018
Acquisition Milestones: Proposal Evaluation: Proposal Evaluation3	2	2019	2	2019

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605217N / (U)Common Avionics	Project (Number/Name) 0572 / JT Service/NV Std Avionics CP/SB
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Acquisition Milestones: Proposal Evaluation: Proposal Evaluation4	2	2020	2	2020
Acquisition Milestones: Proposal Evaluation: Proposal Evaluation5	2	2021	2	2021
Acquisition Milestones: Proposal Prioritization and Selection: Proposal Prioritization and Selection1	3	2017	3	2017
Acquisition Milestones: Proposal Prioritization and Selection: Proposal Prioritization and Selection2	3	2018	3	2018
Acquisition Milestones: Proposal Prioritization and Selection: Proposal Prioritization and Selection3	3	2019	3	2019
Acquisition Milestones: Proposal Prioritization and Selection: Proposal Prioritization and Selection4	3	2020	3	2020
Acquisition Milestones: Proposal Prioritization and Selection: Proposal Prioritization and Selection5	3	2021	3	2021
Acquisition Milestones: Contract Establishment & Execution Plan: Contract Establishment & Execution Plan1	3	2017	4	2017
Acquisition Milestones: Contract Establishment & Execution Plan: Contract Establishment & Execution Plan2	3	2018	4	2018
Acquisition Milestones: Contract Establishment & Execution Plan: Contract Establishment & Execution Plan3	3	2019	4	2019
Acquisition Milestones: Contract Establishment & Execution Plan: Contract Establishment & Execution Plan4	3	2020	4	2020
Acquisition Milestones: Contract Establishment & Execution Plan: Contract Establishment & Execution Plan5	3	2021	4	2021
MID AIR COLLISION AVOIDANCE (MCAC)				
Acquisition Milestones: MDD/ASR	1	2017	1	2017
Acquisition Milestones: CDD Approved	4	2017	4	2017
Acquisition Milestones: ILA	1	2018	1	2018
Acquisition Milestones: MS B	2	2018	2	2018
Systems Development: SRB/SRR	2	2017	2	2017

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605217N / (U)Common Avionics	Project (Number/Name) 0572 / JT Service/NV Std Avionics CP/SB
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Systems Development: SFR	3	2017	3	2017
Systems Development: PDR	1	2018	1	2018
Systems Development: Software Design and Development	2	2018	1	2021
Systems Development: CDR	3	2019	3	2019
Systems Development: Platform Integration	3	2019	4	2021
Test and Evaluation: MH-60 R/S	3	2021	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605220N / (U)Ship to Shore Connector (SSC)
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	0.000	41.616	7.778	11.088	-	11.088	6.994	1.355	2.001	0.000	0.000	70.832
3133: <i>Ship to Shore Connectors Contract Design</i>	0.000	3.391	3.153	3.065	-	3.065	3.630	1.068	2.001	0.000	0.000	16.308
3137: <i>SSC Construction</i>	0.000	38.225	4.625	8.023	-	8.023	3.364	0.287	0.000	0.000	0.000	54.524

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): 303

A. Mission Description and Budget Item Justification

Note: This effort was previously funded under PE 0604567N under projects 3133 and 3137 (FY 2014 and prior).

This PE directly funds and supports the detail design, development, construction, issue resolution, certification, integration and testing to include Live Fire Test and Evaluation (LFT&E) of the Ship to Shore Connector (SSC). The lead craft (Craft 100) will be maintained as a test and training platform throughout its life cycle.

SSC is an air-cushioned landing craft intended to transport personnel, weapon systems, equipment, and cargo from amphibious vessels to shore in assault and non-assault operations. The SSC program provides the capability to rapidly move assault forces within the littoral operational environment to accomplish Unified Command Plan (UCP) missions and ensures the Joint Force Commander's (JFCDR's) ability to conduct amphibious operations and operate over the high water mark, including movement over ice, mud, rivers, swamps and marshes. The SSC program provides the functional replacement for the LCAC craft, including (SLEP) which begin to degrade below the Required Operational Capability/Projected Operational Environment (ROC/POE) requirement beginning in 2015. SSC addresses this capability gap.

<u>B. Program Change Summary (\$ in Millions)</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>
Previous President's Budget	42.778	7.778	7.021	-	7.021
Current President's Budget	41.616	7.778	11.088	-	11.088
Total Adjustments	-1.162	0.000	4.067	-	4.067
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.162	0.000			
• Program Adjustments	0.000	0.000	4.231	-	4.231
• Rate/Misc Adjustments	0.000	0.000	-0.164	-	-0.164

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy Date: February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605220N / (U) <i>Ship to Shore Connector (SSC)</i>
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Change Summary Explanation

Cost/Funding: Increase in FY17 (\$4.700M) provided to meet requirements for T&E efforts, power upgrades, a composite repair capability, and Government responsible portion of cost growth on craft 100. Decrease in SSC RD TEN by \$0.469M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

Technical: Not applicable.

Schedule: Not applicable.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605220N / (U)Ship to Shore Connector (SSC)	Project (Number/Name) 3133 / Ship to Shore Connectors Contract Design
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3133: Ship to Shore Connectors Contract Design	0.000	3.391	3.153	3.065	-	3.065	3.630	1.068	2.001	0.000	0.000	16.308
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 303

A. Mission Description and Budget Item Justification

Ship to Shore Connector (SSC) - This project provides the Preliminary and Contract design and Class test efforts for the SSC Program. The SSC program provides the capability to rapidly move assault forces within the littoral operational environment to accomplish Unified Command Plan (UCP) missions and ensures the Joint Force Commander's (JFCDR's) ability to conduct amphibious operations and operate over the high water mark, including movement over ice, mud, rivers, swamps and marshes. SSC provides the functional replacement for the LCAC crafts, which begin reaching end of extended service life in 2015. For FY15 and beyond, this project will provide for Class Test and Evaluation of components and systems, as well as all programmatic effort and support activities necessary for the development and execution of Class T&E plans and programs.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Ship to Shore Connectors Contract Design	3.391	3.153	3.065	0.000	3.065
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Executed Class Test and Evaluation program, including Test Planning and Coordination, Interoperability Testing, Vulnerability Assessment Report (VAR), and Modeling and Simulation and Live Fire Test and Evaluation (LFT&E) component surrogate tests.					
FY 2016 Plans: Continue Class Test and Evaluation program, including Test Planning and Coordination, and LFT&E.					
FY 2017 Base Plans: Continue Class Test and Evaluation program, including Test Planning and Coordination, and LFT&E. Commence Integrated Development Test/Operational Test and VAR II.					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	3.391	3.153	3.065	0.000	3.065

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605220N / (U)Ship to Shore Connector (SSC)	Project (Number/Name) 3133 / Ship to Shore Connectors Contract Design
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• RD TEN 3137: SSC Construction	38.225	4.625	8.023	-	8.023	3.364	0.287	0.000	0.000	0.000	54.524
• SCN 5112: Ship to Shore Connector	159.600	210.630	128.067	-	128.067	333.002	501.365	625.520	653.615	1,261.837	3,897.713

Remarks

D. Acquisition Strategy

The Test and Training craft (Craft 100) and Craft 101 have been executed on contract. Craft 100 will be procured and constructed with RD TEN. Craft 101 was awarded with RD TEN and transferred to SCN for completion. The Detail Design and Construction contract includes options for construction of an additional seven SCN craft, two of which have been awarded (LCAC 102 and LCAC 103). Award of remaining craft option (LCAC 104-107) in FY16.

E. Performance Metrics

Continue Operational Testing (Phases C and D).

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605220N / (U)Ship to Shore Connector (SSC)	Project (Number/Name) 3133 / Ship to Shore Connectors Contract Design

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Proj 3133																												
Developmental Test/Operational Test (DT)	████████																											
Low Rate Initial Production (LRIP) Approval			██																									
Acquisition Milestone C			██																									
Program Review (PR) (FY16)					██																							
Development Test/Operational Test C (DT/OT-C)					██																							
Development Test/Operational Test D (DT/OT-D)					██																							
Program Review (PR) (FY17)									██																			
Integrated Developmental Test/Operational Test													████████															
Operational Test Readiness Review (OTRR)																	██											
Initial Operational Test and Evaluation (IOT&E)																	██											
Full Rate Production (FRP) Program Review (PR)																	██											
Follow-On Operational Test and Evaluation (FOT&E)																					████████							

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605220N / (U)Ship to Shore Connector (SSC)	Project (Number/Name) 3133 / Ship to Shore Connectors Contract Design

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3133				
Developmental Test/Operational Test (DT)	1	2015	3	2015
Low Rate Initial Production (LRIP) Approval	3	2015	3	2015
Acquisition Milestone C	3	2015	3	2015
Program Review (PR) (FY16)	1	2016	1	2016
Development Test/Operational Test C (DT/OT-C)	3	2015	1	2018
Development Test/Operational Test D (DT/OT-D)	3	2015	2	2020
Program Review (PR) (FY17)	2	2017	2	2017
Integrated Developmental Test/Operational Test	3	2017	1	2018
Operational Test Readiness Review (OTRR)	3	2018	3	2018
Initial Operational Test and Evaluation (IOT&E)	3	2018	3	2018
Full Rate Production (FRP) Program Review (PR)	4	2018	4	2018
Follow-On Operational Test and Evaluation (FOT&E)	2	2020	3	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605220N / (U)Ship to Shore Connector (SSC)	Project (Number/Name) 3137 / SSC Construction
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3137: SSC Construction	0.000	38.225	4.625	8.023	-	8.023	3.364	0.287	0.000	0.000	0.000	54.524
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 303

A. Mission Description and Budget Item Justification

Cost increase from FY 16 to FY 17 is due to financing Government responsible overruns on the Test and Training Craft

This project funds the Ship to Shore Connector (SSC) Engineering & Manufacturing Development phase which includes Detail Design and Construction, Product Support, Government Furnished Equipment (GFE), Program support, and Outfitting and Post Delivery. The lead craft will be maintained as a test and training platform throughout its life cycle. The SSC program provides the capability to rapidly move assault forces within the littoral operational environment to accomplish Unified Command Plan (UCP) missions, and ensures the Joint Force Commander's (JFCDR's) ability to conduct amphibious operations and operate over the high water mark, including movement over ice, mud, rivers, swamps and marshes. The SSC program provides the functional replacement for the LCAC craft, which begin reaching end of extended service life in 2015. Funding for this effort was previously executed under PE 0604567N.

TEST AND TRAINING CRAFT 100:

Plans/Basic Construction:
TOTAL 240.575 (FY17 0.000)
Change Orders:
TOTAL 16.261 (FY17 0.000)
Electronics
TOTAL 10.177 (FY17 0.050)
HM&E:
TOTAL 31.471 (FY17 1.285)
Other Support:
TOTAL 31.616 (FY17 2.688)
Ordnance
Total 0.050 (FY17 0.000)
Post Delivery/Outfitting:
TOTAL 4.000 (FY17 4.000)
Ship Total:
TOTAL 334.150 (FY17 8.023)

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605220N / (U)Ship to Shore Connector (SSC)	Project (Number/Name) 3137 / SSC Construction

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: SSC Construction	38.225	4.625	8.023	0.000	8.023
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Executed procurement, planning and construction activities for Test and Training Craft 100.					
FY 2016 Plans: Continue procurement, planning, and construction activities for Test and Training Craft 100.					
FY 2017 Base Plans: Continue procurement, planning, and construction activities for Test and Training Craft 100 to facilitate a targeted delivery in Q3 FY17. Commence Test and Training Craft 100 Post Delivery Test and Trials (PDT&T).					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	38.225	4.625	8.023	0.000	8.023

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• RDTEN 3133: Ship to Shore Connectors Contract Design	3.391	3.153	3.065	-	3.065	3.630	1.068	2.001	0.000	0.000	16.308
• SCN 5112: Ship to Shore Connector	159.600	210.630	128.067	-	128.067	333.002	501.365	625.520	653.615	1,261.837	3,897.713

Remarks

D. Acquisition Strategy
The Test and Training craft (Craft 100) and Craft 101 have been executed on contract. Craft 100 will be procured and constructed with RDTEN. Craft 101 was awarded with RDTEN and transferred to SCN for completion. The Detail Design and Construction contract includes options for construction of an additional seven SCN craft, two of which have been awarded (LCAC 102 and LCAC 103). Award of remaining craft option (LCAC 104-107) in FY16.

E. Performance Metrics
Deliver Test and Training Craft 100.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605220N / (U)Ship to Shore Connector (SSC)	Project (Number/Name) 3137 / SSC Construction
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test & Trng Craft Ship Design	C/CPFF	Various : Various	0.000	3.643	Dec 2014	0.000		0.000		-		0.000	0.000	3.643	-
Test & Trng Craft Detail Design/Construction	C/FPIF	Textron : New Orleans, LA	0.000	21.741	Mar 2015	0.000		0.000		-		0.000	0.000	21.741	-
Test & Trng Craft Government Furnished Equipment (GFE)	Various	Various : Various	0.000	0.663	Dec 2014	0.050	Oct 2015	0.050	Oct 2016	-		0.050	0.000	0.763	-
Test & Trng Craft Change Orders	C/FPIF	Textron : New Orleans, LA	0.000	8.485	Dec 2014	2.000	Oct 2015	0.000		-		0.000	0.000	10.485	-
Subtotal			0.000	34.532		2.050		0.050		-		0.050	0.000	36.632	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test & Trng Craft Studies and Analysis	Various	Various : Various	0.000	0.521	Dec 2014	0.000	Oct 2015	0.568	Oct 2016	-		0.568	0.000	1.089	-
Test & Trng Craft Integrated Logistics Support	WR	NSWC : Various	0.000	0.741	Dec 2014	0.868	Oct 2015	2.051	Oct 2016	-		2.051	0.000	3.660	-
T&T Post Delivery/ Outfitting	Various	SSGC/Textron : Various	0.000	0.000		0.000		4.000	Mar 2017	-		4.000	0.000	4.000	-
Subtotal			0.000	1.262		0.868		6.619		-		6.619	0.000	8.749	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test & Trng Craft Construction Test Program	Various	Various : Various	0.000	1.222	Dec 2014	1.653	Oct 2015	1.285	Oct 2016	-		1.285	0.000	4.160	-
Subtotal			0.000	1.222		1.653		1.285		-		1.285	0.000	4.160	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605220N / (U)Ship to Shore Connector (SSC)	Project (Number/Name) 3137 / SSC Construction

FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Proj 3137	
Test and Training Craft Construction	
Low Rate Initial Production (LRIP) Approval	
Acquisition Milestone C	
Program Review (PR) (FY16)	
Test and Training Craft Delivery	
Test and Training Craft Post Delivery Test and Trials (PDT&T)	
Program Review (PR) (FY17)	
Full Rate Production (FRP) Program Review (PR)	

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605220N / (U)Ship to Shore Connector (SSC)	Project (Number/Name) 3137 / SSC Construction

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3137				
Test and Training Craft Construction	1	2015	3	2017
Low Rate Initial Production (LRIP) Approval	3	2015	3	2015
Acquisition Milestone C	3	2015	3	2015
Program Review (PR) (FY16)	1	2016	1	2016
Test and Training Craft Delivery	3	2017	3	2017
Test and Training Craft Post Delivery Test and Trials (PDT&T)	3	2017	1	2018
Program Review (PR) (FY17)	2	2017	2	2017
Full Rate Production (FRP) Program Review (PR)	4	2018	4	2018

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605327N / (U)T-AO (X)
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	0.000	1.095	-	1.095	1.842	0.892	0.899	0.900	Continuing	Continuing
3375: T-AO(X)	0.000	0.000	0.000	1.095	-	1.095	1.842	0.892	0.899	0.900	Continuing	Continuing

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): P452

A. Mission Description and Budget Item Justification

T-AO(X) Test and Evaluation (T&E) 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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	1.095	-	1.095
Total Adjustments	0.000	0.000	1.095	-	1.095
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	0.000	0.000	1.248	-	1.248
• Rate/Misc Adjustments	0.000	0.000	-0.153	-	-0.153

Change Summary Explanation

New MDAP assigned Program Element (PE); efforts previously funded under the Ship Preliminary Design and Feasibility Studies Line (0603564N).

FY 2017 funding request includes an increase of \$1.300 million in support of Test and Evaluation (T&E) requirements, a reduction of \$0.052 million for the Department of the Navy to comply with the Bipartisan Budget Act of 2015, and \$0.153 million reduction for other rates and miscellaneous adjustments.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0605327N / (U)T-AO (X)				Project (Number/Name) 3375 / T-AO(X)			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3375: T-AO(X)	0.000	0.000	0.000	1.095	-	1.095	1.842	0.892	0.899	0.900	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: P452

A. Mission Description and Budget Item Justification

T-AO(X) Test and Evaluation (T&E) 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, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: New Accomplishment/Planned Program Entry	0.000	0.000	1.095	0.000	1.095
Articles:	-	-	-	-	-
FY 2015 Accomplishments: N/A					
FY 2016 Plans: N/A					
FY 2017 Base Plans: Support the execution of Test and Evaluation Developmental Test (DT) and Operational Test (OT) schedule per the approved Test and Evaluation Master Plan (TEMP). Plan and execute OT Phase OT-C1 (Operational Assessment). Begin preparation of the System Vulnerability Assessment. Support LFT&E efforts by conducting Mine Susceptibility Modeling and Simulation using the Total Mine Simulator System (TMSS). Coordinate efforts with NAVSEA, MSC, PEO Ships, COMOPTEVFOR, JITC and OSD DOT&E.					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.000	0.000	1.095	0.000	1.095

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605327N / (U)T-AO (X)	Project (Number/Name) 3375 / T-AO(X)
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• SCN/5025: <i>Fleet Oiler</i> <i>Recapitalization T-AO(X)</i>	0.000	674.190	73.079	-	73.079	530.357	518.996	544.245	539.578	7,911.000	10,791.445

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.

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605327N / (U)T-AO (X)	Project (Number/Name) 3375 / T-AO(X)
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Proj 3375	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021											
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q								
	DT-B																																			
	Integrated Testing																																			
									OT-C1 (OA) ▲				TEMP Update								DT-C (PDT&T)															
																									OTRR ▲				OT-C2 (IOT&E) ▲				TSST ▲			

2017PB - 0605327N - 3375

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605327N / (U)T-AO (X)	Project (Number/Name) 3375 / T-AO(X)
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 3375				
Developmental Testing (DT-B)	1	2017	3	2020
Integrated Testing	3	2017	4	2021
Operational Testing OT-C1 (OA)	3	2017	3	2017
Test and Evaluation Master Plan (TEMP) Update	2	2018	2	2020
Developmental Testing (DT-C)	4	2020	4	2021
Operational Test Readiness Review (OTRR)	3	2021	3	2021
Operational Testing (OT-C2 (IOT&E))	3	2021	3	2021
Total Ship Survivability Trial (TSST)	3	2021	3	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605414N / (U) <i>Carrier Based Aerial Refueling System (CBARS)</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	0.000	89.000	-	89.000	349.000	544.000	646.000	532.000	Continuing	Continuing
3278: <i>UCLASS Development</i>	0.000	0.000	0.000	89.000	-	89.000	349.000	544.000	646.000	532.000	Continuing	Continuing

Note

Elements of the Carrier Based Aerial Refueling System (CBARS) program were previously funded under the Unmanned Carrier Launched Airborne Surveillance and Strike (UCLASS) System Program Element (PE) 0604404N, Project Unit (PU) 3278 and assigned to Budget Activity (BA) 05: System Development and Demonstrations (SDD). In January of 2016, PE 0605414N PU 3278 was established as the principal budget line for CBARS.

A. Mission Description and Budget Item Justification

The Carrier Based Aerial Refueling System (CBARS) program rapidly develops an unmanned capability to embark on CVN's as part of the Carrier Air Wing (CVW) to conduct aerial refueling and provide some Intelligence, Surveillance, Reconnaissance (ISR) capability. These efforts restore fighter aircraft back to the CVW to conduct combat missions vice refueling missions. Additionally, CBARS extends CVW mission effectiveness range, partially mitigates the current Carrier Strike Group (CSG) organic ISR shortfall, fills the future CVW-tanker gap, and preserves F/A-18E/F Fatigue Life Expectancy. As the first carrier-based, group 5 Unmanned Aircraft System (UAS), CBARS will pioneer the integration of manned and unmanned operations, demonstrate mature complex sea-based C4I UAS technologies, and pave the way for more multifaceted multi-mission UAS to pace emerging threats.

The CBARS requirements are aligned with the Unmanned Carrier Launched Airborne Surveillance and Strike (UCLASS) Initial Capabilities Document (ICD) which highlights the need for a persistent, carrier-based ISR and precision strike asset. The Joint Requirements Oversight Council (JROC) endorsed the UCLASS ICD in April 2011 and formally approved it on 9 Jun 11 via Joint Requirements Oversight Council Memorandum (JROCM) 087-11. The JROC's guidance delineated in the validated ICD and subsequent JROCMs was to establish a requirement for a versatile platform that supports a myriad of organic Naval missions such as aerial refueling, counter-terrorism, and ISR to support the CVW. CBARS is expected to provide an Initial Operational Capability to the fleet by the mid-2020s.

This program is funded under SYSTEM DEVELOPMENT AND DEMONSTRATION because it includes some projects that have passed Milestone B approval and are conducting engineering and manufacturing development tasks aimed at meeting validated requirement prior to full-rate production decision.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy I BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605414N I (U) <i>Carrier Based Aerial Refueling System (CBARS)</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	89.000	-	89.000
Total Adjustments	0.000	0.000	89.000	-	89.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Rate/Misc Adjustments	0.000	0.000	89.000	-	89.000

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0605414N / (U) Carrier Based Aerial Refueling System (CBARS)				Project (Number/Name) 3278 / UCLASS Development			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3278: UCLASS Development	0.000	0.000	0.000	89.000	-	89.000	349.000	544.000	646.000	532.000	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Carrier Based Aerial Refueling System (CBARS) program rapidly develops an unmanned capability to embark on CVN's as part of the Carrier Air Wing (CVW) to conduct aerial refueling and provide some Intelligence, Surveillance, Reconnaissance (ISR) capability. These efforts restore fighter aircraft back to the CVW to conduct combat missions vice refueling missions. Additionally, CBARS extends CVW mission effectiveness range, partially mitigates the current Carrier Strike Group (CSG) organic ISR shortfall, fills the future CVW-tanker gap, and preserves F/A-18E/F Fatigue Life Expectancy. As the first carrier-based, group 5 Unmanned Aircraft System (UAS), CBARS will pioneer the integration of manned and unmanned operations, demonstrate mature complex sea-based C4I UAS technologies, and pave the way for more multifaceted multi-mission UAS to pace emerging threats.

The CBARS requirements are aligned with the Unmanned Carrier Launched Airborne Surveillance and Strike (UCLASS) Initial Capabilities Document (ICD) which highlights the need for a persistent, carrier-based ISR and precision strike asset. The Joint Requirements Oversight Council (JROC) endorsed the UCLASS ICD in April 2011 and formally approved it on 9 Jun 11 via Joint Requirements Oversight Council Memorandum (JROCM) 087-11. The JROC's guidance delineated in the validated ICD and subsequent JROCMs was to establish a requirement for a versatile platform that supports a myriad of organic Naval missions such as aerial refueling, counter-terrorism, and ISR to support the CVW. CBARS is expected to provide an Initial Operational Capability to the fleet by the mid-2020s.

CBARS will be designed to conduct automated aerial refueling and will have the ability to pass command and control information along with sensor data to other aircraft, naval vessels, and ground forces. Sensor data will be transmitted, in either raw or processed forms, at appropriate classification levels, to exploitation nodes afloat and ashore (e.g. Distributed Common Ground System - Navy). The CBARS system will be sustainable onboard an aircraft carrier, as well as ashore, and will be designed to minimize increases in the logistics footprint of the current CVW.

CBARS will achieve these capabilities through the use of a carrier-suitable, semi-autonomous, Unmanned Air Segment; a Control System and Connectivity Segment; and a Carrier Segment. The Government will perform Lead Systems Integration (LSI), providing government-led system of systems integration for the CBARS Program. The LSI will coordinate across all segments and with external stakeholders to ensure program activities are synchronized. CBARS will interface with existing ship and land-based command and control systems, including ISR&T Tasking, Collection, Processing, Exploitation, and Dissemination systems.

The scope of the program includes, but is not limited to, system level requirements identification, allocation of requirements to segments and components, design, development, integration, fabrication, test, training, and support activities to provide the Carrier Based Aerial Refueling System (CBARS) capabilities. To accomplish these capabilities CBARS will transition (as required) technologies from other programs and adapt them into the carrier environment. CBARS will deliver the necessary air vehicles, command, control, connectivity, shipboard and land-based launch and recovery control systems, associated support systems, interfaces, and upgrades to other Navy systems (as required) to meet the required capabilities.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605414N / (U) Carrier Based Aerial Refueling System (CBARS)	Project (Number/Name) 3278 / UCLASS Development

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Title: Air Segment Product Development</p> <p align="right">Articles:</p> <p>Description: Air Segment Product Development efforts include, but are not limited to, design, development, integration, fabrication, test and training to deliver a carrier-suitable, semi-autonomous, unmanned vehicle capable of aerial refueling (give) and persistent Intelligence, Surveillance, and Reconnaissance (ISR) operations with future precision strike. A prime contractor (selected following a limited source competition) will deliver the Air Segment products.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans: Release final Request for Proposal for the CBARS Air System contract and begin source selection activities. Continue Air Segment system integration and interface activities.</p> <p>FY 2017 OCO Plans: N/A</p>	0.000	0.000	12.578	0.000	12.578
	-	-	-	-	-
<p>Title: Control System & Connectivity (CS&C) Segment Product Development</p> <p align="right">Articles:</p> <p>Description: CS&C Segment Product Development is a Government-led effort which includes, but is not limited to, the hardware, software and networks needed to establish interfaces and upgrades to existing ship and land-based command and control systems.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans:</p>	0.000	0.000	29.375	0.000	29.375
	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016		
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605414N / (U) Carrier Based Aerial Refueling System (CBARS)	Project (Number/Name) 3278 / UCLASS Development			
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)					
Perform Control System & Connectivity hardware/software development and integration. Continue development and fabrication of Common Processing System/Common Display System based control stations, to include the test-transportable control station and test-ashore control station, in order to meet timelines required to support integration and flight test. Conduct control station requirements verification/validation activities in Government integration lab. Continue integration of Automated Digital Network System hardware/software components. Continue integration testing between control station with shipboard networks and data links.					
FY 2017 OCO Plans: N/A					
Title: Carrier (CVN) Segment Product Development					
Articles:					
Description: CVN Segment Product Development is a Government-led effort which includes, but is not limited to, upgrades to existing CVN infrastructure to support Carrier Based Aerial Refueling System capabilities.					
FY 2015 Accomplishments: N/A					
FY 2016 Plans: N/A					
FY 2017 Base Plans: Perform ship installation activities and upgrades to existing CVN infrastructure, especially critical CVN suitable technologies and mission essential equipment. Continue engineering efforts in support of implementing Ship Change Documents (SCDs) and Engineering Change Proposals (ECPs) to modify CVNs for CBARS hardware and software. Continue CVN ship integration activities and development of Concept of Employment. Conduct development of CBARS modifications to existing Program of Record shipboard systems (i.e. landing systems and Aircraft Launch and Recovery Systems) needed to support the CBARS capability to include required hardware for shipboard test and integration activities. Continue development of Navy Modernization Program (NMP) supporting shipboard Configuration Management and Logistics.					
FY 2017 OCO Plans: N/A					
Title: Lead Systems Integration (LSI) Product Development					
	0.000	0.000	18.294	0.000	18.294
	-	-	-	-	-
	0.000	0.000	14.131	0.000	14.131

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605414N / (U) Carrier Based Aerial Refueling System (CBARS)	Project (Number/Name) 3278 / UCLASS Development

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p align="right">Articles:</p> <p>Description: The LSI task is a Government-led effort including, but not limited to, advanced development, architecture development, interface definition, integration, system level test and evaluation, science and technology investments, roadmap refinement, and coordination of all Carrier Based Aerial Refueling System (CBARS) capabilities across system segments and stakeholders.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans: Conduct CBARS efforts to implement an open systems architecture across all CBARS segments. Perform enterprise design and integration activities. Continue Air Segment, Control System & Connectivity Segment, and Carrier Segment interface activities. Continue fabrication and operation of system integration laboratories and test facilities in support of government-led program activities, including implementation of open system architectures.</p> <p>FY 2017 OCO Plans: N/A</p>	-	-	-	-	-
<p>Title: Management</p> <p align="right">Articles:</p> <p>Description: Efforts include program, engineering, test, and logistics management.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans:</p>	0.000 -	0.000 -	7.905 -	0.000 -	7.905 -

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605414N / (U) Carrier Based Aerial Refueling System (CBARS)	Project (Number/Name) 3278 / UCLASS Development

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Perform oversight, coordination, and management of Carrier Based Aerial Refueling System acquisition, system interface and integration activities. Oversee contract activities, including source selection for the Air System contract. Conduct logistics management tasks. Maintain security and program office environments. FY 2017 OCO Plans: N/A					
Title: Test and Evaluation Articles:	0.000 -	0.000 -	6.717 -	0.000 -	6.717 -
FY 2015 Accomplishments: N/A					
FY 2016 Plans: N/A					
FY 2017 Base Plans: Support development and implementation of test facility, range, and lab test requirements. Support engineering events and program management activities. Conduct developmental test for Control System & Connectivity and Carrier segments. Support Air Segment Request for Proposal/source selection activities. FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.000	0.000	89.000	0.000	89.000

C. Other Program Funding Summary (\$ in Millions)
N/A

Remarks

D. Acquisition Strategy
The Government will perform Lead Systems Integration (LSI) across all Carrier Based Aerial Refueling System (CBARS) segments, including Air Segment, Control System & Connectivity (CS&C) Segment, and Carrier (CVN) Segment and external enterprise stakeholders. The CBARS Program will leverage existing Navy information dissemination and Department infrastructures, as the government-led system of systems integration is accomplished across all segments and external enterprise stakeholders. The Government will manage the system level architecture and interfaces, and foster efficient data exchanges and integration. Specifically, the CS&C and CVN segments will be organically managed by the Government LSI and will modify existing systems via the affected system's Engineering Change Proposal and configuration management processes. These integration tasks include successful demonstration of integration with the CVN landing system, integration of control

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy Date: February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605414N / (U) Carrier Based Aerial Refueling System (CBARS)	Project (Number/Name) 3278 / UCLASS Development
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system, and integration with the Tasking, Collecting, Processing, Exploitation, Dissemination interfaces to include successful transmission of mission system data. The Government will develop and award contracts as required to support program activities, including a contract for the Air System. The Government's acquisition strategy was approved on 7 Jun 13. Acquisition and contracting strategies comply with current statutes, regulations, and instructions.

E. Performance Metrics

Meet Navy operational requirements as defined in requirements documents.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605414N / (U) Carrier Based Aerial Refueling System (CBARS)	Project (Number/Name) 3278 / UCLASS Development
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Air Segment - Systems Engineering	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.000		10.724	Nov 2016	-		10.724	Continuing	Continuing	Continuing
Air Segment - Systems Engineering	Various	Various : Various	0.000	0.000		0.000		1.854	Dec 2016	-		1.854	Continuing	Continuing	Continuing
CS&C Segment	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.000		7.228	Nov 2016	-		7.228	Continuing	Continuing	Continuing
CS&C Segment	Various	Various : Various	0.000	0.000		0.000		2.997	Dec 2016	-		2.997	Continuing	Continuing	Continuing
CS&C Segment	Various	NSMA : Arlington, VA	0.000	0.000		0.000		1.349	Dec 2016	-		1.349	Continuing	Continuing	Continuing
CS&C Segment	WR	SPAWAR : San Diego, CA	0.000	0.000		0.000		4.845	Dec 2016	-		4.845	Continuing	Continuing	Continuing
CS&C Segment (Comms, Intel, Network)	Various	Various : Various	0.000	0.000		0.000		6.076	Dec 2016	-		6.076	Continuing	Continuing	Continuing
CS&C Segment (CPS/ CDS)	TBD	TBD : TBD	0.000	0.000		0.000		6.880	Nov 2016	-		6.880	Continuing	Continuing	Continuing
CS&C Segment (Ship Integration)	Various	Various : Various	0.000	0.000		0.000		0.614	Dec 2016	-		0.614	Continuing	Continuing	Continuing
CS&C Segment (Ship Integration)	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.000		14.555	Dec 2016	-		14.555	Continuing	Continuing	Continuing
CS&C Segment (Ship Integration)	WR	NAWCAD : Lakehurst, NJ	0.000	0.000		0.000		1.230	Dec 2016	-		1.230	Continuing	Continuing	Continuing
Carrier Segment	WR	SPAWAR : San Diego, CA	0.000	0.000		0.000		1.895	Dec 2016	-		1.895	Continuing	Continuing	Continuing
LSI - Advanced Development (Primary Hardware Development)	Various	Various : Various	0.000	0.000		0.000		0.826	Dec 2016	-		0.826	Continuing	Continuing	Continuing
LSI - Advanced Development (Primary Hardware Development)	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.000		0.924	Dec 2016	-		0.924	Continuing	Continuing	Continuing
LSI - Advanced Development (Primary Hardware Development)	WR	NAWCWD : China Lake, CA	0.000	0.000		0.000		0.565	Dec 2016	-		0.565	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605414N / (U) Carrier Based Aerial Refueling System (CBARS)	Project (Number/Name) 3278 / UCLASS Development
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
LSI - Systems Engineering	Various	Various : Various	0.000	0.000		0.000		4.202	Dec 2016	-		4.202	Continuing	Continuing	Continuing
LSI - Systems Engineering	WR	NAWCAD : Patuxent River	0.000	0.000		0.000		7.614	Dec 2016	-		7.614	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		74.378		-		74.378	-	-	-

Remarks
 Control System and Connectivity (CS&C)
 Navy Systems Management Activity (NSMA)
 Common Display System (CDS)
 Common Processing System (CPS)
 Lead Systems Integration (LSI)
 Advanced Development (AD)

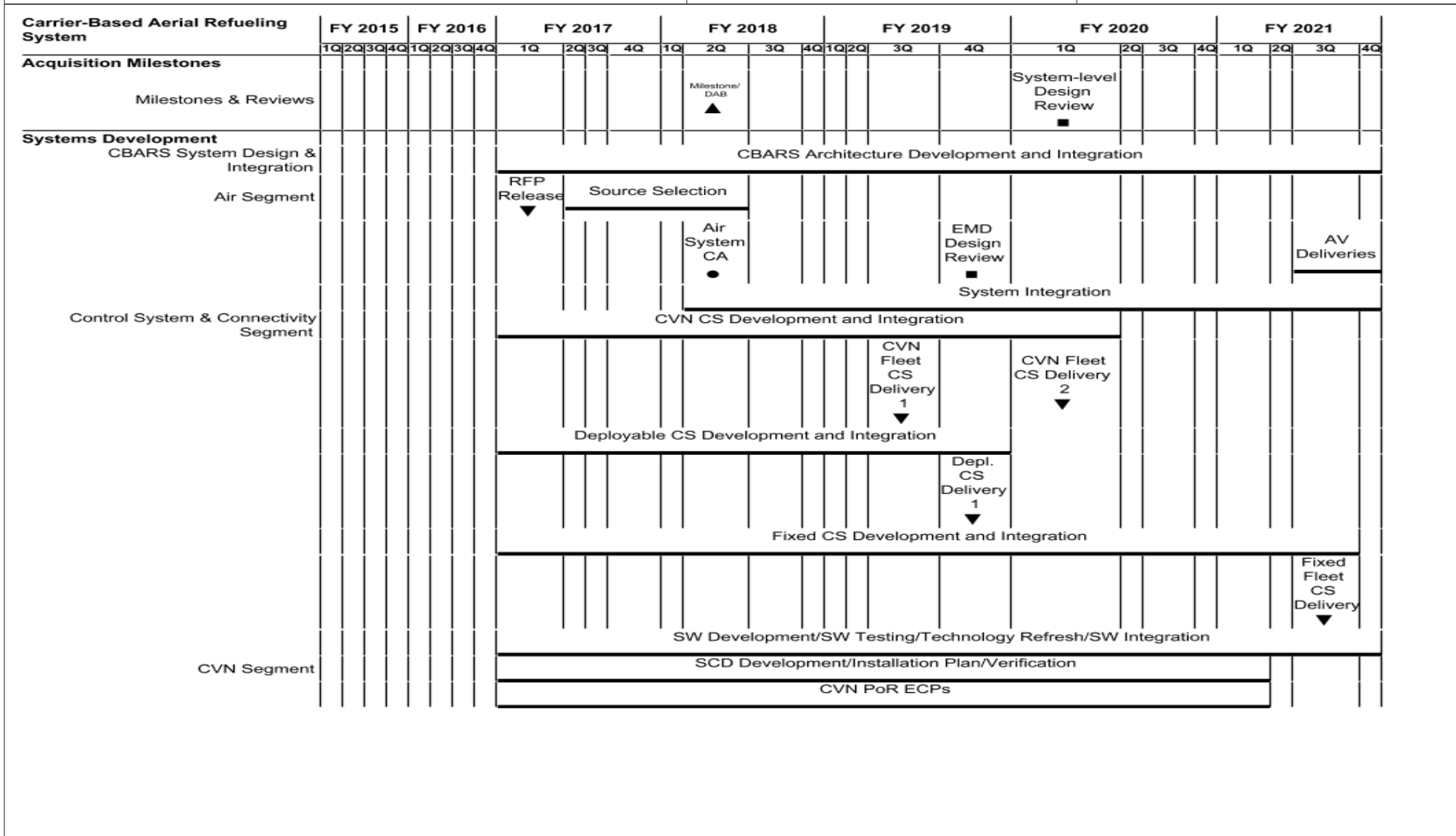
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Manpower Studies & Analyses	Various	Various : Various	0.000	0.000		0.000		0.188	Jan 2017	-		0.188	Continuing	Continuing	Continuing
Training Development	Various	Various : Various	0.000	0.000		0.000		1.275	Dec 2016	-		1.275	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		1.463		-		1.463	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test and Evaluation	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.000		5.243	Dec 2016	-		5.243	Continuing	Continuing	Continuing
Test and Evaluation	Various	Various : Various	0.000	0.000		0.000		0.011	Jan 2017	-		0.011	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		5.254		-		5.254	-	-	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605414N / (U) Carrier Based Aerial Refueling System (CBARS)	Project (Number/Name) 3278 / UCLASS Development
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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605414N / (U) Carrier Based Aerial Refueling System (CBARS)	Project (Number/Name) 3278 / UCLASS Development

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Carrier-Based Aerial Refueling System				
Acquisition Milestones: Milestones & Reviews: Milestone/Defense Acquisition Board (DAB)	2	2018	2	2018
Acquisition Milestones: Milestones & Reviews: System-level Design Review	1	2020	1	2020
Systems Development: CBARS System Design & Integration: CBARS Architecture Development and Integration	1	2017	4	2021
Systems Development: Air Segment: RFP Release for Air System Contract Award	1	2017	1	2017
Systems Development: Air Segment: Source Selection Activities	2	2017	2	2018
Systems Development: Air Segment: Air System Contract Award	2	2018	2	2018
Systems Development: Air Segment: EMD Design Review	4	2019	4	2019
Systems Development: Air Segment: Air Vehicle Deliveries	3	2021	4	2021
Systems Development: Air Segment: System Integration	2	2018	4	2021
Systems Development: Control System & Connectivity Segment: Carrier Vessel Nuclear (CVN) Control Station (CS) Development and Integration	1	2017	1	2020
Systems Development: Control System & Connectivity Segment: CVN Fleet CS Delivery 1	3	2019	3	2019
Systems Development: Control System & Connectivity Segment: CVN Fleet CS Delivery 2	1	2020	1	2020
Systems Development: Control System & Connectivity Segment: Deployable CS Development and Integration	1	2017	4	2019
Systems Development: Control System & Connectivity Segment: Deployable CS Delivery 1	4	2019	4	2019
Systems Development: Control System & Connectivity Segment: Fixed CS Development and Integration	1	2017	3	2021

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605414N / (U) Carrier Based Aerial Refueling System (CBARS)	Project (Number/Name) 3278 / UCLASS Development
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Systems Development: Control System & Connectivity Segment: Fixed Fleet CS Delivery	3	2021	3	2021
Systems Development: Control System & Connectivity Segment: Software (SW) Development/SW Testing/Technology Refresh/SW Integration	1	2017	4	2021
Systems Development: CVN Segment: Ship Change Document (SCD) Development/ Installation Plan/Verification	1	2017	1	2021
Systems Development: CVN Segment: CVN Program of Record (PoR) Engineering Change Proposals (ECP)	1	2017	1	2021
Systems Development: Installations: Ship Installation	1	2017	4	2021
Systems Development: Installations: Hull, Mechanical & Electrical (HME) Install 2	4	2017	4	2017
Systems Development: Installations: HME Install 3	3	2018	3	2018
Systems Development: Installations: HME Install 4	3	2020	3	2020
Systems Development: Installations: HME Install 5	1	2021	1	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605450N / <i>Joint Air-to-ground Missile (JAGM)</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	169.702	6.104	25.898	17.880	-	17.880	15.834	7.004	0.161	0.187	Continuing	Continuing
2211: <i>Joint Air-to-Ground Missile</i>	169.702	6.104	25.898	17.880	-	17.880	15.834	7.004	0.161	0.187	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Joint Air-to-Ground Missile (JAGM) is an air-launched missile system that will utilize multi-mode seeker technology providing advanced Line-of-Sight and Beyond-Line-of-Sight capabilities, including precision point and fire-and-forget seeker targeting and increased lethality against soft and hardened moving and stationary land and maritime targets. JAGM will additionally provide robust capability in adverse weather, day or night, and in obscured/countermeasure environments. The JAGM system will replace aviation-launched, Tube-launched, Optically-tracked, Wire-guided, and Hellfire. JAGM is an Army-led joint program that addresses rotary wing and unmanned aerial vehicle requirements. The Department of Navy threshold platform is the AH-1Z. The JAGM system includes missile, trainers, container, support equipment and software modifications to the M-299 launcher.

The JAGM program is part of the Navy's Integrated Fire Control (IFC) approach to address advanced threat capabilities in the Anti-Access/Area-Denial (A2AD) environment. IFC solutions enable individual system capabilities to be leveraged across an effects chain, placing the full spectrum of tactical capability in the hands of the warfighter. IFC solutions that push engagement distances beyond the launch platform's radar horizon and allows the United States Navy to operate in, and control, contested battle space in littoral waters and A2/AD environments are increasingly critical as more and more scenarios require compressed and coordinated fire control timelines.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under system development and demonstration because it includes those projects that have passed Milestone B approval and are conducting engineering and manufacturing development tasks aimed at meeting validated requirement prior to full-rate production decision.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	6.300	25.898	19.798	-	19.798
Current President's Budget	6.104	25.898	17.880	-	17.880
Total Adjustments	-0.196	0.000	-1.918	-	-1.918
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.196	0.000			
• Program Adjustments	0.000	0.000	-0.484	-	-0.484

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605450N / <i>Joint Air-to-ground Missile (JAGM)</i>
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• Rate/Misc Adjustments	0.000	0.000	-1.434	-	-1.434
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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0605450N / Joint Air-to-ground Missile (JAGM)				Project (Number/Name) 2211 / Joint Air-to-Ground Missile			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2211: Joint Air-to-Ground Missile	169.702	6.104	25.898	17.880	-	17.880	15.834	7.004	0.161	0.187	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Joint Air-to-Ground Missile (JAGM) is an air-launched missile system that will utilize multi-mode seeker technology providing advanced Line-of-Sight and Beyond-Line-of-Sight capabilities, including precision point and fire-and-forget seeker targeting and increased lethality against soft and hardened moving and stationary land and maritime targets. JAGM will additionally provide robust capability in adverse weather, day or night, and in obscured/countermeasure environments. The JAGM system will replace aviation-launched, Tube-launched, Optically-tracked, Wire-guided, and Hellfire. JAGM is an Army-led joint program that addresses rotary wing and unmanned aerial vehicle requirements. The Department of Navy threshold platform is the AH-1Z. The JAGM system includes missile, trainers, container, support equipment and software modifications to the M-299 launcher.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: JAGM Engineering and Manufacturing Development (EMD) Phase	6.104	25.898	17.880	0.000	17.880
Articles:	44	8	-	-	-
FY 2015 Accomplishments: FY15 accomplishments included initial platform integration efforts on the United States Marine Corps AH-1Z, program management, engineering, test, evaluation and budget planning for Engineering, Manufacturing and Development (EMD) phase efforts, completion of Milestone B statutory and regulatory requirements, EMD contract award to include acquisition of test hardware and integration support and buildup of test articles required for execution of EMD.					
FY 2016 Plans: FY16 funding supports AH-1Z software development, test and integration, platform airworthiness analysis/testing, test planning/execution, procurement of test and integration hardware, acquisition and buildup of test articles, future technology insertion, and joint cost and schedule planning for EMD, Milestone C and Low Rate Initial Production (LRIP).					
FY 2017 Base Plans: FY17 plans include continued execution of EMD phase and AH-1Z integration activities, including continued airworthiness certification, software development, Developmental Testing (DT), and a planned DT assist period					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605450N / Joint Air-to-ground Missile (JAGM)	Project (Number/Name) 2211 / Joint Air-to-Ground Missile
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
to support Milestone C. AH-1Z software development and test efforts will continue in support of fleet software release planned for the FY19 Initial Operational Capability (IOC).					
<i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	6.104	25.898	17.880	0.000	17.880

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• RDT&E ARMY, 0605450A: JAGM	83.800	88.900	43.600	-	43.600	8.500	5.900	0.000	0.000	Continuing	Continuing
• MPA, ARMY, C70302: JAGM	0.000	27.700	101.900	-	101.900	190.400	260.000	228.600	308.500	3,606.700	4,723.800
• WPN, NAVY, 2248: JAGM	0.000	0.000	26.200	-	26.200	26.200	24.300	24.300	49.786	1,353.800	1,504.586

Remarks

D. Acquisition Strategy
The Joint Air-to-Ground Missile (JAGM) system is an ACAT-1D Joint Army/Navy Major Defense Acquisition Program (MDAP) with the Army designated as lead service. Milestone B was achieved in June 2015 with Milestone C planned for 4Q FY17. The Engineering, Manufacturing and Development contract was a full and open competition and was awarded July 2015. The vendor, Lockheed Martin, is responsible for the production of a technically mature and fully producible JAGM Guidance Section (GS) as well as the integration of the GS with the currently Army-fielded HELLFIRE-R missile bus for the Increment 1 capability. The Army is responsible for the development and production of the JAGM missile and integration on the AH-64 Apache. The Navy is responsible for integration of the JAGM on the AH-1Z. Initial Operational Capability (IOC) for the United States Marine Corps AH-1Z is in FY19.

E. Performance Metrics
Milestone C in FY17; IOC in FY19

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605450N / Joint Air-to-ground Missile (JAGM)	Project (Number/Name) 2211 / Joint Air-to-Ground Missile
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Systems Engineering	WR	NAWCWD : China Lake, CA	46.781	0.150	Jul 2015	1.870	Nov 2015	1.907	Nov 2016	-		1.907	2.700	53.408	-
Systems Engineering	WR	NAWCAD : Patuxent River, MD	0.485	0.120	Jul 2015	0.343	Nov 2015	0.637	Nov 2016	-		0.637	1.299	2.884	-
Aircraft Integration	WR	NAWCAD : Patuxent River, MD	8.798	0.300	Jul 2015	0.581	Nov 2015	1.280	Nov 2016	-		1.280	0.524	11.483	-
Aircraft Integration (AH-1Z)	Various	NAWCWD : China Lake, CA	3.018	0.400	Aug 2015	4.300	Nov 2015	5.926	Nov 2016	-		5.926	5.679	19.323	-
Integration & Test	WR	JAMS : Huntsville, AL	25.737	0.064	Jun 2015	4.600	Jan 2016	1.030	Jan 2017	-		1.030	1.716	33.147	-
Contractor Integration & Test	C/FPIF	Lockheed Martin : Orlando, FL	0.000	4.300	Aug 2015	8.600	Feb 2016	0.500	Feb 2017	-		0.500	0.000	13.400	-
Prior year cost Prod Dev no longer funded in the FYDP	Various	Various : Various	11.555	0.000		0.000		0.000		-		0.000	0.000	11.555	-
Subtotal			96.374	5.334		20.294		11.280		-		11.280	11.918	145.200	-

Remarks
 Integration & Test - Funding in this line includes integration & test support, modeling & simulation and telemetry kits.
 Contractor Integration & Test - Funding in this line includes hardware and support associated with the Engineering and Manufacturing Development (EMD) contract.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Integrated Logistics Support	WR	NAWCWD : China Lake, CA	0.000	0.030	Aug 2015	0.107	Nov 2015	0.160	Nov 2016	-		0.160	0.278	0.575	-
Integrated Logistics Support	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.050	Nov 2015	0.075	Nov 2016	-		0.075	0.153	0.278	-
Prior year Support cost no longer funded in the FYDP	Various	Various : Various	12.447	0.000		0.000		0.000		-		0.000	0.000	12.447	-
Subtotal			12.447	0.030		0.157		0.235		-		0.235	0.431	13.300	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
1319 / 5				PE 0605450N / Joint Air-to-ground Missile (JAGM)				2211 / Joint Air-to-Ground Missile							
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Test & Evaluation	Various	NAWCAD : Patuxent River, MD	3.786	0.000		1.250	Nov 2015	2.465	Nov 2016	-		2.465	1.958	9.459	-
Test & Evaluation	Various	NAWCWD : China Lake, CA	0.000	0.000		0.953	Nov 2015	1.045	Nov 2016	-		1.045	0.127	2.125	-
Test & Evaluation	Various	NAWCWD : Point Mugu, CA	0.000	0.000		0.000		0.480	Nov 2016	-		0.480	2.547	3.027	-
Test & Evaluation	Various	MCAS : Yuma, AZ	0.000	0.000		0.000		0.406	Nov 2016	-		0.406	0.936	1.342	-
Test & Evaluation	Various	USAF : Eglin AFB, FL	0.000	0.000		2.000	Feb 2016	0.701	Nov 2016	-		0.701	0.296	2.997	-
Prior year T&E cost no longer funded in the FYDP	Various	Various : Various	41.328	0.000		0.000		0.000		-		0.000	0.000	41.328	-
Subtotal			45.114	0.000		4.203		5.097		-		5.097	5.864	60.278	-
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contr Eng Supt - ETS (NONFFRDC)	Various	Various : Various	1.332	0.594	Apr 2015	0.900	Feb 2016	0.918	Feb 2017	-		0.918	0.808	4.552	-
Management Services	Various	NAWCAD : Patuxent River, MD	14.020	0.099	Jun 2015	0.284	Nov 2015	0.290	Nov 2016	-		0.290	0.592	15.285	-
Travel	Various	NAWCAD : Patuxent River, MD	0.415	0.047	Nov 2014	0.060	Nov 2015	0.060	Nov 2016	-		0.060	Continuing	Continuing	Continuing
Prior year Mngt Svcs cost no longer funded in the FYDP	Various	Various : Various	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Subtotal			15.767	0.740		1.244		1.268		-		1.268	-	-	-
Project Cost Totals			169.702	6.104		25.898		17.880		-		17.880	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy							Date: February 2016			
Appropriation/Budget Activity 1319 / 5			R-1 Program Element (Number/Name) PE 0605450N / <i>Joint Air-to-ground Missile (JAGM)</i>			Project (Number/Name) 2211 / <i>Joint Air-to-Ground Missile</i>				
	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	

Remarks
 1) Program acquisition milestones (minus unique Initial Operating Capability) and production milestones are joint program milestones for both Army and Navy.
 2) FY15 updated for actuals. FY16 and FY17 updated based on FY15 actuals.

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605450N / Joint Air-to-ground Missile (JAGM)	Project (Number/Name) 2211 / Joint Air-to-Ground Missile

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
JAGM				
Acquisition Milestones: Milestone B	3	2015	3	2015
Acquisition Milestones: Milestone C	4	2017	4	2017
Acquisition Milestones: IOC	4	2019	4	2019
Acquisition Milestones: FRP Decision	3	2019	3	2019
Reviews: System Critical Design Review	1	2016	1	2016
Test and Evaluation: AH1-Z Integration: AH1-Z Integration	1	2015	3	2018
Test and Evaluation: Software Development Testing/Integration Testing: DT Assist	2	2017	3	2017
Test and Evaluation: Software Development Testing/Integration Testing: DT/IT	1	2018	4	2018
Test and Evaluation: Operational Testing: OT	4	2018	1	2019
Test and Evaluation: Operational Testing: OT Reporting	1	2019	2	2019
Test and Evaluation: Software Integration Lab Testing: SIL Testing	3	2015	4	2017
Production Milestones: Contract Awards: DT/IT Test Asset	3	2015	3	2015
Production Milestones: Contract Awards: OT Test Asset	2	2016	2	2016
Production Milestones: Contract Awards: LRIP 1 (WPN)	4	2017	4	2017
Production Milestones: Contract Awards: LRIP 2 (WPN)	3	2018	3	2018
Production Milestones: Contract Awards: FRP (WPN)	3	2019	3	2019
Production Milestones: Deliveries: DT/IT Test Asset	3	2016	3	2017
Production Milestones: Deliveries: OT Test Asset	2	2018	3	2018
Production Milestones: Deliveries: LRIP 1 (WPN)	4	2018	3	2019
Production Milestones: Deliveries: LRIP 2 (WPN)	4	2019	3	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605500N / <i>Multi-mssn Maritime Aircraft (MMA) (P-8A)</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	7,896.464	297.379	156.293	59.126	-	59.126	21.861	10.978	10.327	10.539	Continuing	Continuing
2696: <i>Multi-Mission Maritime Aircraft</i>	7,614.948	145.850	102.810	57.119	-	57.119	18.805	0.829	0.000	0.000	0.000	7,940.361
3181: <i>P-8A Spiral One Development</i>	176.152	66.758	39.485	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	282.395
3218: <i>P-8A Spiral 2 Development</i>	52.547	70.216	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	122.763
3368: <i>P-8 Improvements</i>	0.000	0.000	1.498	2.007	-	2.007	3.056	10.149	10.327	10.539	Continuing	Continuing
9999: <i>Congressional Adds</i>	52.817	14.555	12.500	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	79.872

Program MDAP/MAIS Code: 334

A. Mission Description and Budget Item Justification

Decrease in MULTI-MSSN MARITIME AIRCRAFT(MMA)(P-8A) by \$1.973M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

The FY 2017 funding request was reduced by \$6.88M to account for the availability of prior year execution balances.

The P-8A Multi-mission Maritime Aircraft will replace the aging P-3 aircraft. The P-8A program was initiated in response to the Joint Requirements Oversight Council (JROC) validated Mission Needs Statement, "Broad Area Maritime and Littoral Armed Intelligence, Surveillance and Reconnaissance" and the requirements for the program are defined in the P-8A Capability Production Document #791-88-09, validated and approved on 22 June 2009. A successful Critical Design Review was completed in June 2007. In August 2007 the Design Readiness Review was conducted and resulted in approval to obligate funding for the fabrication of the Stage II flight test aircraft. The first flight of P-8A occurred on 25 Apr 2009. Milestone (MS) C was successfully completed on 11 August 2010. The program completed Initial Operational Test and Evaluation (IOT&E) in March 2013 and achieved Initial Operational Capability (IOC) in November 2013. The Acquisition Decision Memorandum approved entry into Full Rate Production on January 3, 2014.

The primary objectives of Systems Development and Demonstration (SDD) are to perform the system detailed design, develop and produce Systems Integration Labs, develop and build ground and flight test articles, and conduct ground and flight tests to successfully achieve program milestones. Ground testing includes the conduct of static testing, fatigue testing and Live Fire Test and Evaluation. Six flight test aircraft have been built during SDD (PU 2696). These test aircraft are grouped into two stages based on which phase of the test program the aircraft will support. SDD Stage I flight test aircraft (FY06/Qty-3) support Integrated Test and Evaluation (IT&E). SDD Stage II flight test aircraft (FY09/Qty-3) supported the completion of IT&E and Initial Operational Test and Evaluation (IOT&E) after being updated to the production configuration. The SDD contract includes the development and initial building of training devices to support IOT&E. The scope of SDD includes activities necessary

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy Date: February 2016

Appropriation/Budget Activity
1319: *Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)*

R-1 Program Element (Number/Name)
PE 0605500N / *Multi-mssn Maritime Aircraft (MMA) (P-8A)*

to facilitate an efficient transition of the fleet to achieve the P-8A Initial Operational Capability (IOC) of SDD (PU 2696) in CY13. The scope of SDD also includes the engineering and verification of corrected deficiencies identified in testing and Fleet operational use. P-8A entered Production and Deployment phase in the 4th quarter of FY10 and entered Full Rate Production in 2nd quarter of FY14.

P-8A program is based on an evolutionary acquisition strategy consisting of sequential incremental enhancements to system capabilities that will retain cost-wise effectiveness for winning major combat operations. In order to pace the threat, Spiral One (Increment 2), the Next Phase of Capabilities, will incorporate the following capabilities into the P-8A: Multi-Static Active Coherent (MAC), Automatic Identification System, Rapid Capabilities Insertion (RCI), updates to the Tactical Operations Center (TOC), as well as additional Anti-Submarine Warfare (ASW), Anti-Surface Warfare (ASuW) and Intelligence Surveillance and Reconnaissance capabilities as Engineering Change Proposals (ECPs). The scope of this effort includes the integration, design, ground testing (lab & aircraft) and flight test of the capability enhancements to the P-8A and associated Tactical Operations Center ground support facilities and initial trainers. Integration and test of these capabilities as well as integration of Advanced Airborne Sensor (AAS) capability will be accomplished incrementally, based on the scope of the integration effort. This includes support of Special Mission Configuration Test Program (SMCTP).

The P-8A Spiral Two (Increment 3) program consist of sequential incremental enhancements to system capabilities that will retain cost-wise effectiveness for major combat operations. Increment 3 will incorporate improvements to aircraft systems including Combat System architecture improvements, ASW and ASuW sensor improvements, communication capability upgrades, ASuW Net Enabled Weapon (NEW), Higher-Than-Secret (HTS) security capability, and High Altitude ASW Weapons Capability (HAAWC) with datalink. Increment 3 has transferred from this PE 0605500N to PE 0605504N.

The P-8A Multi-mission Maritime Aircraft (MMA) program also includes a sequence of RCI's and rapid development efforts to respond to evolving threats which will retain cost-wise effectiveness for winning major combat operations. In order to pace the threat, these efforts will incorporate incremental software and hardware improvements to existing sensors, communications systems, mission systems, weapons capabilities and Tactical Operations Center (TOC) to build on the P-8A capability baseline. These capabilities, and other emergent capability requirements, will be prioritized through the Navy Integration and Interoperability (I&I)-aligned Capability Prioritization Process (CPP) and P-8A Tier 3 Capability Roadmap. The CPP process will be supported by detailed analysis and the maturation of developing technologies.

Budget Activity 5.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under SYSTEM DEVELOPMENT AND DEMONSTRATION because it includes those projects that have passed Milestone B approval and are conducting engineering and manufacturing development tasks aimed at meeting validated requirement prior to full-rate production decision.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0605500N / <i>Multi-mssn Maritime Aircraft (MMA) (P-8A)</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	306.033	247.929	238.734	-	238.734
Current President's Budget	297.379	156.293	59.126	-	59.126
Total Adjustments	-8.654	-91.636	-179.608	-	-179.608
• Congressional General Reductions	-	-0.020			
• Congressional Directed Reductions	-	-104.116			
• Congressional Rescissions	-	-			
• Congressional Adds	-	12.500			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.095	0.000			
• SBIR/STTR Transfer	-8.558	0.000			
• Program Adjustments	0.000	0.000	-7.169	-	-7.169
• Rate/Misc Adjustments	-0.001	0.000	-172.439	-	-172.439

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 9999: *Congressional Adds*

Congressional Add: *Small Business Technology Insertion*

Congressional Add Subtotals for Project: 9999

Congressional Add Totals for all Projects

	FY 2015	FY 2016
	14.555	12.500
Congressional Add Subtotals for Project: 9999	14.555	12.500
Congressional Add Totals for all Projects	14.555	12.500

Change Summary Explanation

Technical: Not applicable.

Schedule:

Project 2696: In order to clarify and better portray the actual work being performed: removed Production & Deployment line and Integrated Test & Evaluation line; renamed Correction of Deficiencies/Air to Air Refueling to Air to Air Refueling and renamed Fatigue Testing to Fatigue Testing/Air to Air Refueling and moved from Operational Evaluation to Technical Evaluation; removed FOT&E periods 2 and 3.

Project 3181: Due to delays in scheduled testing as a result of other higher priority test events; extend DT/IT from 2QFY15 to 2QFY16; move OT&E (IOC) start from 4QFY15 to 3QFY16 and end from 2QFY16 to 4QFY16; extend Integration EMD from 2QFY16 to 4QFY16. To coincide with the actual kit deliveries and installations, changed Kit Deliveries (APN) start date from 2QFY15 to 4QFY15 and end date from 1QFY18 to 3QFY17.

Project 3218: Funding transferred from PE 0605500N to PE 0605504N.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0605500N / <i>Multi-mssn Maritime Aircraft (MMA) (P-8A)</i>				Project (Number/Name) 2696 / <i>Multi-Mission Maritime Aircraft</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2696: <i>Multi-Mission Maritime Aircraft</i>	7,614.948	145.850	102.810	57.119	-	57.119	18.805	0.829	0.000	0.000	0.000	7,940.361
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The P-8A Multi-mission Maritime Aircraft (MMA) will replace the aging P-3 aircraft. The P-8A program was initiated in response to the Joint Requirements Oversight Council (JROC) validated Mission Needs Statement (MNS), "Broad Area Maritime and Littoral Armed Intelligence, Surveillance and Reconnaissance" and the requirements for the program are defined in the P-8A Capability Production Document (CPD) #791-88-09, validated and approved on 22 June 2009. A successful Critical Design Review was completed in June 2007. In August 2007 the Design Readiness Review was conducted and resulted in approval to obligate funding for the fabrication of the Stage II flight test aircraft. The first flight of P-8A occurred on 25 Apr 2009. Milestone (MS) C was successfully completed on 11 August 2010. The program completed Initial Operational Test and Evaluation (IOT&E) in March 2013 and achieved Initial Operational Capability (IOC) in November 2013. The Acquisition Decision Memorandum approved entry into Full Rate Production on January 3, 2014.

The primary objectives of Systems Development and Demonstration (SDD) are to perform the system detailed design, develop and produce Systems Integration Labs, develop and build ground and flight test articles, and conduct ground and flight tests to successfully achieve program milestones. Ground testing includes the conduct of static testing, fatigue testing and Live Fire Test and Evaluation. Six flight test aircraft have been built during SDD. These test aircraft are grouped into two stages based on which phase of the test program the aircraft will support. SDD Stage I flight test aircraft (FY06/Qty-3) support Integrated Test and Evaluation (IT&E). SDD Stage II flight test aircraft (FY09/Qty-3) supported the completion of IT&E and Initial Operational Test and Evaluation (IOT&E) after being updated to the production configuration. The SDD contract includes the development and initial building of training devices to support IOT&E. The scope of SDD includes activities necessary to facilitate an efficient transition of the fleet to achieve the P-8A Initial Operational Capability (IOC) of SDD (PU 2696) in CY13. The scope of SDD also includes the engineering and verification of corrected deficiencies identified in testing and Fleet operational use and the baseline air to air refueling. P-8A entered Production and Deployment phase in the 4th quarter of FY10 and entered Full Rate Production in 2nd quarter of FY14.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Continue System Development & Demonstration	123.556	82.299	53.175	0.000	53.175
Articles:	-	-	-	-	-
FY 2015 Accomplishments: SDD phase. Scope of effort included: engineering for identified deficiencies, support and updates to ground and flight test articles (Stage I and II), conducted fatigue testing, updated and tested Tactical Operations Center (TOC) Systems and training systems, continued horizontal stabilizer static testing and fatigue testing, conducted Integrated Test and Evaluation (IT&E), Follow-On Operational Test & Evaluation (FOT&E)/Verification					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605500N / <i>Multi-mssn Maritime Aircraft (MMA) (P-8A)</i>	Project (Number/Name) 2696 / <i>Multi-Mission Maritime Aircraft</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>of Corrected Deficiencies (VCD), and Air to Air Refueling (AAR). Conducted periodic cost and schedule performance reviews associated with EVM and prepared and conducted technical, test and logistic reviews.</p> <p>FY 2016 Plans: SDD phase. Scope of effort includes: engineering for identified and prioritized deficiencies, support and update to ground and flight test articles (Stage I and II), continuation of fatigue testing, AAR, and completion of horizontal stabilizer static testing.</p> <p>FY 2017 Base Plans: SDD phase. Scope of effort includes: support and update to ground and flight test articles (Stage I and II), continuation of fatigue testing, AAR, and completion of horizontal stabilizer static testing.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Continue Engineering and Technical Development and Test for Sys Dev & Demonstration contracts</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: Continued analysis of contracted deliverables; directed technical and logistic support of system development test aircraft; performed engineering and verification of corrected deficiencies; fatigue and horizontal stabilizer testing; evaluated contract cost, schedule, and performance; conducted test preparations; provided necessary government furnished equipment and test articles, performed risk assessment/mitigation, program control, and performance status. Conducted and supported IT&E and FOT&E /VCD.</p> <p>FY 2016 Plans: Continue analysis of contracted deliverables; direct technical and logistic support of system development test aircraft; engineering for correction of deficiencies; verification of corrected deficiencies; fatigue testing; horizontal stabilizer testing; evaluate contract cost, schedule, and performance; test preparations, provide necessary government furnished equipment and test articles, risk assessment/mitigation; program control; and performance status. Conduct and support IT&E and FOT&E/VCD.</p> <p>FY 2017 Base Plans: Continue analysis of contracted deliverables; direct technical and logistic support of system development test aircraft; Air to Air Refueling testing; fatigue testing; horizontal stabilizer testing; evaluate contract cost, schedule,</p>	22.294 -	20.511 -	3.944 -	0.000 -	3.944 -

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605500N / <i>Multi-mssn Maritime Aircraft (MMA) (P-8A)</i>	Project (Number/Name) 2696 / <i>Multi-Mission Maritime Aircraft</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
and performance; test preparations, provide necessary government furnished equipment and test articles, risk assessment/mitigation; program control; and performance status. Conduct and support IT&E and FOT&E/VCD. <i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	145.850	102.810	57.119	0.000	57.119

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• APN1/0193: <i>P-8A MMA</i>	2,171.144	3,228.333	2,063.378	-	2,063.378	1,532.058	2,613.458	97.200	0.000	0.000	23,332.327
• APN6/0605: <i>P-8A Initial Spares</i>	0.228	1.569	44.700	-	44.700	0.776	24.121	0.000	0.000	0.000	498.927
• MILCON: <i>P-8A MILCON</i>	52.216	82.418	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	342.759

Remarks

D. Acquisition Strategy
 The MMA Milestone 0 was approved 22 March 2000 and the resulting Acquisition Decision Memorandum directed P-8A to begin the Concept Exploration phase consisting of an Analysis of Alternatives and industry concept studies. These activities began 3Q/01 and were funded under Program Element 0702207N Project Unit W2737. Approval to enter Component Advance Development (CAD) was attained from the Overarching Integrated Product Team on 18 Jan 2002 and the Milestone Decision Authority Under Secretary of Defense for Acquisition, Technology, & Logistics approved the program Acquisition Strategy on 8 Feb 2002. The CAD was a competitive award to multiple contractors to define alternative MMA concept system architectures and evaluate associated risks and proposed mitigations. Selection of MMA concept and approval to enter SDD phase occurred at MS B decision review on 28 May 2004. The contract was awarded to Boeing on 14 June 2004. The SDD phase is being used to design, develop and test the P-8A system. The P-8A program was initiated in response to the Joint Requirements Oversight Council validated Mission Needs Statement, "Broad Area Maritime and Littoral Armed Intelligence, Surveillance and Reconnaissance" and the requirements for the program are defined in the Capability Production Document. MS C was successfully completed on 11 August 2010 approving entry into the Production and Deployment Phase. P-8A Initial Operational Capability achieved in November 2013. Entry into Full Rate Production was approved on 3 January 2014.

E. Performance Metrics
 Completed first period of Follow-On Test & Evaluation (FOT&E) and Verification of Corrected Deficiencies (VCD) in 2nd quarter 2014.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605500N / Multi-mssn Maritime Aircraft (MMA) (P-8A)	Project (Number/Name) 2696 / Multi-Mission Maritime Aircraft
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary HW Dev - Boeing	C/CPAF	Boeing : Seattle, WA	6,757.014	117.885	Oct 2014	78.050	Oct 2015	52.081	Oct 2016	-		52.081	16.592	7,021.622	7,021.622
Sys Eng (gov)	WR	NAWC AD : Pax River, MD	70.715	5.671	Nov 2014	4.249	Nov 2015	1.094	Nov 2016	-		1.094	0.000	81.729	-
Prior year Prod Dev cost no longer funded in the FYDP	Various	Various : Various	319.530	0.000		0.000		0.000		-		0.000	0.000	319.530	-
Subtotal			7,147.259	123.556		82.299		53.175		-		53.175	16.592	7,422.881	-

Remarks
The total award fee issued to date is 2.6% of the total budget.

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Int. Log Gov	WR	NAWC AD : Pax River, MD	43.295	0.423	Nov 2014	0.445	Nov 2015	0.086	Nov 2016	-		0.086	0.000	44.249	-
Int. Log Gov	WR	NAWC TSD : Orlando, FL	14.673	0.135	Nov 2014	0.000		0.000		-		0.000	0.000	14.808	-
Tech Dev Gov	WR	NAWC AD : Pax River, MD	74.509	1.584	Nov 2014	1.541	Nov 2015	0.162	Nov 2016	-		0.162	0.076	77.872	-
Prior year Support cost no longer funded in the FYDP	Various	Various : Various	16.561	0.000		0.000		0.000		-		0.000	0.000	16.561	-
Subtotal			149.038	2.142		1.986		0.248		-		0.248	0.076	153.490	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Dev T&E - Gov	WR	NAWC AD : Pax River, MD	83.351	10.047	Nov 2014	9.284	Nov 2015	1.525	Nov 2016	-		1.525	0.167	104.374	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605500N / Multi-mssn Maritime Aircraft (MMA) (P-8A)	Project (Number/Name) 2696 / Multi-Mission Maritime Aircraft
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
GFE & GFI	WR	NAWC AD : Pax River, MD	81.353	3.683	Nov 2014	4.000	Nov 2015	0.821	Nov 2016	-		0.821	0.000	89.857	-
LFT&E - Gov	WR	NAWC WD : China Lake	28.984	0.000		0.000		0.000		-		0.000	0.000	28.984	-
Oper Test & Eval	WR	NAWC AD : Pax River, MD	5.114	1.170	Nov 2014	1.000	Nov 2015	0.416	Nov 2016	-		0.416	0.000	7.700	-
Prior year T&E cost no longer funded in the FYDP	Various	Various : Various	10.487	0.000		0.000		0.000		-		0.000	0.000	10.487	-
Subtotal			209.289	14.900		14.284		2.762		-		2.762	0.167	241.402	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Mgmt Suppt Serv (NON-FFRDC)	C/CPFF	RBC INC : Alexandria, VA	29.477	0.622	Nov 2014	0.614	Nov 2015	0.311	Nov 2016	-		0.311	0.311	31.335	31.335
Eng Tech Serv (NON-FFRDC)	C/CPFF	ASEC : Lexington Park MD	10.745	0.400	Nov 2014	0.400	Nov 2015	0.200	Nov 2016	-		0.200	0.200	11.945	11.945
Program Mgmt Support	WR	NAWC AD : Pax River, MD	45.073	4.105	Nov 2014	3.102	Nov 2015	0.360	Nov 2016	-		0.360	0.274	52.914	-
Travel	Allot	NAWC AD : Pax River, MD	3.709	0.125	Nov 2014	0.125	Nov 2015	0.063	Nov 2016	-		0.063	0.000	4.022	-
Prior year Mgmt cost no longer funded in the FYDP	Various	Various : Various	20.358	0.000		0.000		0.000		-		0.000	0.000	20.358	-
Subtotal			109.362	5.252		4.241		0.934		-		0.934	0.785	120.574	-

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	
Project Cost Totals		7,614.948	145.850	102.810	57.119	-	57.119	17.620	7,938.347	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605500N / Multi-mssn Maritime Aircraft (MMA) (P-8A)	Project (Number/Name) 2696 / Multi-Mission Maritime Aircraft
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Multi-Mission Maritime Aircraft	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Systems Development																												
Hardware/Software Development	Air to Air Refueling																											
Test & Evaluation																												
Technical Evaluation	Fatigue Testing / Air to Air Refueling																											
Production Milestones																												
LRIP																												
FRP																												
Deliveries																												
LRIP/FRP Aircraft (APN)																												
LRIP 3	3	2	2																									
LRIP 4		2	3	3	4	1																						
FRP 1						3	4	4	4	1																		
FRP 2										2	4	3																
FRP 3													3	4	4	6												
FRP 4																	3	3	3	2								
FRP 5																				2	1	2	1					
FRP 6																										3	3	3

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605500N / <i>Multi-mssn Maritime Aircraft (MMA) (P-8A)</i>	Project (Number/Name) 2696 / <i>Multi-Mission Maritime Aircraft</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Multi-Mission Maritime Aircraft</i>				
Systems Development: Hardware/Software Development: Air to Air Refueling	1	2015	4	2018
Test & Evaluation: Technical Evaluation: Fatigue Testing / Air to Air Refueling	1	2015	4	2018
Production Milestones: Low Rate Initial Production (LRIP)	1	2015	3	2016
Production Milestones: Full Rate Production (FRP)	1	2015	4	2021
Deliveries: LRIP 3: LRIP Aircraft (APN) Q1 2015	1	2015	1	2015
Deliveries: LRIP 3: LRIP Aircraft (APN) Q2 2015	2	2015	2	2015
Deliveries: LRIP 3: LRIP Aircraft (APN) Q3 2015	3	2015	3	2015
Deliveries: LRIP 4: LRIP Aircraft (APN) Q3 2015	3	2015	3	2015
Deliveries: LRIP 4: LRIP Aircraft (APN) Q4 2015	4	2015	4	2015
Deliveries: LRIP 4: LRIP Aircraft (APN) Q1 2016	1	2016	1	2016
Deliveries: LRIP 4: LRIP Aircraft (APN) Q2 2016	2	2016	2	2016
Deliveries: LRIP 4: LRIP Aircraft (APN) Q3 2016	3	2016	3	2016
Deliveries: FRP 1: FRP Aircraft (APN) Q3 2016	3	2016	3	2016
Deliveries: FRP 1: FRP Aircraft (APN) Q4 2016	4	2016	4	2016
Deliveries: FRP 1: FRP Aircraft (APN) Q1 2017	1	2017	1	2017
Deliveries: FRP 1: FRP Aircraft (APN) Q2 2017	2	2017	2	2017
Deliveries: FRP 1: FRP Aircraft (APN) Q3 2017	3	2017	3	2017
Deliveries: FRP 2: FRP Aircraft (APN) Q3 2017	3	2017	3	2017
Deliveries: FRP 2: FRP Aircraft (APN) Q4 2017	4	2017	4	2017
Deliveries: FRP 2: FRP Aircraft (APN) Q1 2018	1	2018	1	2018
Deliveries: FRP 3: FRP Aircraft (APN) Q2 2018	2	2018	2	2018

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605500N / <i>Multi-mssn Maritime Aircraft (MMA) (P-8A)</i>	Project (Number/Name) 2696 / <i>Multi-Mission Maritime Aircraft</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Deliveries: FRP 3: FRP Aircraft (APN) Q3 2018	3	2018	3	2018
Deliveries: FRP 3: FRP Aircraft (APN) Q4 2018	4	2018	4	2018
Deliveries: FRP 3: FRP Aircraft (APN) Q1 2019	1	2019	1	2019
Deliveries: FRP 4: FRP Aircraft (APN) Q2 2019	2	2019	2	2019
Deliveries: FRP 4: FRP Aircraft (APN) Q3 2019	3	2019	3	2019
Deliveries: FRP 4: FRP Aircraft (APN) Q4 2019	4	2019	4	2019
Deliveries: FRP 4: FRP Aircraft (APN) Q1 2020	1	2020	1	2020
Deliveries: FRP 5: FRP Aircraft (APN) Q2 2020	2	2020	2	2020
Deliveries: FRP 5: FRP Aircraft (APN) Q3 2020	3	2020	3	2020
Deliveries: FRP 5: FRP Aircraft (APN) Q4 2020	4	2020	4	2020
Deliveries: FRP 5: FRP Aircraft (APN) Q1 2021	1	2021	1	2021
Deliveries: FRP 6: FRP Aircraft (APN) Q2 2021	2	2021	2	2021
Deliveries: FRP 6: FRP Aircraft (APN) Q3 2021	3	2021	3	2021
Deliveries: FRP 6: FRP Aircraft (APN) Q4 2021	4	2021	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0605500N / <i>Multi-mssn Maritime Aircraft (MMA) (P-8A)</i>				Project (Number/Name) 3181 / <i>P-8A Spiral One Development</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3181: <i>P-8A Spiral One Development</i>	176.152	66.758	39.485	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	282.395
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The P-8A Multi-mission Maritime Aircraft (MMA) program is based on an evolutionary acquisition strategy consisting of sequential incremental enhancements to system capabilities that will retain cost-wise effectiveness for winning major combat operations. In order to pace the threat, Spiral One (Increment 2), the Next Phase of Capabilities (NPC-1), will incorporate the following capabilities into the P-8A: Multi-Static Active Coherent (MAC), Automatic Identification System (AIS), Rapid Capabilities Insertion (RCI), updates to the Tactical Operations Center (TOC), as well as additional Anti-Submarine Warfare (ASW), Anti-Surface Warfare (ASuW) and Intelligence Surveillance and Reconnaissance (ISR) capabilities. Increment 2 will be executed as an Engineering Change Proposal (ECP) to the baseline program.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Perform technology demonstrations and analyses of proposed new capabilities	46.715	28.088	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Continued development of integration design of new P-8A capabilities. Achieved MAC Early Operational Capability. Conducted laboratory and development testing. Incrementally funded primary Integration/EMD contract for comprehensive design, installation, test and initial fielding of all Spiral One (Increment 2) capabilities such as MAC, AIS, and RCI. Maintained integration alignment with external development programs.					
FY 2016 Plans: Complete development of integration design of new P-8A capabilities. Complete laboratory and development testing. Incrementally fund primary Integration/EMD contract for comprehensive design, installation, test and initial fielding of all Spiral One (Increment 2) capabilities such as MAC, AIS, and RCI. Maintain integration alignment with external development programs. Achieve ECP2 Initial Operational Capability.					
FY 2017 Base Plans: N/A					
FY 2017 OCO Plans: N/A					
Title: Conduct technical, cost, risk and logistics analysis of proposed technologies	20.043	11.397	0.000	0.000	0.000
Articles:	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605500N / Multi-mssn Maritime Aircraft (MMA) (P-8A)	Project (Number/Name) 3181 / P-8A Spiral One Development

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p><i>FY 2015 Accomplishments:</i> Conducted technical, cost, risk and logistics analysis of proposed technologies. Provided technical and management support for the development of acquisition documentation. Provided engineering and management of technical development effort. Conducted flight testing of Spiral One (Increment 2) capabilities. Provided technical and management support for the development of training courseware.</p> <p><i>FY 2016 Plans:</i> Complete technical, cost, risk and logistics analysis of proposed technologies. Complete technical and management support for the development of acquisition documentation. Complete engineering and management of technical development effort. Complete flight testing of Spiral One (Increment 2) capabilities. Complete technical and management support for the development of training courseware.</p> <p><i>FY 2017 Base Plans:</i> N/A</p> <p><i>FY 2017 OCO Plans:</i> N/A</p>					
Accomplishments/Planned Programs Subtotals	66.758	39.485	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• APN5/0586: P-8 Series	29.797	28.092	18.836	-	18.836	18.642	206.008	198.574	202.575	2,631.992	3,347.000

Remarks
BLI0586 reflects the P-8A total program funding not just Increment 2

D. Acquisition Strategy
The P-8A MMA program is based on an evolutionary acquisition strategy consisting of sequential incremental enhancements to system capabilities that will retain cost-wise effectiveness for winning major combat operations. As part of the P-8A evolutionary acquisition strategy, Spiral One (Increment 2) will incorporate the capabilities defined in the Capability Development Document approved by JROC on 25 June 2010. Next Phase of Capabilities (NPC-1) will incorporate the following capabilities into the P-8A: Multi-Static Active Coherent, Rapid Capabilities Insertion, updates to the Tactical Operations Center, as well as additional Anti-Submarine Warfare, Anti-Surface Warfare and Intelligence Surveillance and Reconnaissance capabilities.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605500N / <i>Multi-mssn Maritime Aircraft (MMA) (P-8A)</i>	Project (Number/Name) 3181 / <i>P-8A Spiral One Development</i>

E. Performance Metrics

Approval of Spiral One (Increment 2) Engineering Change Proposals (ECPs).

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605500N / Multi-mssn Maritime Aircraft (MMA) (P-8A)	Project (Number/Name) 3181 / P-8A Spiral One Development
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary HW Dev - Integration/EMD	C/CPFF	Boeing : Seattle, WA	72.910	40.583	Nov 2014	23.240	Nov 2015	0.000		-		0.000	0.000	136.733	136.733
Sys Eng (gov)	WR	NAWC AD : Pax River, MD	33.422	6.132	Nov 2014	4.848	Nov 2015	0.000		-		0.000	0.000	44.402	-
Prior year Prod Dev cost no longer funded in the FYDP	Various	Various : Various	23.454	0.000		0.000		0.000		-		0.000	0.000	23.454	-
Subtotal			129.786	46.715		28.088		0.000		-		0.000	0.000	204.589	-

Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Integrated Logistics Sup	WR	NAWC AD : Pax River, MD	3.018	0.728	Nov 2014	0.723	Nov 2015	0.000		-		0.000	0.000	4.469	-
Prior year Support cost no longer funded in the FYDP	Various	Various : Various	0.742	0.000		0.000		0.000		-		0.000	0.000	0.742	-
Subtotal			3.760	0.728		0.723		0.000		-		0.000	0.000	5.211	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Dev Test & Eval	WR	NAWC AD : Pax River, MD	14.702	8.475	Nov 2014	0.000		0.000		-		0.000	0.000	23.177	-
GFE/GFI/GFP	WR	NAWC AD : Pax River, MD	14.101	6.627	Nov 2014	6.600	Nov 2015	0.000		-		0.000	0.000	27.328	-
Oper Test & Eval	WR	NAWC AD : Pax River, MD	0.000	2.544	Nov 2014	2.600	Nov 2015	0.000		-		0.000	0.000	5.144	-
Subtotal			28.803	17.646		9.200		0.000		-		0.000	0.000	55.649	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605500N / Multi-mssn Maritime Aircraft (MMA) (P-8A)	Project (Number/Name) 3181 / P-8A Spiral One Development
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P-8A Spiral One Development	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
Acquisition Milestones																																
Milestones	EOC ▲								IOC ▲																							
Systems Development																																
Acquisition Phases	Integration/EMD																															
Test & Evaluation																																
Technical Evaluation	DT/IT																															
Operational Evaluation	OT&E (EOC)								OT&E (IOC)																							
Production Milestones																																
Contract Awards					RETROFIT KITS (ECP2) ●																											
Deliveries																																
Deliveries									Kit Deliveries (APN)																							

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605500N / <i>Multi-mssn Maritime Aircraft (MMA) (P-8A)</i>	Project (Number/Name) 3181 / <i>P-8A Spiral One Development</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>P-8A Spiral One Development</i>				
Acquisition Milestones: Milestones: Early Operational Capability (EOC)	2	2015	2	2015
Acquisition Milestones: Milestones: Initial Operational Capability (IOC)	4	2016	4	2016
Systems Development: Acquisition Phases: Integration/EMD	1	2015	4	2016
Test & Evaluation: Technical Evaluation: Developmental Testing (Integration Testing)	1	2015	2	2016
Test & Evaluation: Operational Evaluation: Operational Test & Evaluation (OT&E) (EOC)	1	2015	2	2015
Test & Evaluation: Operational Evaluation: Operational Test & Evaluation (OT&E) (IOC)	3	2016	4	2016
Production Milestones: Contract Awards: Retrofit Kits (ECP2)	3	2015	3	2015
Deliveries: Kit Deliveries (APN)	4	2015	3	2017

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0605500N / <i>Multi-mssn Maritime Aircraft (MMA) (P-8A)</i>				Project (Number/Name) 3218 / <i>P-8A Spiral 2 Development</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3218: <i>P-8A Spiral 2 Development</i>	52.547	70.216	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	122.763
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The P-8A Increment 3 program consist of sequential incremental enhancements to system capabilities that will retain cost-wise effectiveness for major combat operations. Increment 3 will incorporate improvements to aircraft systems including Combat System architecture improvements, ASW and ASuW sensor improvements, communication capability upgrades, ASuW Net Enabled Weapon (NEW), Higher-Than-Secret (HTS) security capability, and High Altitude ASW Weapons Capability (HAAWC) with datalink. Increment 3 has transferred from this PE 0605500N to PE 0605504N.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Perform technology demonstrations and analyses of proposed new capabilities	62.858	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Increased government led Lead Capability Integrator (LCI) Spiral 2 (Increment 3) architecture prototyping, capability prototyping, and integration analysis efforts. Increased government led engineering efforts to support initial Spiral 2 (Increment 3) execution of Applications Based Architecture competitive software development contracts. Executed Spiral 2 (Increment 3) Risk Reduction Interface contracting efforts. Developed and initiate execution of Risk Reduction Capabilities Analysis contract effort in preparation for Increment 3 program FY16 System Requirements Review (SRR) System Engineering Technical Review (SETR) event. Continued engineering ramp up of Capability Development and Integration efforts to include MAC Enhancements, Net Enabled Weapon, and Sensor Upgrades. Continued P-8A TOC design and integration efforts.					
FY 2016 Plans: Continue execution of Spiral 2 (Increment 3) Applications Based Architecture (ABA) system development, Risk Reduction Interface and Capability Analysis contracting efforts. Develop and award competitive Wide Band SATCOM system hardware procurement contract. Continue Lead Capability Integrator (LCI) Spiral 2 (Increment 3) core Combat System architecture prototyping, capability application prototyping, and integration analysis efforts. Continue Capability Development and Integration Engineering Change Proposal (ECP) maturity efforts to include Anti-Submarine Warfare (ASW) capability, Wide Band SATCOM, Net Enabled Weapon, and Sensor Upgrades. Continue P-8A TOC design and integration efforts. Prepare, create, and conduct program Milestone activities in preparation of formal "Ready For Proposal (RFP) Release" Milestone. Prepare and execute all					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605500N / <i>Multi-mssn Maritime Aircraft (MMA) (P-8A)</i>	Project (Number/Name) 3218 / <i>P-8A Spiral 2 Development</i>

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017	FY 2017	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Cost To	
			Base	OCO	Total					Complete	Total Cost
• APN5/0586: <i>P-8 Series</i>	29.797	28.092	18.836	-	18.836	18.642	206.008	198.574	202.575	2,631.992	3,347.000

Remarks

BLI0586 reflects total P-8A funding not just Increment 3. This BLI has moved to new PE 0605504N.

D. Acquisition Strategy

As part of the Increment 3 evolutionary acquisition strategy, Spiral 2 (Increment 3) will incorporate the capabilities defined in the JROC approved P-8A Increment 3 Capability Development Document. These capabilities will be developed as a series of ECP's for the P-8A and Tactical Operations Center (ground support facility) similar to the approach used for Increment 2.

E. Performance Metrics

Continue development of architectural prototyping and maturity of capability ECPs.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605500N / Multi-mssn Maritime Aircraft (MMA) (P-8A)	Project (Number/Name) 3218 / P-8A Spiral 2 Development
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary Hdw Dev - RR Interface	C/CPIF	Boeing : Seattle	3.344	5.717	Jan 2015	0.000		0.000		-		0.000	0.000	9.061	9.061
Primary HW Dev - Capability Analysis	C/CPFF	Boeing : Seattle	0.167	5.000	Jul 2015	0.000		0.000		-		0.000	0.000	5.167	5.167
Primary HW Dev - Capability Dev & Integration	C/CPFF	Boeing : Seattle	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Primary HW Dev - ABA SW Dev Vendor A	C/CPIF	Raytheon : Dallas, TX	1.624	8.000	Feb 2015	0.000		0.000		-		0.000	0.000	9.624	9.624
Primary HW Dev - ABA SW Dev Vendor B	C/CPIF	Lockheed Martin : Manassas, VA	1.624	8.000	Feb 2015	0.000		0.000		-		0.000	0.000	9.624	9.624
Primary HW Dev - Combat Systems	TBD	TBD : TBD	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Primary HW Dev - Platform Integration	C/CPFF	Boeing : Seattle	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Primary HW Dev - Prototyping	Various	Various : Various	1.440	1.000	Mar 2015	0.000		0.000		-		0.000	0.000	2.440	-
Primary HW Dev - MAC Enhancements	Various	Various : Various	11.755	11.000	Nov 2014	0.000		0.000		-		0.000	0.000	22.755	-
Primary HW Dev - Wideband SATCOM	TBD	TBD : TBD	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
RCI2 - ECP3	C/CPIF	Boeing : Seattle	0.000	7.716	Dec 2014	0.000		0.000		-		0.000	0.000	7.716	7.716
LCI Development & Integration	WR	NAWC AD : Pax River, MD	0.202	8.003	Nov 2014	0.000		0.000		-		0.000	0.000	8.205	-
Sys Eng (gov)	WR	NAWC AD : Pax River, MD	18.092	8.422	Nov 2014	0.000		0.000		-		0.000	0.000	26.514	-
Prior year Prod dev no longer funded in the FYDP	Various	Various : Various	3.665	0.000		0.000		0.000		-		0.000	0.000	3.665	-
Subtotal			41.913	62.858		0.000		0.000		-		0.000	0.000	104.771	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605500N / Multi-mssn Maritime Aircraft (MMA) (P-8A)	Project (Number/Name) 3218 / P-8A Spiral 2 Development
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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Integrated Logistics Sup	WR	NAWC AD : Pax River, MD	1.146	0.685	Nov 2014	0.000		0.000		-		0.000	0.000	1.831	-
Studies & Analysis	C/CPFF	JHU : Pax River, MD	1.681	0.763	Nov 2014	0.000		0.000		-		0.000	0.000	2.444	2.444
Subtotal			2.827	1.448		0.000		0.000		-		0.000	0.000	4.275	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Dev Test & Eval	WR	NAWC AD : Pax River, MD	0.554	0.883	Nov 2014	0.000		0.000		-		0.000	0.000	1.437	-
GFE/GFI/GFP	WR	NAWC AD : Pax River, MD	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Oper Test & Eval	WR	NAWC AD : Pax River, MD	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Test Assets	WR	NAWC AD : Pax River, MD	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Subtotal			0.554	0.883		0.000		0.000		-		0.000	0.000	1.437	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Eng Tech Serv (NON-FFRDC)	C/CPFF	Various : Various	2.349	0.934	Nov 2014	0.000		0.000		-		0.000	0.000	3.283	3.283
Mgmt Suppt Serv (NON-FFRDC)	C/CPFF	RBC : Alexandria, VA	2.989	2.471	Nov 2014	0.000		0.000		-		0.000	0.000	5.460	5.460
Program Mgmt Support	WR	NAWC AD : Pax River, MD	1.910	1.522	Nov 2014	0.000		0.000		-		0.000	0.000	3.432	-
Travel	Allot	NAWC AD : Pax River, MD	0.005	0.100	Oct 2014	0.000		0.000		-		0.000	0.000	0.105	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605500N / Multi-mssn Maritime Aircraft (MMA) (P-8A)	Project (Number/Name) 3218 / P-8A Spiral 2 Development
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P-8A Spiral 2 Development	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestones																												
Milestones																												
Systems Development																												
	ABA S/W DEV & Prototyping																											
Reviews																												
Test & Evaluation																												
Contract Awards																												
	ABA S/W Dev ●																											
		Cap Analysis ●																										

2017PB - 0605500N - 3218

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605500N / <i>Multi-mssn Maritime Aircraft (MMA) (P-8A)</i>	Project (Number/Name) 3218 / <i>P-8A Spiral 2 Development</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>P-8A Spiral 2 Development</i>				
Systems Development: ABA Software Development and Prototyping	1	2015	4	2015
Systems Development: Capability Analysis, Development & Integration	3	2015	4	2015
Contract Awards: Contract Award - ABA Software Development	1	2015	1	2015
Contract Awards: Contract Award - Capability Analysis	3	2015	3	2015

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605500N / <i>Multi-mssn Maritime Aircraft (MMA) (P-8A)</i>	Project (Number/Name) 3368 / <i>P-8 Improvements</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3368: <i>P-8 Improvements</i>	0.000	0.000	1.498	2.007	-	2.007	3.056	10.149	10.327	10.539	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The P-8A Multi-mission Maritime Aircraft (MMA) program also includes a sequence of Rapid Capability Insertions (RCI) and rapid development efforts to respond to evolving threats which will retain cost-wise effectiveness for winning major combat operations. In order to pace the threat, these efforts will incorporate incremental software and hardware improvements to existing sensors, communications systems, mission systems, weapons capabilities and Tactical Operations Center (TOC)/TACMobile to build on the P-8A capability baseline. These capabilities, and other emergent capability requirements, will be prioritized either through the Navy Integration and Interoperability (I&I)-aligned Capability Prioritization Process (CPP), P-8A Tier 3 Capability Roadmap and/or through an Urgent Operational Need. The CPP process will be supported by detailed analysis and the maturation of developing technologies.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Title: Perform technology demonstrations and analyses of proposed new capabilities</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: Develop Rapid Capability Insertions to incorporate incremental software and hardware improvements to build on the P-8A capability baseline.</p> <p>FY 2017 Base Plans: Develop Rapid Capability Insertions to incorporate incremental software and hardware improvements to build on the P-8A capability baseline.</p> <p>FY 2017 OCO Plans: N/A</p>	0.000	1.170	1.582	0.000	1.582
<p>Title: Conduct technical, cost, risk and logistics analysis of proposed technologies</p> <p align="right">Articles:</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans:</p>	0.000	0.328	0.425	0.000	0.425

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605500N / <i>Multi-mssn Maritime Aircraft (MMA) (P-8A)</i>	Project (Number/Name) 3368 / <i>P-8 Improvements</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Conduct technical, cost, risk and logistics analysis of proposed technologies. Evaluate system requirements through cost/performance trade-off analysis. Provide technical and management support for the development of acquisition documentation. Provide engineering and management of technical development effort. Increase in government led prototyping.</p> <p>FY 2017 Base Plans: Conduct technical, cost, risk and logistics analysis of proposed technologies. Evaluate system requirements through cost/performance trade-off analysis. Provide technical and management support for the development of acquisition documentation. Provide engineering and management of technical development effort. Increase in government led prototyping.</p> <p>FY 2017 OCO Plans: N/A</p>					
Accomplishments/Planned Programs Subtotals	0.000	1.498	2.007	0.000	2.007

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

The P-8A Multi-mission Maritime Aircraft (MMA) program also includes a sequence of Rapid Capability Insertions (RCI) and rapid development efforts to respond to evolving threats which will retain cost-wise effectiveness for winning major combat operations beyond 2020. In order to pace the threat, these efforts will incorporate incremental software and hardware improvements to existing sensors, communications systems, mission systems, weapons capabilities and Tactical Operations Center (TOC) to build on the P-8A capability baseline. These capabilities, and other emergent capability requirements, will be prioritized through the Navy Integration and Interoperability (I&I)-aligned Capability Prioritization Process (CPP), P-8A Tier 3 Capability Roadmap and/or through an Urgent Operational Need. The CPP process will be supported by detailed analysis and the maturation of developing technologies.

E. Performance Metrics

Complete ABA prototyping on capabilities beyond Increment 3.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)					Project (Number/Name)							
1319 / 5				PE 0605500N / Multi-mssn Maritime Aircraft (MMA) (P-8A)					3368 / P-8 Improvements							
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Primary HW Dev - P-8A Improvements	TBD	TBD : TBD	0.000	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing	
Sys Eng - Gov	WR	NAWCAD : Pax River, MD	0.000	0.000		1.170	Nov 2015	1.582	Nov 2016	-		1.582	Continuing	Continuing	Continuing	
Subtotal			0.000	0.000		1.170		1.582		-		1.582	-	-	-	
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Integrated Logistics Support	WR	NAWCAD : Pax River, MD	0.000	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing	
Subtotal			0.000	0.000		0.000		0.000		-		0.000	-	-	-	
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Dev T&E - Gov	WR	NAWCAD : Pax River, MD	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-	
Subtotal			0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-	
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Eng Tech Serv (NON-FFRDC)	Various	Various : Various	0.000	0.000		0.099	Nov 2015	0.113	Nov 2016	-		0.113	Continuing	Continuing	Continuing	
Mgmt Support Serv	C/CPFF	RBC : Alexandria, VA	0.000	0.000		0.099	Nov 2015	0.112	Nov 2016	-		0.112	Continuing	Continuing	Continuing	

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605500N / <i>Multi-mssn Maritime Aircraft (MMA) (P-8A)</i>	Project (Number/Name) 3368 / <i>P-8 Improvements</i>
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P-8 Improvements	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Systems Development																												
Rapid Capability Insertion																												

2017OSD - 0605500N - 3368

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605500N / <i>Multi-mssn Maritime Aircraft (MMA) (P-8A)</i>	Project (Number/Name) 3368 / <i>P-8 Improvements</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>P-8 Improvements</i>				
Systems Development: Rapid Capability Insertion: Rapid Capability Insertion	2	2016	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605500N / <i>Multi-mssn Maritime Aircraft (MMA) (P-8A)</i>	Project (Number/Name) 9999 / <i>Congressional Adds</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
9999: <i>Congressional Adds</i>	52.817	14.555	12.500	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	79.872
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Congressional Add.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2015	FY 2016
<i>Congressional Add:</i> Small Business Technology Insertion	14.555	12.500
<i>FY 2015 Accomplishments:</i> N/A		
<i>FY 2016 Plans:</i> N/A		
Congressional Adds Subtotals	14.555	12.500

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

Not required for Congressional Adds.

E. Performance Metrics

Not required for Congressional Adds.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605500N / Multi-mssn Maritime Aircraft (MMA) (P-8A)	Project (Number/Name) 9999 / Congressional Adds
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary HW Dev - NAWCAD	WR	NAWC AD : Patuxent River, MD	0.635	0.553	May 2015	1.100	May 2016	0.000		-		0.000	0.000	2.288	-
Primary HW Dev - Progeny	C/CPFF	PROGENY : Manassas, VA	19.453	9.600	Sep 2015	9.800	Sep 2016	0.000		-		0.000	0.000	38.853	29.053
Primary HW Dev - SBIR - Various	Various	Various : Various	25.250	4.402	Sep 2015	1.600	May 2016	0.000		-		0.000	0.000	31.252	29.652
Primary HD Dev - Prototyping - Various	Various	Various : Various	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Primary HD Dev - Sensor Development	Various	Various : Various	4.800	0.000		0.000		0.000		-		0.000	0.000	4.800	4.800
Subtotal			50.138	14.555		12.500		0.000		-		0.000	0.000	77.193	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Engineering Services	WR	NAWC AD : Patuxent River, MD	0.458	0.000		0.000		0.000		-		0.000	0.000	0.458	0.458
Mgmt Suppt Serv (NONFFRDC)	C/CPFF	RBC INC : Alexandria,	2.221	0.000		0.000		0.000		-		0.000	0.000	2.221	2.221
Subtotal			2.679	0.000		0.000		0.000		-		0.000	0.000	2.679	2.679

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	52.817	14.555	12.500	0.000	-	0.000	0.000	79.872	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605500N / <i>Multi-mssn Maritime Aircraft (MMA) (P-8A)</i>	Project (Number/Name) 9999 / <i>Congressional Adds</i>
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Proj 9999	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
Small Business Technology Insertion																																

2017PB - 0605500N - 9999

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605500N / <i>Multi-mssn Maritime Aircraft (MMA) (P-8A)</i>	Project (Number/Name) 9999 / <i>Congressional Adds</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 9999				
Small Business Technology Insertion: Schedule Detail	1	2015	4	2016

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>					R-1 Program Element (Number/Name) PE 0605504N / <i>Multi-Mission Maritime (MMA) Increment III</i>							
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	91.616	182.220	-	182.220	183.969	195.733	151.739	154.901	Continuing	Continuing
3218: <i>P-8A Spiral 2 Development</i>	0.000	0.000	91.616	182.220	-	182.220	183.969	195.733	151.739	154.901	Continuing	Continuing

A. Mission Description and Budget Item Justification

The P-8A Increment 3 program consist of sequential incremental enhancements to system capabilities that will retain cost-wise effectiveness for major combat operations. Increment 3 will incorporate improvements to aircraft systems including Combat System architecture improvements, Anti-Submarine Warfare (ASW) and Anti-Surface Warfare (ASuW) sensor improvements, communication capability upgrades, ASuW Net Enabled Weapon (NEW), Higher-Than-Secret (HTS) security capability, High Altitude ASW Weapons Capability (HAAWC) with datalink, and Rapid Capability Insertion (RCI) Engineering Change Proposals (ECPs).

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	91.616	182.220	-	182.220
Total Adjustments	0.000	91.616	182.220	-	182.220
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-12.500			
• Congressional Rescissions	-	-			
• Congressional Adds	-	104.116			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Rate/Misc Adjustments	0.000	0.000	182.220	-	182.220

Change Summary Explanation

Technical: Not applicable.
 Schedule:
 Funding transferred from PE 0605500N to new PE 0605504N.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0605504N / <i>Multi-Mission Maritime (MMA) Increment III</i>				Project (Number/Name) 3218 / <i>P-8A Spiral 2 Development</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3218: <i>P-8A Spiral 2 Development</i>	0.000	0.000	91.616	182.220	-	182.220	183.969	195.733	151.739	154.901	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The P-8A Increment 3 program consist of sequential incremental enhancements to system capabilities that will retain cost-wise effectiveness for major combat operations. Increment 3 will incorporate improvements to aircraft systems including Combat System architecture improvements, Anti-Submarine Warfare (ASW) and Anti-Surface Warfare (ASuW) sensor improvements, communication capability upgrades, ASuW Net Enabled Weapon (NEW), Higher-Than-Secret (HTS) security capability, and High Altitude ASW Weapons Capability (HAAWC) with datalink.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Perform technology demonstrations and analyses of proposed new capabilities	0.000	82.168	156.596	0.000	156.596
Articles:	-	-	-	-	-
FY 2015 Accomplishments: N/A					
FY 2016 Plans: Continue execution of Spiral 2 (Increment 3) Applications Based Architecture (ABA) system development, Risk Reduction Interface and Capability Analysis contracting efforts. Develop and award competitive Wide Band SATCOM system hardware procurement contract. Continue Lead Capability Integrator (LCI), core Combat System architecture prototyping, capability application prototyping, and integration analysis efforts. Continue Capability Development and Integration Engineering Change Proposal (ECP) maturity efforts to include Anti-Submarine Warfare (ASW) capability, Wide Band SATCOM, Net Enabled Weapon, and Sensor Upgrades. Continue P-8A TOC design and integration efforts. Prepare, create, and conduct program Milestone activities in preparation of formal "Ready For Proposal (RFP) Release" Milestone. Prepare and execute all Increment 3 System Engineering Technical Review (SETR) activities necessary to conduct formal program Preliminary Design Review (PDR) event.					
FY 2017 Base Plans: Continue execution of Spiral 2 (Increment 3) Applications Based Architecture (ABA) system development, Risk Reduction Interface and Capability Analysis contracting efforts. Develop and award competitive Wide Band SATCOM system hardware procurement contract. Continue Lead Capability Integrator (LCI) and integration					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605504N / <i>Multi-Mission Maritime (MMA) Increment III</i>	Project (Number/Name) 3218 / <i>P-8A Spiral 2 Development</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
analysis efforts. Continue Capability Development and Integration Engineering Change Proposal (ECP) maturity efforts to include Anti-Submarine Warfare (ASW) capability, Wide Band SATCOM, Net Enabled Weapon, and Sensor Upgrades. Continue P-8A TOC design and integration efforts. Additionally, will initiate the competitive Combat System Hardware Development effort which consists of an updated ABA computing architecture integrated with the existing P-8 mission system. FY 2017 OCO Plans: N/A					
Title: Conduct technical, cost, risk and logistics analysis of proposed technologies FY 2015 Accomplishments: N/A FY 2016 Plans: Conduct technical, cost, risk and logistics analysis of proposed technologies. Evaluate system requirements through cost/performance trade-off analysis. Provide technical and management support for the development of acquisition documentation. Provide engineering and management of technical development effort. Increase in government led prototyping. FY 2017 Base Plans: Conduct technical, cost, risk and logistics analysis of proposed technologies. Evaluate system requirements through cost/performance trade-off analysis. Provide technical and management support for the development of acquisition documentation. Provide engineering and management of technical development effort. Increase in government led prototyping. Continue Capability Development and Integration Engineering Change Proposal (ECP) maturity efforts for Increment 3 capabilities. FY 2017 OCO Plans: N/A	0.000	9.448	25.624	0.000	25.624
Articles:	-	-	-	-	-
Accomplishments/Planned Programs Subtotals	0.000	91.616	182.220	0.000	182.220

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605504N / <i>Multi-Mission Maritime (MMA) Increment III</i>	Project (Number/Name) 3218 / <i>P-8A Spiral 2 Development</i>

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>FY 2017</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u>	
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	<u>Total Cost</u>
• APN/0586: <i>P-8 Series</i>	29.797	28.092	18.836	-	18.836	18.642	206.008	198.574	202.575	2,601.973	3,316.981

Remarks

BLI0586 reflects the P-8A total program funding not just Increment 3.

D. Acquisition Strategy

As part of the P-8A evolutionary acquisition strategy, Spiral 2 (Increment 3) will incorporate the capabilities defined in the JROC approved P-8A Increment 2/3 Capability Development Document. These capabilities will be developed as a series of ECP's for the P-8A and Tactical Operations Center (ground support facility) similar to the approach used for Increment 2.

E. Performance Metrics

Continue development of architectural prototyping and maturity of capability ECPs.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605504N / <i>Multi-Mission Maritime (MMA) Increment III</i>	Project (Number/Name) 3218 / <i>P-8A Spiral 2 Development</i>
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Primary Hdw Dev - RR Interface	C/CPIF	Boeing : Seattle	0.000	0.000		5.803	Nov 2015	0.000		-		0.000	0.000	5.803	5.803
Primary HW Dev - Capability Analysis	C/CPFF	Boeing : Seattle	0.000	0.000		8.433	Mar 2016	0.000		-		0.000	0.000	8.433	8.433
Primary HW Dev - Capability Dev & Integration	C/CPFF	Boeing : Seattle	0.000	0.000		10.000	Apr 2016	56.657	Oct 2016	-		56.657	8.000	74.657	74.657
Primary HW Dev - ABA SW Dev Vendor A	C/CPIF	Raytheon : Dallas, TX	0.000	0.000		6.156	Oct 2015	3.508	Oct 2016	-		3.508	0.000	9.664	9.664
Primary HW Dev - ABA SW Dev Vendor B	C/CPIF	Lockheed Martin : Manassas, VA	0.000	0.000		6.156	Oct 2015	3.930	Oct 2016	-		3.930	0.000	10.086	10.086
Primary HW Dev - Combat Systems	TBD	TBD : TBD	0.000	0.000		0.000		25.488	Jun 2017	-		25.488	99.521	125.009	-
Primary HW Dev - Platform Integration	C/CPFF	Boeing : Seattle	0.000	0.000		0.000		10.000	Jun 2017	-		10.000	240.020	250.020	250.020
Primary HW Dev - Prototyping	Various	Various : Various	0.000	0.000		6.000	Nov 2015	6.000	Nov 2016	-		6.000	0.000	12.000	-
Primary HW Dev - Wideband SATCOM	TBD	TBD : TBD	0.000	0.000		0.000		8.000	Oct 2016	-		8.000	0.000	8.000	-
RCI2 - ECP3	C/CPFF	Boeing : Seattle	0.000	0.000		14.317	Oct 2015	12.500	Oct 2016	-		12.500	0.000	26.817	26.817
LCI Development & Integration	WR	NAWC AD : Pax River, MD	0.000	0.000		16.043	Oct 2015	17.252	Oct 2016	-		17.252	62.320	95.615	-
Sys Eng (gov)	WR	NAWC AD : Pax River, MD	0.000	0.000		9.260	Nov 2015	13.261	Nov 2016	-		13.261	48.310	70.831	-
Subtotal			0.000	0.000		82.168		156.596		-		156.596	458.171	696.935	-

Remarks
FY17 Combat Systems initial contract award will require immediate expenditure for procurement of developmental hardware.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605504N / <i>Multi-Mission Maritime (MMA) Increment III</i>	Project (Number/Name) 3218 / <i>P-8A Spiral 2 Development</i>
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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Integrated Logistics Sup	WR	NAWC AD : Pax River, MD	0.000	0.000		0.757	Nov 2015	0.975	Nov 2016	-		0.975	3.443	5.175	-
Studies & Analysis	C/CPFF	JHU : Pax River, MD	0.000	0.000		0.801	Nov 2015	0.841	Nov 2016	-		0.841	0.000	1.642	1.642
Subtotal			0.000	0.000		1.558		1.816		-		1.816	3.443	6.817	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Dev Test & Eval	WR	NAWC AD : Pax River, MD	0.000	0.000		1.295	Nov 2015	13.336	Nov 2016	-		13.336	Continuing	Continuing	Continuing
GFE/GFI/GFP	WR	NAWC AD : Pax River, MD	0.000	0.000		1.279	Nov 2015	4.590	Nov 2016	-		4.590	16.754	22.623	-
Oper Test & Eval	WR	NAWC AD : Pax River, MD	0.000	0.000		0.000		0.000		-		0.000	62.332	62.332	-
Test Assets	WR	NAWC AD : Pax River, MD	0.000	0.000		0.000		0.000		-		0.000	32.832	32.832	-
Subtotal			0.000	0.000		2.574		17.926		-		17.926	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Eng Tech Serv (NON-FFRDC)	C/CPFF	Various : Various	0.000	0.000		0.981	Nov 2015	1.090	Nov 2016	-		1.090	0.000	2.071	2.071
Mgmt Suppt Serv (NON-FFRDC)	C/CPFF	RBC : Alexandria, VA	0.000	0.000		2.563	Nov 2015	2.691	Nov 2016	-		2.691	7.931	13.185	13.185
Program Mgmt Support	WR	NAWC AD : Pax River, MD	0.000	0.000		1.672	Nov 2015	2.001	Nov 2016	-		2.001	4.110	7.783	-
Travel	Allot	NAWC AD : Pax River, MD	0.000	0.000		0.100	Oct 2015	0.100	Nov 2016	-		0.100	0.400	0.600	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605504N / <i>Multi-Mission Maritime (MMA) Increment III</i>	Project (Number/Name) 3218 / <i>P-8A Spiral 2 Development</i>
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Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			0.000	0.000		5.316		5.882		-		5.882	12.441	23.639	-

Remarks
Continued engineering and management support reflected in FY16 profile are necessary to mature prototyping efforts.

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000	91.616	182.220	-	182.220	-	-	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605504N / <i>Multi-Mission Maritime (MMA) Increment III</i>	Project (Number/Name) 3218 / <i>P-8A Spiral 2 Development</i>
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P-8A Spiral 2 Development	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestones																												
Milestones																												
Systems Development																												
Reviews																												
Test & Evaluation																												
Contract Awards																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0605504N / <i>Multi-Mission Maritime (MMA) Increment III</i>	Project (Number/Name) 3218 / <i>P-8A Spiral 2 Development</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>P-8A Spiral 2 Development</i>				
Acquisition Milestones: Milestones: Harpoon 2+ IOC	1	2019	1	2019
Acquisition Milestones: Milestones: Initial Capability	1	2018	1	2018
Systems Development: ABA Software Development and Prototyping	1	2015	3	2017
Systems Development: Capability Development & Integration	3	2015	4	2021
Systems Development: Reviews: Preliminary Design Review (PDR)	2	2017	2	2017
Systems Development: Reviews: Critical Design Review (CDR)	3	2018	3	2018
Test & Evaluation: Integrated Test (IT)	3	2017	4	2021
Test & Evaluation: Lab Testing	1	2016	4	2021
Contract Awards: Contract Award - Capability Development & Integration	3	2016	3	2016
Contract Awards: Combat Systems Development	4	2017	4	2017
Contract Awards: Platform Integration	4	2017	4	2017
Contract Awards: Contract Award - SATCOM	1	2017	1	2017

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0204202N / DDG-1000
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	1,138.003	196.987	103.179	45.642	-	45.642	19.279	15.617	19.721	0.000	0.000	1,538.428
2464: <i>DD(X) Sys Design, Dev & Integration</i>	1,138.003	196.987	103.179	45.642	-	45.642	19.279	15.617	19.721	0.000	0.000	1,538.428

Program MDAP/MAIS Code: 197

A. Mission Description and Budget Item Justification

This Program Element (PE) provides funds for development of the DDG 1000 Class of U.S. Navy surface combatants. The mission of the DDG 1000 class is to provide credible independent forward presence/deterrence and operate as an integral part of Naval, Joint or Combined Maritime Forces. DDG 1000 will provide advanced land attack capability in support of the ground campaign and contribute to Naval, Joint or Combined battlespace dominance in littoral operations. DDG 1000 will establish and maintain surface and sub-surface superiority, provide local air defense, and incorporate signature reduction to operate in all threat environments. DDG 1000 will have seamless Joint Interoperability to integrate all source information for battlespace awareness and weapons direction.

B. Program Change Summary (\$ in Millions)

	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>
Previous President's Budget	202.517	103.199	20.126	-	20.126
Current President's Budget	196.987	103.179	45.642	-	45.642
Total Adjustments	-5.530	-0.020	25.516	-	25.516
• Congressional General Reductions	-	-0.020			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-5.530	0.000			
• Program Adjustments	0.000	0.000	26.172	-	26.172
• Rate/Misc Adjustments	0.000	0.000	-0.656	-	-0.656

Change Summary Explanation

FY17: An increase of \$28.1M for the DDG1000 Test and Evaluation effort in accordance with Test and Evaluation Master Plan (TEMP) 1560.

Decrease in DDG 1000 RDTEN by \$1.928M was required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0204202N / DDG-1000				Project (Number/Name) 2464 / DD(X) Sys Design, Dev & Integration			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2464: DD(X) Sys Design, Dev & Integration	1,138.003	196.987	103.179	45.642	-	45.642	19.279	15.617	19.721	0.000	0.000	1,538.428
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project encompasses DDG 1000 development efforts required to deliver the Flight I DDG 1000 Class Ships. Major efforts include software requirements analysis, architectural and design code and unit testing, integration, qualification testing, and Independent Verification and Validation (IV&V) for Software Releases; execution of Integrated Power Systems (IPS) and ship control system testing and integration; Live Fire Test and Evaluation (LFT&E), Developmental Testing (DT), and Integrated Testing (IT) in support of the Test and Evaluation Master Plan (TEMP) and development of Tactical Tomahawk Weapon Control System (TTWCS) software. Funding for previous years is included in PE 0604300N and under 0204202N Project Unit 4009, Advanced Gun System (AGS) on DD(X).

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Product / Software Development	99.128	53.361	12.942	0.000	12.942
Articles:	-	-	-	-	-
Description: Product Development/Software Development					
FY 2015 Accomplishments: Continued development of software build to support Post Shakedown Availability (PSA) and Post Delivery Availability (PDA) required capabilities. Continued development of corrections to Hull Mechanical & Electrical (HM&E) and combat systems code in support of ship activation. Supported ship activation and SDTS, PDA and PSA software builds. Developed, integrated and tested as required to correct issues to the existing code base up through Release 8. Populated Data Centers to enable shipboard integrated training capability, supported Overall Combat Systems Operability Test (OCSOT) implementation, and provided system redundancy in the event of operational casualty. Began Aircraft Handling and Securing System (AHSS) development and qualification.					
FY 2016 Plans: Complete software Release 8 to support Sail Away. Develop, integrate, and test as required corrections to HM&E and Mission System code through completion of fully capable Software Delivery in FY16. Continue development of interface specifications of TTWCS. Continue Aircraft Handling and Securing System (AHSS) development and qualification.					
FY 2017 Base Plans:					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0204202N / DDG-1000	Project (Number/Name) 2464 / DD(X) Sys Design, Dev & Integration
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Continue development of interface specifications of TTWCS. Completion of Aircraft Handling and Securing System (AHSS) development and qualification. FY 2017 OCO Plans: N/A					
Title: Test and Evaluation Description: Test and Evaluation Master Plan (TEMP) Execution FY 2015 Accomplishments: Conducted Evolved Sea Sparrow Missile (ESSM) & Standard Missile 2 (SM2) integration at Wallops Island. Conducted Radar / Total Ship Computing Environment (TSCE) / Cooperative Engagement Capability (CEC) integration tests at Wallops Island. Continued test planning for conduct of ESSM engagements on the Self Defense Test Ship (SDTS). Procured test ordnance SM-2 to conduct Operational Testing (OT) and Follow-on Test and Evaluation (FOT&E) for Anti-Air Warfare Mission Testing. Procured LRLAP rounds and pallets to conduct Integrated Test (ITB4 - Lead Ship) Land Attack Mission. Continued development of Modeling and Simulation (M&S) Probability of Raid Annihilation (PRA) and Measure of Effectiveness (MOE) Test Beds. Initiated test planning for lead ship Developmental Testing (DT) and Integrated Testing (IT). FY 2016 Plans: Conduct installation and checkout of equipment on SDTS in support of ITB1-120. Initiate ITB3 Integrated Testing Radar Cross Section Measurements, characterize Medium Frequency Sonar, and perform accuracy check to High Frequency Sonar. Initiate DTB3 / ITB3. Initiate test planning for Operational Evaluation (OPEVAL). Continue test planning for lead ship DT and IT. FY 2017 Base Plans: Continue ITB3/ITB4 and OPEVAL Planning for Air Warfare, Joint Fires and Radar Cross Section Testing; Continue PRA Test Bed Development. FY 2017 OCO Plans: N/A	97.274	49.318	32.200	0.000	32.200
Articles:	-	-	-	-	-
Title: Management Support Description: Government and Contractor Support and Travel.	0.585	0.500	0.500	0.000	0.500
Articles:	-	-	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0204202N / DDG-1000	Project (Number/Name) 2464 / DD(X) Sys Design, Dev & Integration

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<i>FY 2015 Accomplishments:</i> Continued to provide travel.					
<i>FY 2016 Plans:</i> Continue to provide travel.					
<i>FY 2017 Base Plans:</i> Provide travel.					
<i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	196.987	103.179	45.642	0.000	45.642

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• SCN / 2119: DDG 1000	460.849	433.404	271.756	-	271.756	127.421	53.689	27.995	0.000	0.000	12,753.184
• OMN / 3B1K:	3.173	1.018	1.074	-	1.074	3.120	3.198	3.261	3.327	0.000	18.171
<i>Specialized Skill Training</i>											
• OPN / 0947: DDG 1000	0.000	0.000	33.404	-	33.404	33.278	2.192	2.265	2.308	0.000	73.447
<i>Class Support Equipment</i>											
• PANMC / 0198: LRLAP 155MM	113.092	5.675	0.000	-	0.000	51.620	58.489	46.956	48.178	Continuing	Continuing
<i>Long Range Land Attack Projectile</i>											
• SCN/5110: Outfitting/Post Delivery	60.982	45.621	38.059	-	38.059	34.540	54.705	47.414	39.630	20.791	403.677
• OMN/15BUO: Life	0.000	8.840	9.111	-	9.111	9.291	4.475	0.000	0.000	0.000	31.717
<i>Cycle Engineering (IWS))</i>											
• OMN/15BRO: Life Cycle	5.550	5.544	4.170	-	4.170	5.727	5.820	5.939	6.058	0.000	47.285
<i>Engineering (SEA 21)</i>											

Remarks

D. Acquisition Strategy

A revised acquisition strategy has been determined that supports the DDG-1000/DDG-51 restart shipyard allocation workload Memorandum of Agreements (MOAs). Execution of the MOAs shifted primary construction of all three DDG-1000 class ships to Bath Iron Works (BIW). Award of the DDG 1001/1002 to BIW occurred in September 2011.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0204202N / <i>DDG-1000</i>	Project (Number/Name) 2464 / <i>DD(X) Sys Design, Dev & Integration</i>

E. Performance Metrics

Successfully achieve Initial Operational Capability. Successfully complete Operation Test Readiness Review. Successfully complete Developmental Test/Operational Test.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0204202N / DDG-1000	Project (Number/Name) 2464 / DD(X) Sys Design, Dev & Integration
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Ship Integration Development Phase IV (SW)	SS/CPAF	Raytheon : Tewksbury MA	801.830	78.077	Dec 2014	33.483	Dec 2015	0.000		-		0.000	89.700	1,003.090	-
Ship Integration Development (Prod Dev), TTWCS /ASIST	SS/CPFF	Various : Various	24.417	21.051	Dec 2014	19.878	Dec 2015	12.942	Dec 2016	-		12.942	0.000	78.288	-
Subtotal			826.247	99.128		53.361		12.942		-		12.942	89.700	1,081.378	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
SDTS (ITB1-120) / PRA TB	SS/CPFF	Raytheon : Portsmouth, RI	89.225	13.572	Jan 2015	10.525	Dec 2015	7.925	Dec 2016	-		7.925	8.600	129.847	-
T&E Engineering	C/CPIF	CSC : Washington, DC	2.600	0.200	Jan 2015	0.200	Dec 2015	0.200	Jan 2017	-		0.200	0.400	3.600	-
SDTS/PRA/Integrated Test	Various	Various : Various	18.062	4.965	Nov 2014	11.292	Nov 2015	8.745	Nov 2016	-		8.745	0.000	43.064	-
PRA/MOE	C/CPIF	NSMA : Arlington, VA	4.534	2.145	Dec 2014	0.000		5.500	Nov 2016	-		5.500	6.800	18.979	-
Eng/M&S/Cert Agents	WR	NSWC : Dahlgren, VA	7.527	0.200	Nov 2014	0.200	Nov 2015	0.200	Nov 2016	-		0.200	0.400	8.527	-
Integrated Test	WR	NSWC : Bethesda, MD	11.067	0.310	Nov 2014	2.860	Nov 2015	1.096	Nov 2016	-		1.096	2.539	17.872	-
SDTS/PRA/Test Bed/ ESSM Engagement	Various	Various : Various	8.783	2.481	Nov 2014	0.000		0.000		-		0.000	0.000	11.264	-
SDTS	WR	SCSC : Wallops, Is, VA	4.631	1.272	Dec 2014	0.000		0.000		-		0.000	0.000	5.903	-
LFT&E SDTS ESSM	C/CPIF	ROI : Mullica Hills, NJ	7.950	0.000	Dec 2014	0.000		0.000		-		0.000	2.200	10.150	-
ITB3/ITB4/OPEVAL	Various	Various : Various	0.000	0.000		0.000		0.000		-		0.000	37.227	37.227	-
Integration and Testing	Various	Various : Various	0.000	0.000		8.330	Dec 2015	4.200	Nov 2016	-		4.200	0.000	12.530	-
T&E Engineering	WR	COTF : Norfolk, VA.	5.740	0.891	Jan 2015	2.200	Dec 2015	1.100	Dec 2016	-		1.100	5.150	15.081	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0204202N / DDG-1000	Project (Number/Name) 2464 / DD(X) Sys Design, Dev & Integration
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Int Test/Undersea Warfare	WR	Various : Various	0.000	0.000		0.747	Nov 2015	0.000		-		0.000	17.726	18.473	-
LRLAP Test Article Procurement ITB3/ITB4 (EMD)	C/CPIF	BAE : Minneapolis, MN	18.400	35.664	Jan 2015	0.000		0.000		-		0.000	0.000	54.064	-
LFT&E Engineering	C/CPIF	ROI : Mullica Hills, NJ	32.152	0.700	Jan 2015	0.800	Dec 2015	0.000		-		0.000	0.000	33.652	-
ESSM/SM2 Procurement	C/CPIF	Raytheon : Tucson, AZ	25.288	14.250	Jan 2015	0.000		0.000		-		0.000	0.000	39.538	-
MOE Test Bed	WR	NUWC : Various	1.160	0.350	Dec 2014	0.250	Nov 2015	0.000		-		0.000	0.000	1.760	-
SDTS and Integrated Test	Various	PEO IWS : Washington, DC	18.998	20.074	Nov 2014	8.914	Nov 2015	3.234	Nov 2016	-		3.234	23.602	74.822	-
T&E Engineering	WR	NSWC : Panama City, FL	0.330	0.200	Jan 2015	3.000	Nov 2015	0.000		-		0.000	10.100	13.630	-
Subtotal			256.447	97.274		49.318		32.200		-		32.200	114.744	549.983	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Travel	Various	NAVSEA : Washington, DC	2.870	0.585	Dec 2014	0.500	Nov 2015	0.500	Oct 2016	-		0.500	0.500	4.955	-
Government Services Engineering	Various	Various : Various	52.439	0.000		0.000		0.000		-		0.000	0.000	52.439	-
Subtotal			55.309	0.585		0.500		0.500		-		0.500	0.500	57.394	-

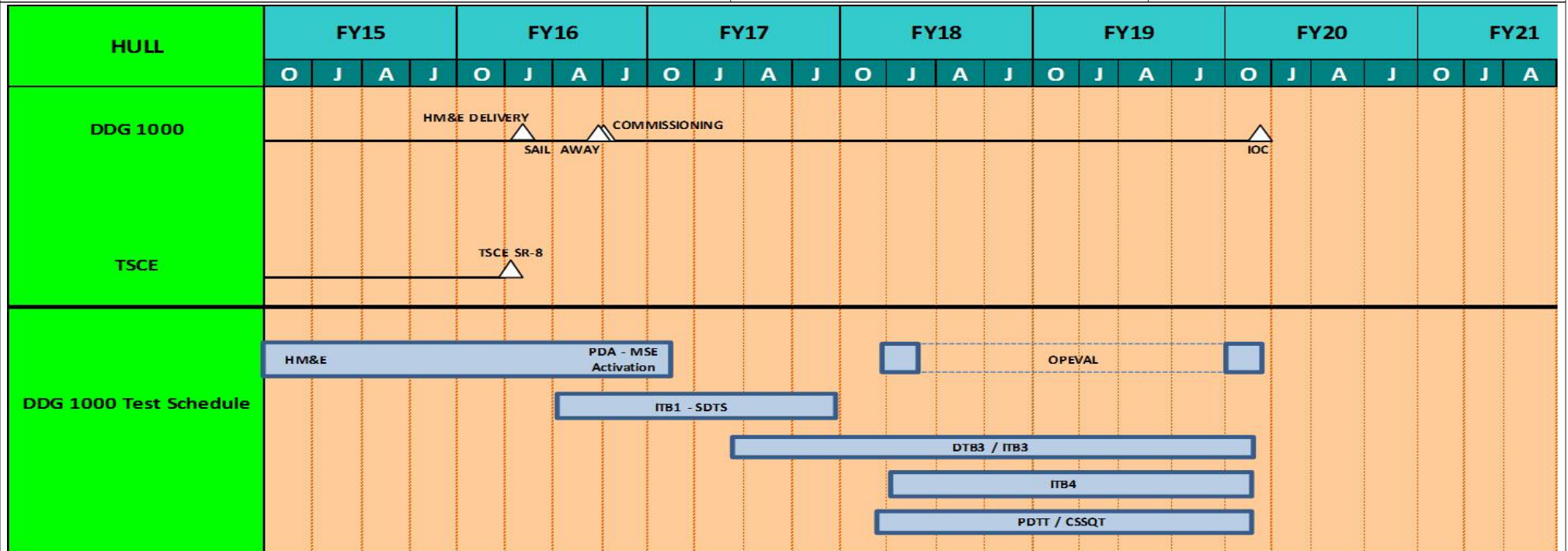
	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	1,138.003	196.987	103.179	45.642	-	45.642	204.944	1,688.755	-

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy Date: February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0204202N / DDG-1000	Project (Number/Name) 2464 / DD(X) Sys Design, Dev & Integration
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KEY	
IOC	INITIAL OPERATIONAL CAPABILITY
SR	SOFTWARE RELEASE
OPEVAL	OPERATIONAL EVALUATION
▲	COMPLETED EVENT
HM&E	HULL, MECHANICAL & ELECTRICAL
SDTS	SELF-DEFENSE TEST SHIP
PDA	POST DELIVERY AVAILABILITY
PDDT	POST DELIVERY TEST AND TRIALS
CSSQT	COMBAT SYSTEM SHIP QUALIFICATION TRIALS

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0204202N / <i>DDG-1000</i>	Project (Number/Name) 2464 / <i>DD(X) Sys Design, Dev & Integration</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Proj 2464</i>				
Software Release 8 - Spiral Post Shakedown Availability	2	2016	2	2016
Conduct ITB1 - SDTS	3	2016	4	2017
Conduct DTB3 / ITB3	2	2017	1	2020
Conduct ITB4	2	2018	1	2020
OPEVAL	1	2018	1	2020
PDTT / CSSQT	1	2018	1	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0304231N / <i>Tactical Command System - MIP</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	5.502	1.011	0.998	0.676	-	0.676	1.200	1.174	1.082	1.104	Continuing	Continuing
2009: <i>OSIS Evolutionary Development (OED)</i>	5.502	1.011	0.998	0.676	-	0.676	1.200	1.174	1.082	1.104	Continuing	Continuing

A. Mission Description and Budget Item Justification

Radiant Mercury (RM) is a secure information platform that provides an automated means to sanitize, downgrade, guard, and transliterate formatted data at various classifications, compartments and releasabilities. It enables Combatant Commanders as well as operational commanders, afloat and ashore to disseminate and receive critical operational and intelligence information with coalition and allied forces.

Major Focus Area for FY17: Continue development and certification of RM Version 6.X. Commence RM Version 7.0 development and begin the certification process.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	1.011	0.998	1.007	-	1.007
Current President's Budget	1.011	0.998	0.676	-	0.676
Total Adjustments	0.000	0.000	-0.331	-	-0.331
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Rate/Misc Adjustments	0.000	0.000	-0.331	-	-0.331

Change Summary Explanation

Schedule:

1. Delivery of RM Version 6.X shifted from Q2FY16 to Q1 2018.
2. Delivery of RM Version 7.0 shifted from Q4FY18 to Q3 2019.
3. Delivery of RM Version 7.X shifted from Q2FY20 to Q4 2021.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0304231N / <i>Tactical Command System - MIP</i>			Project (Number/Name) 2009 / <i>OSIS Evolutionary Development (OED)</i>				
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2009: <i>OSIS Evolutionary Development (OED)</i>	5.502	1.011	0.998	0.676	-	0.676	1.200	1.174	1.082	1.104	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

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

TIS RM provides automated, bi-directional sanitization, transliteration and guarding capability for formatted and unformatted data between security enclaves. RM helps ensure critical intelligence is provided quickly to operational decision-makers. TIS RM provides the capability to disseminate information for operating forces worldwide, including the operating forces of key allies in the Pacific, Central and European Command regions. This capability to move all-source intelligence-derived track information into the realm of the operational community significantly improves the situational awareness of tactical operators and planners. Unformatted data is handled by the Information Review Process (IRP). The system provides cross domain services to a wide variety of customers including Combatant Commanders, Air Force (Shared Early Warning program), Army (Blue Force Tracking Program), Missile Defense Agency (MDA), Navy Cyber Defense Operations Command (NCDOD), Naval Modular Automated Communication Systems (NAVMACS), Mobile User Objective Systems (MUOS), Navy (Global Command and Control System - Maritime/J (GCCS-M/J), Automatic Identification System (AIS), Maritime Operations Centers (MOC), Distributed Common Ground System-Navy (DCGS-N), Tactical Ranges (TR), and numerous other DoD and Intelligence agencies.

Major Focus Area for FY17: Continue development and certification of RM Version 6.X. Commence RM Version 7.0 development and begin the certification process.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Radiant Mercury (RM)	1.011	0.998	0.676	0.000	0.676
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Delivered RM Version 6.0.					
FY 2016 Plans: Begin the development and certification of RM Version 6.X. Certification process will include Factory Acceptance Testing (FAT), alpha testing, and government testing. FAT will include test procedure development to ensure all systems requirements are tested properly, dry-run testing to ensure the procedures are sufficient,					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0304231N / <i>Tactical Command System - MIP</i>	Project (Number/Name) 2009 / <i>OSIS Evolutionary Development (OED)</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
and formal testing which will be witnessed by the government. Alpha testing is conducted by the Independent Verification and Validation (IV&V) team and is separate from the FAT. Upon successful FAT and alpha testing the software is provided to the National Security Agency (NSA) and Defense Intelligence Agency (DIA) government labs for the actual certification and testing event. In parallel to these testing activities, the software will also be provided to RM customers who maintain their own labs.					
FY 2017 Base Plans: Continue the development and certification of RM Version 6.X. Begin the development and certification of RM Version 7.0.					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	1.011	0.998	0.676	0.000	0.676

C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• OPN/2608: <i>Trusted Information System (TIS)</i>	0.324	0.284	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Remarks

D. Acquisition Strategy

Trusted Information Systems (TIS) Radiant Mercury (RM) provides automated, bi-directional sanitization, transliteration and guarding capability for formatted and unformatted data between security enclaves. RM helps ensure critical Indications and Warning intelligence is provided quickly to operational decision-makers. RM provides certified and accredited Cross Domain capabilities in the Pacific Command (PACOM), Europe Command (EUCOM) and Central Command (CENTCOM), Northern Command (NORTHCOM), Areas of Responsibility (AOR). RM is a fee-for-service program, it receives partial funding from the Navy to cover basic program management and infrastructure costs. The remaining funds needed to keep the program operating are generated from a fee-for-service model which charges customers a Life Cycle Surcharge (LCS) on all new task orders and an Annual User Fee (AUF) on all operational RM systems currently fielded.

E. Performance Metrics

Radiant Mercury (RM) provides and develops certified, accredited Cross Domain Solutions (CDS) and transfer capabilities to DoD and Intelligence Community (IC), and provides the capability to disseminate and receive operational and intelligence information for 100% of authorized sites.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0304231N / <i>Tactical Command System - MIP</i>	Project (Number/Name) 2009 / <i>OSIS Evolutionary Development (OED)</i>
<p>Complete 100% of certification, system and security testing of RM version (X) for release. Provide the capability to sanitize, downgrade, guard, and transliterate formatted data at various classifications, compartments and releasabilities to combatant and operational commanders, coalition and allied forces at over 420 sites world-wide.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016				
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)								
1319 / 5				PE 0304231N / Tactical Command System - MIP				2009 / OSIS Evolutionary Development (OED)								
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Software Development	C/CPFF	Lockheed Martin : Denver, CO	4.057	0.723	Dec 2014	0.500	Dec 2015	0.415	Dec 2016	-		0.415	Continuing	Continuing	Continuing	
Software Development	C/CPFF	Various : Various	0.231	0.092	Dec 2014	0.091	Dec 2015	0.081	Dec 2016	-		0.081	Continuing	Continuing	Continuing	
Subtotal			4.288	0.815		0.591		0.496		-		0.496	-	-	-	
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Requirements Analysis	C/CPFF	Various : Various	0.000	0.096	Dec 2014	0.095	Dec 2015	0.000		-		0.000	Continuing	Continuing	Continuing	
Requirements Analysis	C/CPFF	BAH : San Diego, CA	0.971	0.100	Dec 2014	0.099	Dec 2015	0.000		-		0.000	0.000	1.170	-	
Subtotal			0.971	0.196		0.194		0.000		-		0.000	-	-	-	
Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total				
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract	
Certification Test	WR	SSC LANT : Charleston, SC	0.243	0.000		0.000		0.000		-		0.000	0.000	0.243	-	
Certification Test	C/CPFF	Lockheed Martin : Denver, CO	0.000	0.000		0.213	Dec 2015	0.180	Dec 2016	-		0.180	0.000	0.393	-	
Subtotal			0.243	0.000		0.213		0.180		-		0.180	0.000	0.636	-	
Project Cost Totals			5.502	1.011		0.998		0.676		-		0.676	-	-	-	
Remarks																

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0304231N / <i>Tactical Command System - MIP</i>	Project (Number/Name) 2009 / <i>OSIS Evolutionary Development (OED)</i>
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	2015				2016				2017				2018				2019				2020				2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Proj 2009																												
Test & Evaluation																												
Certification Test																												
RM Software Deliveries																												

NOTES:

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0304231N / <i>Tactical Command System - MIP</i>	Project (Number/Name) 2009 / <i>OSIS Evolutionary Development (OED)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2009				
Test & Evaluation: Test & Evaluation Milestone - CT&E: RM Test & Evaluation Milestone - CT&E - RM Version 6.x	1	2016	2	2017
Test & Evaluation: Test & Evaluation Milestone - CT&E: RM Test & Evaluation Milestone - CT&E - RM Version 7.0	4	2017	4	2018
Test & Evaluation: Test & Evaluation Milestone - CT&E: RM Test & Evaluation Milestone - CT&E - RM Version 7.x	4	2019	4	2020
Software Deliveries: RM Software - Delivery of RM Version 6.0	1	2015	1	2015
Software Deliveries: RM Software - Delivery of RM Version 6.x	1	2018	1	2018
Software Deliveries: RM Software - Delivery of RM Version 7.0	3	2019	3	2019
Software Deliveries: RM Software - Delivery of RM Version 7.x	4	2021	4	2021

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0304785N / <i>Tactical Cryptologic Systems</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	265.837	10.157	17.785	36.747	-	36.747	29.025	37.342	34.429	36.649	Continuing	Continuing
2134.: <i>Shipboard IW Exploit</i>	265.837	10.157	17.785	36.747	-	36.747	29.025	37.342	34.429	36.649	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Shipboard Information Warfare (IW) line includes the Ship's Signal Exploitation Equipment (SSEE) Increment E, F, G, Modifications and ICADS ((AN/URC-148(V)) programs. The SSEE program is a classified IW / Electronic Warfare (EW) and tactical cryptologic system supporting Assured Command and Control, Battlespace Awareness, Integrated Fires and Electromagnetic Maneuver Warfare. These systems enable power projection in Anti-Access, Area Denial (A2AD) situations and offensive EW capabilities enabling surface vessels to disrupt, deny, degrade and defeat adversary (state and non-state) use of the radio frequency spectrum. SSEE systems detect adversary radio frequency emissions and use them to provide critical tactical and strategic intelligence, battlespace awareness, and hostile threat assessment. It is an incremental acquisition program, keeping up with adversary communications technology development by using Research, Development, Test & Evaluation (RDT&E) funding to rapidly develop and transition new technologies as Pre-Planned Product Improvements (P3I) upgrades into the system's hardware/software configuration via a net-centric Service Oriented Architecture. Funding will focus on developing and delivering expanded offensive EW capabilities in support of "Ballistic Missile Defense (BMD) Executive Committee (EXCOM) Anti-Submarine Warfare (ASW) Chief of Naval Operations (CNO) Executive Board Information Operation (IO) Countermeasure Red Flash/Medusa" as well as capabilities enabling operations and power projection in A2AD scenarios.

ICADS Increment II is a mission critical system providing advanced simulation capability for naval platforms as well as back-up communications capabilities. Additional details on these programs are held at a higher classification level.

Funding increases in FY 17 to develop capabilities within the radio frequency spectrum to project maritime power into A2AD environs of SSEE systems. Additionally, FY17 funding increases to initiate SSEE Inc G development efforts to create Engineering Design Models EDM).

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	10.827	17.785	15.429	-	15.429
Current President's Budget	10.157	17.785	36.747	-	36.747
Total Adjustments	-0.670	0.000	21.318	-	21.318
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.670	0.000			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	0.000	0.000	30.400	-	30.400

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy	Date: February 2016
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Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0304785N / <i>Tactical Cryptologic Systems</i>
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• Rate/Misc Adjustments	0.000	0.000	-9.082	-	-9.082
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Change Summary Explanation

Funding increases in FY 17 to develop capabilities within the radio frequency spectrum to project maritime power into A2AD environs of SSEE systems. A2AD capabilities integrated into the SSEE Systems will enable maritime power projection in enabling surface vessels to disrupt, deny, degrade and defeat adversary (state and non-state) use of the radio frequency spectrum, improving the Fleet's ability to communicate and operate therein. These systems will be deployed supporting Assured Command and Control, Battlespace Awareness, and Integrated Fires (further details held at a higher classification level).

Funding will initiate Program of Record (POR) acquisition documentation and begin development activities for the engineering design models (EDM) for the ICADS Increment II system.

Additionally, FY17 funding increases to initiate SSEE Inc G development efforts to create Engineering Design Models EDM).

As a result of ongoing Pre-Acquisition Activities and in conjunction with a decision to pursue an Agile Acquisition model in lieu of a traditional acquisition model to facilitate and adapt to rapid changes in adversary communications capabilities over the course of the program life-cycle, the below changes have been made to the Increment G Schedule: development contract award is QTR 2 FY 17; Build Technical Review 1 will occur in QTR3 FY 17; Fleet Capability Release will begin in QTR 4 FY 17 and Field Technical Review 1 will be in QTR 2 FY 19.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0304785N / <i>Tactical Cryptologic Systems</i>				Project (Number/Name) 2134. / <i>Shipboard IW Exploit</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2134.: <i>Shipboard IW Exploit</i>	265.837	10.157	17.785	36.747	-	36.747	29.025	37.342	34.429	36.649	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Shipboard Information Warfare (IW) line includes the Ship's Signal Exploitation Equipment (SSEE) Increment E, F, G and Modifications programs. The SSEE program is a classified IW / Electronic Warfare (EW) and tactical cryptologic system that provide critical tactical intelligence, situational awareness, battlespace awareness, indications and warnings and hostile threat assessment. These systems provide the battle group and combatant commanders with the surface fleet's only EW non-kinetic capabilities ("Finish"). In addition they provide the battle groups with real time indications and warnings by acquisition ("Find") and localization ("Fix") of Signals of Interest (SOI). As an incremental acquisition program, Research, Development, Test & Evaluation (RDT&E) funding is required to have new technologies and associated new operational capabilities rapidly developed and transitioned as Pre-Planned Product Improvements (P3I) upgrades into the system's hardware/software configuration. This program's funding incorporates P3I, new Commercial Off-the-Shelf (COTS) based technologies and software into the existing systems. Funding will also focus on developing and delivering expanded non-kinetic EW capabilities and net-centric Service Oriented Architecture (SOA), which includes the development, integration and test of Medusa and the SSEE Modifications capabilities in support of "Ballistic Missile Defense (BMD) Executive Committee (EXCOM) Anti-Submarine Warfare (ASW) Chief of Naval Operations (CNO) Executive Board Information Operation (IO) Countermeasure Red Flash/Medusa (Additional details held at a higher classification level)."

Shipboard IW will develop Anti-Access, Area Denial (A2AD) capabilities for the Ship's Signal Exploitation Equipment Increment F, G and Modifications systems. A2AD capabilities integrated into the SSEE Systems will enable maritime power projection in enabling surface vessels to disrupt, deny, degrade and defeat adversary (state and non-state) use of the radio frequency spectrum, improving the Fleet's ability to communicate and operate therein. These systems will be deployed supporting Assured Command and Control, Battlespace Awareness, and Integrated Fires (further details held at a higher classification level).

FY17 funding for SSEE Inc F will develop and test new, unexplored and unexploited cyber capabilities that will enhance Fleet ability to dominate and defend cyberspace. It will also develop software and hardware upgrades in support of emerging adversary communications capabilities and insert new technology enhancements via incremental software and hardware upgrades. It will continue P3I, expand SOI processing capability, enhance remote capabilities and integrate Medusa HW into the SSEE Inc F scan chassis - improving the surface fleet's ability to dominate the radio frequency spectrum.

FY17 funding for SSEE Modifications will complete Phase 3 hardware and software development and test and evaluation activities on the first Low Rate Initial Production unit aboard USS OKANE (DDG 77), bringing capability to the Fleet for simultaneous detection, collection, processing, electronic warfare and display of communication intelligence data from hostile, high threat and adversary platforms in select frequency ranges that are not prosecuted today.

FY17 funding for SSEE Inc G will continue acquisition activities and contract development efforts. It will integrate and improve upon all aspects of SSEE Increment F, leveraging SSEE Increment F software and technology to increase the automation and integration of existing Ship's Signal Exploitation Space (SSES) capabilities into

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a common user interface while advancing and incorporating new technologies through an open architecture that allows for rapid integration and deployment of new capabilities. Additional specific details on all of these efforts are held at a higher classification level.

FY17 funding for SSEE Inc F, Inc G and SSEE Modifications will develop and test A2AD Kits for deployment on surface combatants that will enable maritime power projection into a contested A2AD environment, improving the Fleet's ability to communicate and operate therein.

FY17 funding for Integrated Communications and Data System Increment II (ICADS Inc II) is a mission critical system providing advanced simulation capability for naval platforms as well as back-up communications; additional details held at higher classification and outlined in the Capability Production Document. FY17 funding will initiate POR acquisition activities and begin developing efforts for the Engineering Design Models (EDM) for the Increment II system. Funding will develop and integrate system design to support refined COMPACFLT requirements.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Ship's Signal Exploitation Equipment Inc F (SSEE Inc F)	1.554	2.759	7.775	0.000	7.775
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					
Continued pre-planned product improvements to provide enhanced and additional capabilities into the SSEE Inc F system. Expanded SOI processing capability to allow collection of the newest high priority modern technology threat signals for tightly integrated IO/non-kinetic capabilities in support of time critical military strike operations and subsequent processing and analysis for timely and accurate situational awareness for force protection. Developed and delivered EW capabilities based upon the warfighter identified, FY15 SOI threats (annually-updated) for integration into the SSEE Inc F system. Enhanced the SSEE Inc F remote capabilities and usability providing increased functionality and capabilities to remote and local users. Integrated Medusa hardware into the SSEE Inc F scan chassis. Maintained cognizance of current warfighter-identified signal set and make additions and improvements to the system as needed.					
FY 2016 Plans:					
Continue pre-planned product improvements to provide enhanced and additional capabilities into the SSEE Inc F system. Expand SOI processing capability to allow collection of the newest high priority modern technology threat signals for tightly integrated IO/non-kinetic capabilities in support of time critical military strike operations and subsequent processing and analysis for timely and accurate situational awareness for force protection. Develop and deliver EW capabilities based upon the warfighter identified FY16 SOI threats (annually-updated) for integration into the SSEE Inc F system. Develop enhanced Red Falcon systems to combat future SOI. Enhance the SSEE Inc F remote capabilities and usability providing increased functionality and capabilities to					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
remote and local users. Maintain cognizance of current warfighter-identified signal set and make additions and improvements to the system as needed. FY 2017 Base Plans: Continue pre-planned product improvements to provide enhanced and additional capabilities into the SSEE Inc F system. Expand SOI processing capability to allow collection of the newest high priority modern technology threat signals for tightly integrated IO/non-kinetic capabilities in support of time critical military strike operations and subsequent processing and analysis for timely and accurate situational awareness for force protection. Develop and deliver EW capabilities based upon the warfighter identified FY17 SOI threats (annually-updated) for integration into the SSEE Inc F system. Develop enhanced Red Falcon systems to combat future SOI. Enhance the SSEE Inc F remote capabilities and usability providing increased functionality and capabilities to remote and local users. Develop Anti-Access, Area Denial capabilities for the Ship's Signal Exploitation Equipment Increment F systems. A2AD capabilities integrated into the SSEE Systems will enable maritime power projection in enabling surface vessels to disrupt, deny, degrade and defeat adversary (state and non-state) use of the radio frequency spectrum, improving the Fleet's ability to communicate and operate therein - further details held at a higher classification level. FY 2017 OCO Plans: N/A					
Title: Ship's Signal Exploitation Equipment Inc G (SSEE Inc G) Articles:	1.472 -	4.787 -	9.418 -	0.000 -	9.418 -
FY 2015 Accomplishments: Complete pre-acquisition activities, requirements documentation, contract development, and continued to integrate and improve upon all aspects of the "BMD EXCOM ASW CNO CEB IO Countermeasure Red Flash/ Medusa." FY 2016 Plans: Complete requirements adjudication via the Capability Development Document (CDD) and continue acquisition documentation to support milestone decision in FY17. Continue administrative activities in support of development contract award. FY 2017 Base Plans:					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>Efforts will center on synthesizing requirements into system design developed under the first Fleet Capability Review (FCR). Program will work to gain a viable Requirements Development Package (RDP) derived from the program CDD in support of FCR. Initiate development efforts to create Engineering Design Models (EDM) and continue acquisition document preparation to support future FCR build cycles and future Full Deployment Decision Review. Support Critical Design Review (CDR). Design efforts will focus on integrating Ship Signal Exploitation Space with the rest of the shipboard combat systems, synthesizing inputs from all sensor areas for an Integrated Fires approach to naval warfare. Funding will also support integrating Anti-Access, Area Denial capabilities into the SSEE Inc G design (further details held at a higher classification level). Achieve Milestone B.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Ship's Signal Exploitation Red Falcon (OCO)</p> <p align="right">Articles:</p>	0.470	0.000	0.000	0.000	0.000
<p>FY 2015 Accomplishments: Developed enhanced Red Falcon systems which will provide additional processing and collection of simultaneous targets (additional details held at a higher classification).</p> <p>FY 2016 Plans: N/A</p> <p>FY 2017 Base Plans: N/A</p> <p>FY 2017 OCO Plans: N/A</p>	-	-	-	-	-
<p>Title: SSEE Modifications</p> <p align="right">Articles:</p>	6.661	10.239	10.054	0.000	10.054
<p>FY 2015 Accomplishments: Completed SSEE Modifications Phase 2 hardware and software development to provide: capabilities to the Fleet in support of "BMD EXCOM ASW CEB IO Countermeasure Red Flash" including automation of key system operation and maintenance procedures; additional SOIs in support of Fleet needs; and enhanced system capabilities for Graywing and Paragon in order to meet Full Rate Production (FRP) performance thresholds</p>	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>and provide P3I improvement. Funds supported development efforts to enable more robust signal exploitation. Expanded integration with SSEE Increment F special capabilities. Enriched Graywing scan and search capabilities. Provided test plans and procedures for follow on testing and evaluation, including an updated Test and Evaluation Master Plan (TEMP). Conducted extensive integration and testing in support of correction of deficiencies identified during test events.</p> <p>FY 2016 Plans: Commence SSEE Modifications Phase 3 hardware and software development to provide capabilities to the Fleet in support of "BMD EXCOM ASW CEB IO Countermeasure Red Flash" including additional SOIs in support of Fleet needs; and enhanced system capabilities for Graywing and Paragon in order to meet Full Rate Production (FRP) performance thresholds and provide P3I improvement. Continue to support development efforts to enable more robust signal exploitation and expand integration with SSEE Increment F special capabilities. Provide test plans and procedures for follow on testing and evaluation. Conduct Developmental Testing (DT) as well as Initial Operational Test & Evaluation (IOT&E). Attain Joint Integration Test Command (JITC) certification. Continue to conduct extensive integration and testing in support of the correction of deficiencies identified during test events.</p> <p>FY 2017 Base Plans: Complete SSEE Modifications Phase 3 hardware and software development to provide capabilities to the Fleet in support of "BMD EXCOM ASW CEB IO Countermeasure Red Flash" including additional SOIs in support of Fleet needs; and enhanced system capabilities for Graywing and Paragon in order to meet Full Rate Production performance thresholds and provide P3I improvement. Continue to support development efforts to enable more robust signal exploitation and expand integration with SSEE Increment F special capabilities. Conduct follow-on testing and evaluation (FOT&E). Develop and test Anti-Access, Area Denial Kits for deployment on SSEE systems to facilitate maritime power projection in A2AD environs. Further details held at a higher classification level.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Integrated Communications and Data System Inc II (ICADS Inc II)</p> <p align="right">Articles:</p>	0.000	0.000	9.500	0.000	9.500
<p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans:</p>	-	-	-	-	-

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
<i>FY 2017 Base Plans:</i> Initiate POR acquisition activities and begin developing efforts for the Engineering Design Models (EDM) for the Increment II system. Funding will develop and integrate system design to support refined COMPACFLT requirements. Specific details are held at a higher classification level.					
<i>FY 2017 OCO Plans:</i> N/A					
Accomplishments/Planned Programs Subtotals	10.157	17.785	36.747	0.000	36.747

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• OPN / 2360: <i>Shipboard IW Exploit</i>	123.362	148.221	184.116	-	184.116	222.799	232.836	216.563	225.921	Continuing	Continuing

Remarks

D. Acquisition Strategy
Acquisition, management and contracting strategies are to support engineering and manufacturing development by providing funds to a Prime Contractor and Space & Naval Warfare Systems Command (SPAWAR) Systems Center (SSC) - Atlantic, SPAWAR Systems Center - Pacific and miscellaneous contractors, with management oversight by SPAWAR HQ.

E. Performance Metrics
Ship's Signal Exploitation Equipment Increment F will incorporate pre-planned product improvements to provide enhanced and additional capabilities into the SSEE Inc F system. SSEE Inc F improvements along with the addition of the SSEE Modifications and Medusa capabilities will expand signals of interest processing capability to allow collection of the newest high priority modern technology threat signals for tightly integrated IO/non-kinetic capabilities in support of time critical military strike operations and subsequent processing and analysis for timely and accurate situational awareness for force protection. The SSEE Modifications program includes the "BMD EXCOM ASW CEB IO Countermeasure Red Flash/Medusa", capabilities of Paragon and Graywing. Paragon is a classified Navy tactical signals intelligence frequency extension capability that will be integrated into Ship's Signal Exploitation Equipment Inc E and F programs. SSEE Inc G will expand upon the IW / Electronic Warfare and tactical cryptologic system capability of exploiting signals throughout the Radio Frequency (RF) spectrum, in addition to focusing new technologies towards new and previously unexplored/unexploited cyber capabilities as we integrate into the Integrated Fires (IF) architecture.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development Prior Years	Various	Various : Various	158.330	0.000		0.000		0.000		-		0.000	0.000	158.330	-
Systems Engineering	C/CPAF	Classified Contract : Classified Contract	6.803	0.515	Nov 2014	1.500	Nov 2015	3.500	Dec 2016	-		3.500	Continuing	Continuing	Continuing
Systems Engineering	WR	SSC PAC : San Diego, CA	3.513	0.265	Nov 2014	0.500	Nov 2015	1.125	Oct 2016	-		1.125	Continuing	Continuing	Continuing
Systems Engineering	WR	SSC LANT : Charleston, SC	4.722	0.294	Nov 2014	0.551	Nov 2015	1.300	Oct 2016	-		1.300	Continuing	Continuing	Continuing
Integration, Assembly & Test (PMP Dev)	WR	SSC PAC : San Diego, CA	2.317	0.358	Nov 2014	0.668	Nov 2015	1.300	Oct 2016	-		1.300	Continuing	Continuing	Continuing
Hardware/Software Development	WR	NRL : Washington, DC	1.840	0.170	Nov 2014	0.250	Nov 2015	0.550	Oct 2016	-		0.550	Continuing	Continuing	Continuing
Software Development	C/CPAF	Classified Contracts : Classified Contracts	26.243	3.842	Nov 2014	5.334	Nov 2015	12.874	Dec 2016	-		12.874	Continuing	Continuing	Continuing
Software Development	WR	SSC PAC : San Diego, CA	1.369	0.070	Nov 2014	0.141	Nov 2015	0.257	Oct 2016	-		0.257	Continuing	Continuing	Continuing
Integration, Assembly & Test	C/CPAF	Classified Contracts : Classified Contracts	1.981	0.310	Nov 2014	0.580	Nov 2015	0.363	Dec 2016	-		0.363	Continuing	Continuing	Continuing
Software Development	WR	SSC LANT : Charleston, SC	0.020	0.040	Nov 2014	0.086	Nov 2015	0.147	Oct 2016	-		0.147	Continuing	Continuing	Continuing
Integration, Assembly & Test (PMP Dev)	WR	SSC LANT : Charleston, SC	0.217	0.245	Nov 2014	0.461	Nov 2015	0.700	Oct 2016	-		0.700	Continuing	Continuing	Continuing
Subtotal			207.355	6.109		10.071		22.116		-		22.116	-	-	-
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Support Prior Years	Various	Various : Various	4.327	0.000		0.000		0.000		-		0.000	0.000	4.327	-
Training Development	C/CPFF	Classified Contract : Classified Contract	1.045	0.115	Nov 2014	0.223	Nov 2015	0.335	Dec 2016	-		0.335	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy **Date:** February 2016

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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Integrated Logistics Support	C/CPFF	Classified Contract : Classified Contract	0.300	0.110	Nov 2014	0.214	Nov 2015	0.425	Dec 2016	-		0.425	Continuing	Continuing	Continuing
Configuration Management	WR	SSC Lant : Charleston, SC	1.687	0.092	Nov 2014	0.181	Nov 2015	0.302	Oct 2016	-		0.302	Continuing	Continuing	Continuing
Configuration Management	WR	SSC PAC : San Diego, CA	0.586	0.085	Nov 2014	0.169	Nov 2015	0.345	Oct 2016	-		0.345	Continuing	Continuing	Continuing
Technical Data	WR	SSC PAC : San Diego, CA	1.555	0.155	Nov 2014	0.297	Nov 2015	0.500	Oct 2016	-		0.500	Continuing	Continuing	Continuing
Training Development	WR	SSC LANT : Charleston, SC	0.225	0.053	Nov 2014	0.110	Nov 2015	0.283	Oct 2016	-		0.283	Continuing	Continuing	Continuing
Integrated Logistic Support	WR	SSC LANT : Charleston, SC	0.337	0.125	Nov 2014	0.242	Nov 2015	0.510	Oct 2016	-		0.510	Continuing	Continuing	Continuing
Requirements Analysis	WR	SSC LANT : Charleston, SC	0.000	0.085	Nov 2014	0.169	Nov 2015	0.300	Oct 2016	-		0.300	Continuing	Continuing	Continuing
Studies & Design	WR	SSC PAC : San Diego, CA	0.000	0.284	Nov 2014	0.533	Nov 2015	1.000	Oct 2016	-		1.000	Continuing	Continuing	Continuing
Studies & Design	C/CPFF	Classified Contract : Classified Contract	0.170	0.192	Nov 2014	0.364	Nov 2015	0.600	Dec 2016	-		0.600	Continuing	Continuing	Continuing
Studies & Design	WR	NAVSEA : NAVSEA	0.000	0.245	Nov 2014	0.461	Nov 2015	0.820	Oct 2016	-		0.820	Continuing	Continuing	Continuing
Requirements Analysis	C/CPFF	Classified Contract : Classified Contract	0.319	0.385	Nov 2014	0.717	Nov 2015	1.300	Dec 2016	-		1.300	Continuing	Continuing	Continuing
Subtotal			10.551	1.926		3.680		6.720		-		6.720	-	-	-

Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test & Evaluation Prior Years	Various	Various : Various	14.537	0.000		0.000		0.000		-		0.000	0.000	14.537	-
Developmental Test & Evaluation	WR	SSC PAC : San Diego, CA	1.909	0.462	Nov 2014	0.858	Nov 2015	1.100	Oct 2016	-		1.100	Continuing	Continuing	Continuing

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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	SSC LANT : Charleston, SC	1.361	0.129	Nov 2014	0.249	Nov 2015	0.421	Oct 2016	-		0.421	Continuing	Continuing	Continuing
Developmental Test & Evaluation	C/CPFF	Classified Contracts : Classified Contracts	1.103	0.320	Nov 2014	0.598	Nov 2015	1.000	Dec 2016	-		1.000	Continuing	Continuing	Continuing
Developmental Test & Evaluation	WR	NSWC Dahlgren : Dahlgren, VA	0.120	0.125	Nov 2014	0.242	Nov 2015	0.425	Oct 2016	-		0.425	Continuing	Continuing	Continuing
Subtotal			19.030	1.036		1.947		2.946		-		2.946	-	-	-
Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Management Services Prior Years	Various	Various : Various	18.496	0.000		0.000		0.000		-		0.000	0.000	18.496	-
Contractor Engineering Support	C/CPFF	Classified Contract : Classified Contract	2.741	0.565	Nov 2014	1.061	Nov 2015	2.306	Dec 2016	-		2.306	Continuing	Continuing	Continuing
Government Engineering Support	WR	SSC LANT : Charleston, SC	1.477	0.086	Nov 2014	0.170	Nov 2015	0.438	Oct 2016	-		0.438	Continuing	Continuing	Continuing
Government Engineering Support	WR	SSC PAC : San Diego, CA	1.838	0.072	Nov 2014	0.145	Nov 2015	0.374	Oct 2016	-		0.374	Continuing	Continuing	Continuing
Program Management Support	C/CPFF	Classified Contract : Classified Contract	1.495	0.254	Nov 2014	0.478	Nov 2015	0.900	Dec 2016	-		0.900	Continuing	Continuing	Continuing
Program Management Support	WR	SSC LANT : Charleston, SC	0.608	0.094	Nov 2014	0.193	Nov 2015	0.497	Oct 2016	-		0.497	Continuing	Continuing	Continuing
Travel	WR	SPAWAR : San Diego, CA	2.246	0.015	Nov 2014	0.040	Nov 2015	0.450	Oct 2016	-		0.450	Continuing	Continuing	Continuing
Subtotal			28.901	1.086		2.087		4.965		-		4.965	-	-	-
Project Cost Totals			265.837	10.157		17.785		36.747		-		36.747	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy							Date: February 2016			
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	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract	

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

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Fiscal Year	FY15				FY16				FY17				FY18				FY19				FY20				FY21			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisitions Milestones Milestone C								△												◇								
Test & Eval Integration Test - B1 Integration Test - B2 (OA)																△				△								
Sys Eng / T&E Docs Systems Engineering Plan Test & Eval Master Plan									SEP				TEMP															
Requirements Docs Project Description Document Capability Production Document																												
System Development System Requirement Review (SRR) Preliminary Design Review (PDR) Critical Design Review (CDR) Engineering Design Model (EDM) Delivery									△					△				△			△	△						
System Contracts Chief Engineering Integrator Production Contract (RFP)									LSI																			
Increment II LRIP																												
Remarks: Increment II system reflects new design and Performance Parameters outlined in CPD																												

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

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Fiscal Year	2015				2016				2017				2018				2019				2020				2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones																												
System Development																												
Software Development																												
SSEE Inc F Baseline SW Development																												
Test & Evaluation Milestones																												
FRP FY15 SSEE Inc F																												
FRP FY16 SSEE Inc F																												
FRP FY17 SSEE Inc F																												
FRP FY18 SSEE Inc F																												
FRP FY19 SSEE Inc F																												
FRP FY20 SSEE Inc F																												
FRP FY21 SSEE Inc F																												
Procurements																												
Remarks:																												

1) Shipboard Information Warfare (IW) Exploit / 2134 (SSEE Inc F)
 2) Production Milestones reflect contract award dates.
 3) FY16 Production Milestones include 7 Inc F Systems
 4) FY17 Production Milestones include 7 Inc F Systems
 5) FY19 Production Milestones include 7 Systems and 2 DDG 119 Inc F.

EXHIBIT R4, Schedule Profile

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0304785N / <i>Tactical Cryptologic Systems</i>	Project (Number/Name) 2134. / <i>Shipboard IW Exploit</i>
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Fiscal Year	2015				2016				2017				2018				2019				2020				2021							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Acquisition Milestones																																
Integrated Logistics Assessment (ILA)					A								ILA																			
Milestone C Decision (MS C)					FRP				IOC																							
Full Rate Production (FRP) Decision					△				△																							
Installation																																
EDM																																
LRIP Retrofit Kits	LRIP Retrofit Kits																															
LRIP																																
FRP									FRP (5)				FRP (7)				FRP (8)				FRP (10)				FRP (7)							
Software Development																																
SSEE MODS	SSEE MODS																															
Baseline SW Development	Baseline SW Development				FRP Build 11				FRP Build 12				FRP Build 13				FRP Build 14				FRP Build 15				FRP Build 16							
Test & Evaluation																																
Production Acceptance Testing																																
Factory Acceptance Testing																																
Development Test																																
Operational Assessment																																
IOT&E																																
Operational Test																																
Production																																
FRP FY16																																
FRP FY17																																
FRP FY18																																
FRP FY19																																
FRP FY20																																
FRP FY21																																
Procurements	FY15 (0)				FY16 (7)				FY17 (11)				FY18 (9)				FY19 (9)				FY20 (9)				FY21 (XXX)							

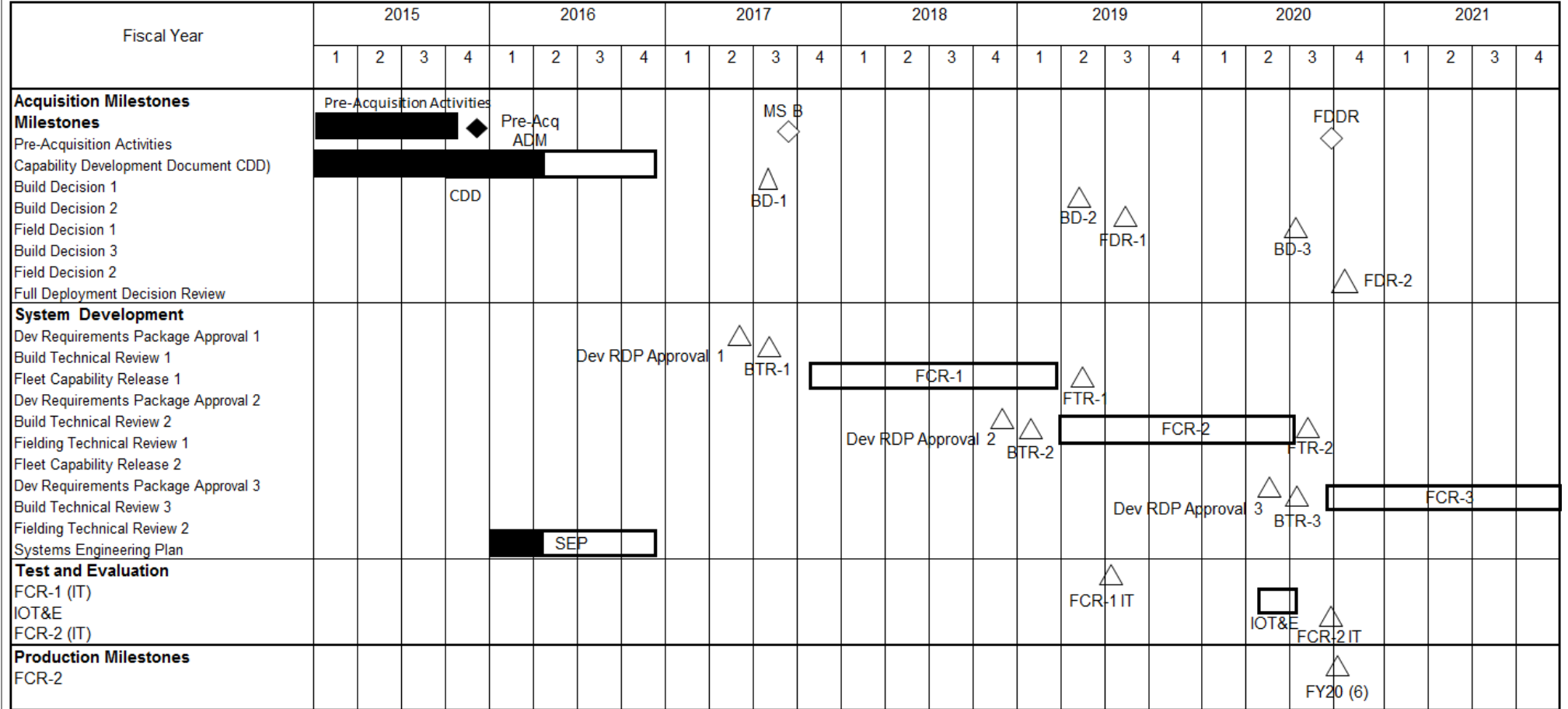
Remarks:

- 1) Shipboard Information Warfare (IW) Exploit / 2134 (SSEE Mods)
- 2) Production Milestones reflect contract award dates
- 3) FY16 Production Milestones include 6 Systems, 1 Maintenance Training Systems
- 4) FY17 Production Milestones include 9 Systems and 2 Operator Training System
- 5) FY18 Production Milestones include 8 Systems and 1 Operator Training System
- 6) SSEE MODS Software development integrated and tested in junction with SSEE INC F Software builds.

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0304785N / <i>Tactical Cryptologic Systems</i>	Project (Number/Name) 2134. / <i>Shipboard IW Exploit</i>
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Remarks:
 Shipboard Information Warfare (IW) Exploit / 2134 (SSEE Inc G)
 Production Milestones reflect contract award dates. EXHIBIT R4, Schedule Profile

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0304785N / <i>Tactical Cryptologic Systems</i>	Project (Number/Name) 2134. / <i>Shipboard IW Exploit</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
SSEE Inc F				
Inc F - Joint Integration Test Command (JITC) Certification	3	2015	3	2015
Inc F - JITC Certification FY19	3	2019	3	2019
Inc F - FY15 FRP Production Milestone	2	2015	2	2015
Inc F - FY16 FRP Production Milestone	2	2016	2	2016
Inc F - FY17 FRP Production Milestone	2	2017	2	2017
Inc F - FY18 FRP Production Milestone	2	2018	2	2018
Inc F - FY19 FRP Production Milestone	2	2019	2	2019
Inc F - FY20 FRP Production Milestone	2	2020	2	2020
Inc F - FY21 FRP Production Milestone	2	2021	2	2021
SSEE Modifications				
SSEE Modifications - ILA #2	4	2015	1	2016
SSEE Modifications - ILA #3	4	2018	1	2019
SSEE Modifications - Fielding Decision (FRP)	3	2016	3	2016
SSEE Modifications - Initial Operating Capability (IOC)	3	2017	3	2017
SSEE Modifications - LRIP Retrofit Kits Installation	2	2015	4	2015
SSEE Modifications - FRP Installation FY17 (6)	2	2017	4	2017
SSEE Modifications - FRP Installation FY18 (7)	2	2018	4	2018
SSEE Modifications - FRP Installation FY19 (8)	2	2019	4	2019
SSEE Modifications - FRP Installation FY20 (9)	2	2020	4	2020
SSEE Modifications - FRP Installation FY21 (7)	2	2021	4	2021
SSEE Modifications - Software Development (LRIP Build 10)	2	2015	1	2016

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0304785N / <i>Tactical Cryptologic Systems</i>	Project (Number/Name) 2134. / <i>Shipboard IW Exploit</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
SSEE Modifications - Software Development (FRP Build 11)	3	2016	2	2017
SSEE Modifications - Software Development (FRP Build 12)	2	2017	1	2018
SSEE Modifications - Software Development (FRP Build 13)	2	2018	1	2019
SSEE Modifications - Software Development (FRP Build 14)	2	2019	1	2020
SSEE Modifications - Software Development (FRP Build 15)	2	2020	1	2021
SSEE Modifications - Software Development (FRP Build 16)	2	2021	4	2021
SSEE Modifications - Factory Acceptance Testing (LRIP)	4	2015	4	2015
SSEE Modifications - Development Testing (IT-E1/E2)	1	2016	1	2016
SSEE Modifications - Joint Integration Test Command (JITC) Certification FY16	2	2016	2	2016
SSEE Modifications - Operational Testing (OT-E1)	2	2016	2	2016
SSEE Modifications - Operational Testing (FOT&E)	2	2017	2	2017
SSEE Modifications - Joint Integration Test Command (JITC) Certification FY19	3	2019	3	2019
SSEE Modifications - FY16 FRP Production Milestone	4	2016	4	2016
SSEE Modifications - FY17 FRP Production Milestone	2	2017	2	2017
SSEE Modifications - FY18 FRP Production Milestone	2	2018	2	2018
SSEE Modifications - FY19 FRP Production Milestone	2	2019	2	2019
SSEE Modifications - FY20 FRP Production Milestone	2	2020	2	2020
SSEE Modifications - FY21 FRP Production Milestone	2	2021	2	2021
SSEE Inc G				
Inc G -Pre - Acquisition Activities	1	2015	4	2015
Inc G - Milestone B	3	2017	3	2017
Inc G - Pre - Acquisition ADM	4	2015	4	2015
Inc G - Full Deployment Decision Review	3	2020	3	2020
Inc G - Capability Development Document	1	2015	4	2016
Inc G - Build Decision 1	3	2017	3	2017

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0304785N / <i>Tactical Cryptologic Systems</i>	Project (Number/Name) 2134. / <i>Shipboard IW Exploit</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Inc G - Build Decision 2	2	2019	2	2019
Inc G - Build Decision 3	3	2020	3	2020
Inc G - Field Decision 1	3	2019	3	2019
Inc G - Field Decision 2	4	2020	4	2020
Inc G - Development Requirements Package Approval 1	2	2017	2	2017
Inc G - Development Requirements Package Approval 2	4	2018	4	2018
Inc G - Development Requirements Package Approval 3	2	2020	2	2020
Inc G - Build Technical Review 1	3	2017	3	2017
Inc G - Build Technical Review 2	1	2019	1	2019
Inc G - Build Technical Review 3	3	2020	3	2020
Inc G - Fleet Capability Release 1	4	2017	1	2019
Inc G - Fleet Capability Release 2	1	2019	3	2020
Inc G - Fleet Capability Release 3	3	2020	4	2021
Inc G - Fielding Technical Review 1	2	2019	2	2019
Inc G - Fielding Technical Review 2	3	2020	3	2020
Inc G - Systems Engineering Plan	1	2016	4	2016
Inc G - FCR-1 (IT)	3	2019	3	2019
Inc G - FCR-2 (IT)	3	2020	3	2020
Inc G - IOT&E	2	2020	3	2020
Inc G - FCR-2	4	2020	4	2020
ICADS Inc II: Pre-Acquisition ADM	1	2017	1	2017
ICADS Inc II: Milestone C (LRIP)	3	2019	3	2019
ICADS Inc II: Integration Test - B1	4	2018	4	2018
ICADS Inc II: Integraton Test - B2	2	2019	2	2019
ICADS Inc II: Systems Engineering Plan (SEP)	1	2017	4	2017

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0304785N / <i>Tactical Cryptologic Systems</i>	Project (Number/Name) 2134. / <i>Shipboard IW Exploit</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
ICADS Inc II: Test Evaluation Master Plan (TEMP)	2	2017	3	2018
ICADS Inc II: System Requirements Review (SRR)	2	2017	2	2017
ICADS Inc II: Preliminary Design Review (PDR)	4	2017	4	2017
ICADS Inc II: Critical Design Review (CDR)	2	2018	2	2018
ICADS Inc II: Engineering Design Model (EDM) #1	4	2018	4	2018
ICADS Inc II: Engineering Design Model (EDM) #2	1	2019	1	2019
ICADS Inc II: Lead System Integration (LSI)	1	2017	4	2019
ICADS Inc II: Request for Proposal (RFP)	4	2017	2	2019
ICADS Inc II: RFP Release	3	2019	3	2019
ICADS Inc II: Low Rate Initial Production (LRIP)	3	2019	3	2019

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)</i>	R-1 Program Element (Number/Name) PE 0305124N / (U) <i>Special Applications Program</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	9.794	73.975	35.905	35.002	-	35.002	26.510	27.562	28.629	29.207	Continuing	Continuing
3103: <i>Intelligence Engineering</i>	9.794	73.975	35.905	15.802	-	15.802	7.110	7.962	8.829	9.307	Continuing	Continuing
3419: <i>Technical Algorithm Development</i>	0.000	0.000	0.000	19.200	-	19.200	19.400	19.600	19.800	19.900	Continuing	Continuing

A. Mission Description and Budget Item Justification

Additional details with respect to this line item are held at a higher classification. This line item is reported to Congress via separate channels.

B. Program Change Summary (\$ in Millions)

	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017 Base</u>	<u>FY 2017 OCO</u>	<u>FY 2017 Total</u>
Previous President's Budget	23.975	35.905	36.537	-	36.537
Current President's Budget	73.975	35.905	35.002	-	35.002
Total Adjustments	50.000	0.000	-1.535	-	-1.535
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	50.000	0.000			
• SBIR/STTR Transfer	-	-			
• Rate/Misc Adjustments	0.000	0.000	-1.535	-	-1.535

Change Summary Explanation

Technical: Details held at higher classification.

Schedule: Details held at higher classification.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0305124N / (U) <i>Special Applications Program</i>	Project (Number/Name) 3103 / <i>Intelligence Engineering</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3103: <i>Intelligence Engineering</i>	9.794	73.975	35.905	15.802	-	15.802	7.110	7.962	8.829	9.307	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Additional details with respect to this line item are held at a higher classification. This line item is reported to Congress via separate channels.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0305124N / (U) <i>Special Applications Program</i>				Project (Number/Name) 3419 / <i>Technical Algorithm Development</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3419: <i>Technical Algorithm Development</i>	0.000	0.000	0.000	19.200	-	19.200	19.400	19.600	19.800	19.900	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Additional details with respect to this line item are held at a higher classification. This line item is reported to Congress via separate channels.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy I BA 5: System Development & Demonstration (SDD)</i>					R-1 Program Element (Number/Name) PE 0306250M I (U) <i>Cyber Operations Technology Development</i>							
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	0.000	4.942	-	4.942	4.948	4.934	4.931	4.941	Continuing	Continuing
2958: <i>Cyber Operations</i>	0.000	0.000	0.000	4.942	-	4.942	4.948	4.934	4.931	4.941	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element supports cost associated with research, development, and modification of cyber technologies supporting Marine Corps Cyber Mission Forces (CMF) and missions assigned by USCYBERCOM.

The Strategic Cyber Security Operations Development is an initiative to conduct engineering and manufacturing development tasks aimed at the attainment and maintenance of the security properties of the Marine Corps and its assets against relevant security risks within the cyber environment. This project includes cyber security tools system development, integration, enhancement and demonstrations designed at protecting and defending the Marine Corps Enterprise Network (MCEN); defending national interests against cyberattacks of significant consequence; and providing integrated cyber capabilities to support military operations and contingency plans. The project incorporates development of strategic partnerships with defense intelligence agencies and commercial cyber security developers in order to leverage current and emerging cyber security technologies in defensive/offensive tools, policies, security concepts, security safeguards, guidelines, risk management approaches, actions, training, and best practices that can be used to protect the Marine Corps' cyber domain; organization and user's assets. Marine Corps' organization and user's assets include connected computing devices, infrastructure, applications, services, telecommunications systems, and the totality of transmitted and/or stored information in the cyber environment.

This is a new start for FY 2017.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	4.942	-	4.942
Total Adjustments	0.000	0.000	4.942	-	4.942
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	0.000	0.000	5.000	-	5.000
• Rate/Misc Adjustments	0.000	0.000	-0.058	-	-0.058

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy Date: February 2016

Appropriation/Budget Activity
1319: *Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)*

R-1 Program Element (Number/Name)
PE 0306250M / *(U)Cyber Operations Technology Development*

Change Summary Explanation

Technical: N/A
Schedule: N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0306250M / (U)Cyber Operations Technology Development				Project (Number/Name) 2958 / Cyber Operations			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
2958: <i>Cyber Operations</i>	0.000	0.000	0.000	4.942	-	4.942	4.948	4.934	4.931	4.941	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This program element supports cost associated with research, development, and modification of cyber technologies supporting Marine Corps Cyber Mission Forces (CMF) and missions assigned by USCYBERCOM.

The Strategic Cyber Security Operations Development is an initiative to conduct engineering and manufacturing development tasks aimed at the attainment and maintenance of the security properties of the Marine Corps and its assets against relevant security risks within the cyber environment. This project includes cyber security tools system development, integration, enhancement and demonstrations designed at protecting and defending the Marine Corps Enterprise Network (MCEN); defending national interests against cyber attacks of significant consequence; and providing integrated cyber capabilities to support military operations and contingency plans. The project incorporates development of strategic partnerships with defense intelligence agencies and commercial cyber security developers in order to leverage current and emerging cyber security technologies in defensive/offensive tools, policies, security concepts, security safeguards, guidelines, risk management approaches, actions, training, and best practices that can be used to protect the Marine Corps' cyber domain; organization and user's assets. Marine Corps' organization and user's assets include connected computing devices, infrastructure, applications, services, telecommunications systems, and the totality of transmitted and/or stored information in the cyber environment.

This is a new start for FY2017.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Cyber Tool Development	0.000	0.000	4.942	0.000	4.942
Articles:	-	-	-	-	-
FY 2015 Accomplishments: N/A					
FY 2016 Plans: N/A					
FY 2017 Base Plans: Initiate the tool development process for MARFORCYBERCOM. The task requires complex and experienced skill sets in order to write code and perform: technology research, software and engineering development,					

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0306250M / (U)Cyber Operations Technology Development	Project (Number/Name) 2958 / Cyber Operations

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
integration of systems concepts, prevention of adversary presence, product development. The funding will provide for a minimum of 9 FTEs. FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	0.000	0.000	4.942	0.000	4.942

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

The funding will be used for contracted tool developers at SPAWAR Charleston for the preponderance of the work. However, other vendors or government activities that are yet to be determined may be utilized as well.

E. Performance Metrics

TBD

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0306250M / (U)Cyber Operations Technology Development	Project (Number/Name) 2958 / Cyber Operations
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Proj 2958	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q				
	Tool Development																															

2017PB - 0306250M - 2958

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0306250M / (U)Cyber Operations Technology Development	Project (Number/Name) 2958 / Cyber Operations

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Proj 2958				
Tool Development	3	2017	4	2021

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