Department of Defense
Fiscal Year (FY) 2024 Budget Estimates

March 2023

Navy

Justification Book Volume 5 of 5

Research, Development, Test & Evaluation, Navy

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Department of Defense Appropriations Act, 2024

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, $26,922,225 to remain available for obligation until September 30, 2025.

Fiscal Year (FY) 2024 Overseas Operations Costs funding accounted for in the Base budget total $15.

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Department of the Navy
FY 2024 President's Budget
Exhibit R-1 FY 2024 President's Budget
Total Obligational Authority
(Dollars in Thousands)

	FY 2022 Actuals	FY 2023 Less Supplementals Enacted	FY 2023 Supplementals Enacted*	FY 2023 Total Enacted	FY 2024 Request
Summary Recap of Budget Activities					
Basic Research	681,475	688,889		688,889	637,263
Applied Research	1,243,015	1,487,017		1,487,017	1,026,339
Advanced Technology Development	960,390	1,309,342		1,309,342	1,016,552
Advanced Component Development & Prototypes	6,663,911	8,548,769		8,548,769	9,734,483
System Development & Demonstration	5,308,050	6,472,604		6,472,604	6,962,234
Management Support	1,602,667	1,251,196		1,251,196	1,163,613
Operational Systems Development	5,544,231	6,221,872	40,577	6,262,449	6,359,438
Software And Digital Technology Pilot Programs	29,128	24,008		24,008	22,303
Total Research, Development, Test, & Evaluation	**22,032,867**	**26,003,697**	**40,577**	**26,044,274**	**26,922,225**
Summary Recap of FYDP Programs					
Strategic Forces	328,259	493,924		493,924	529,130
General Purpose Forces	1,548,495	1,790,107		1,790,107	2,079,369
Intelligence and Communications	619,446	677,588		677,588	801,122
Research and Development	17,356,083	20,650,575		20,650,575	21,462,528
Central Supply and Maintenance	39,965	28,381		28,381	26,532
Administration and Associated Activities	3,203	1,811		1,811	2,168
Space	596				
Classified Programs	2,136,820	2,361,311	40,577	2,401,888	2,021,376
Total Research, Development, Test, & Evaluation	**22,032,867**	**26,003,697**	**40,577**	**26,044,274**	**26,922,225**

*Includes enacted funding in the Ukraine Supplemental Appropriation Act, 2023 (Division B of Public Law 117-180) and Additional Ukraine Supplemental Appropriation Act, 2023 (Division M of Public Law 117-328).

Department of the Navy
FY 2024 President's Budget
Exhibit R-1 FY 2024 President's Budget
Total Obligational Authority
(Dollars in Thousands)

Appropriation: 1319N Research, Development, Test and Evaluation, Navy

Line No	Program Element Number	Item	Act	Sec	FY 2022 Actuals	FY 2023 Less Supplementals Enacted	FY 2023 Supplementals Enacted*	FY 2023 Total Enacted	FY 2024 Request
1	0601103N	University Research Initiatives	01	U	169,965	147,376		147,376	96,355
2	0601153N	Defense Research Sciences	01	U	511,510	541,513		541,513	540,908
	Basic Research				**681,475**	**688,889**		**688,889**	**637,263**
3	0602114N	Power Projection Applied Research	02	U	41,760	27,953		27,953	23,982
4	0602123N	Force Protection Applied Research	02	U	215,913	345,576		345,576	142,148
5	0602131M	Marine Corps Landing Force Technology	02	U	62,130	79,467		79,467	59,208
6	0602235N	Common Picture Applied Research	02	U	50,371	51,911		51,911	52,090
7	0602236N	Warfighter Sustainment Applied Research	02	U	114,681	121,707		121,707	74,722
8	0602271N	Electromagnetic Systems Applied Research	02	U	89,120	131,288		131,288	92,473
9	0602435N	Ocean Warfighting Environment Applied Research	02	U	100,774	165,622		165,622	80,806
10	0602651M	Joint Non-Lethal Weapons Applied Research	02	U	6,213	6,659		6,659	7,419
11	0602747N	Undersea Warfare Applied Research	02	U	104,687	104,111		104,111	61,503
12	0602750N	Future Naval Capabilities Applied Research	02	U	193,392	177,141		177,141	182,662
13	0602782N	Mine and Expeditionary Warfare Applied Research	02	U	40,983	48,649		48,649	30,435
14	0602792N	Innovative Naval Prototypes (INP) Applied Research	02	U	143,842	145,637		145,637	133,828
15	0602861N	Science and Technology Management - ONR Field Acitivities	02	U	79,149	81,296		81,296	85,063
	Applied Research				**1,243,015**	**1,487,017**		**1,487,017**	**1,026,339**
16	0603123N	Force Protection Advanced Technology	03	U	35,010	59,933		59,933	29,512

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17	0603271N	Electromagnetic Systems Advanced Technology	03	U	11,762	16,253		16,253	8,418
18	0603273N	Science & Technology for Nuclear Re-entry Systems	03	U		65,735		65,735	112,329
19	0603640M	USMC Advanced Technology Demonstration (ATD)	03	U	283,332	412,747		412,747	308,217
20	0603651M	Joint Non-Lethal Weapons Technology Development	03	U	13,026	14,048		14,048	15,556
21	0603673N	Future Naval Capabilities Advanced Technology Development	03	U	275,441	268,993		268,993	264,700
22	0603680N	Manufacturing Technology Program	03	U	74,826	61,704		61,704	61,843
23	0603729N	Warfighter Protection Advanced Technology	03	U	39,057	46,999		46,999	5,100
24	0603758N	Navy Warfighting Experiments and Demonstrations	03	U	60,878	99,020		99,020	75,898
25	0603782N	Mine and Expeditionary Warfare Advanced Technology	03	U	1,922	2,007		2,007	2,048
26	0603801N	Innovative Naval Prototypes (INP) Advanced Technology Development	03	U	165,136	261,903		261,903	132,931
	Advanced Technology Development				**960,390**	**1,309,342**		**1,309,342**	**1,016,552**
27	0603128N	Unmanned Aerial System	04	U	15,545	98,883		98,883	108,225
28	0603178N	Large Unmanned Surface Vehicles (LUSV)	04	U	98,871	136,580		136,580	117,400
29	0603207N	Air/Ocean Tactical Applications	04	U	26,972	60,737		60,737	40,653
30	0603216N	Aviation Survivability	04	U	24,286	17,387		17,387	20,874
31	0603239N	Naval Construction Forces	04	U	5,271	1,706		1,706	7,821
32	0603254N	ASW Systems Development	04	U	20,079	15,977		15,977	17,090
33	0603261N	Tactical Airborne Reconnaissance	04	U	3,111	3,562		3,562	3,721

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Department of the Navy
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Appropriation: 1319N Research, Development, Test and Evaluation, Navy

Line No	Program Element Number	Item	Act	Sec	FY 2022 Actuals	FY 2023 Less Supplementals Enacted	FY 2023 Supplementals Enacted*	FY 2023 Total Enacted	FY 2024 Request
34	0603382N	Advanced Combat Systems Technology	04	U	40,937	73,128		73,128	6,216
35	0603502N	Surface and Shallow Water Mine Countermeasures	04	U	51,637	87,746		87,746	34,690
36	0603506N	Surface Ship Torpedo Defense	04	U	8,573	473		473	730
37	0603512N	Carrier Systems Development	04	U	7,109	11,567		11,567	6,095
38	0603525N	PILOT FISH	04	U	391,704	671,000		671,000	916,208
39	0603527N	RETRACT LARCH	04	U	60,941	7,483		7,483	7,545
40	0603536N	RETRACT JUNIPER	04	U	140,080	239,088		239,088	271,109
41	0603542N	Radiological Control	04	U	758	772		772	811
42	0603553N	Surface ASW	04	U	1,099	1,180		1,180	1,189
43	0603561N	Advanced Submarine System Development	04	U	96,405	110,146		110,146	88,415
44	0603562N	Submarine Tactical Warfare Systems	04	U	13,832	10,808		10,808	15,119
45	0603563N	Ship Concept Advanced Design	04	U	132,244	130,405		130,405	89,939
46	0603564N	Ship Preliminary Design & Feasibility Studies	04	U	39,472	75,305		75,305	121,402
47	0603570N	Advanced Nuclear Power Systems	04	U	203,572	227,400		227,400	319,656
48	0603573N	Advanced Surface Machinery Systems	04	U	74,439	207,000		207,000	133,911
49	0603576N	CHALK EAGLE	04	U	76,723	91,280		91,280	116,078
50	0603581N	Littoral Combat Ship (LCS)	04	U	80,254	76,364		76,364	32,615
51	0603582N	Combat System Integration	04	U	16,884	18,236		18,236	18,610
52	0603595N	Ohio Replacement	04	U	302,004	344,981		344,981	257,076
53	0603596N	LCS Mission Modules	04	U	75,189	31,707		31,707	31,464

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Line No	Program Element Number	Item	Act	Sec	FY 2022 Actuals	FY 2023 Less Supplementals Enacted	FY 2023 Supplementals Enacted*	FY 2023 Total Enacted	FY 2024 Request
54	0603597N	Automated Test and Re-Test (ATRT)	04	U	36,461	60,073		60,073	10,809
55	0603599N	Frigate Development	04	U	98,022	108,626		108,626	112,972
56	0603609N	Conventional Munitions	04	U	7,245	9,286		9,286	9,030
57	0603635M	Marine Corps Ground Combat/Support System	04	U	69,451	111,431		111,431	128,782
58	0603654N	Joint Service Explosive Ordnance Development	04	U	33,974	36,304		36,304	44,766
59	0603713N	Ocean Engineering Technology Development	04	U	8,547	6,193		6,193	10,751
60	0603721N	Environmental Protection	04	U	28,150	21,647		21,647	24,457
61	0603724N	Navy Energy Program	04	U	64,991	75,320		75,320	72,214
62	0603725N	Facilities Improvement	04	U	6,306	5,664		5,664	10,149
63	0603734N	CHALK CORAL	04	U	558,549	753,303		753,303	687,841
64	0603739N	Navy Logistic Productivity	04	U	643	899		899	4,712
65	0603746N	RETRACT MAPLE	04	U	275,379	363,874		363,874	420,455
66	0603748N	LINK PLUMERIA	04	U	643,600	1,038,239		1,038,239	2,100,474
67	0603751N	RETRACT ELM	04	U	79,593	82,684		82,684	88,036
68	0603764M	LINK EVERGREEN	04	U	254,492	313,409		313,409	547,005
69	0603790N	NATO Research and Development	04	U	5,805	8,041		8,041	6,265
70	0603795N	Land Attack Technology	04	U	3,922	358		358	1,624
71	0603851M	Joint Non-Lethal Weapons Testing	04	U	27,556	30,533		30,533	31,058
72	0603860N	Joint Precision Approach and Landing Systems - Dem/Val	04	U	20,223	18,628		18,628	22,590
73	0603925N	Directed Energy and Electric Weapon Systems	04	U	80,055	65,080		65,080	52,129

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Department of the Navy
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Total Obligational Authority

(Dollars in Thousands)

Appropriation: 1319N Research, Development, Test and Evaluation, Navy

Line No	Program Element Number	Item	Act	Sec	FY 2022 Actuals	FY 2023 Less Supplementals Enacted	FY 2023 Supplementals Enacted*	FY 2023 Total Enacted	FY 2024 Request
74	0604014N	F/A -18 Infrared Search and Track (IRST)	04	U	47,637	55,069		55,069	32,127
75	0604027N	Digital Warfare Office	04	U	44,969	165,753		165,753	181,001
76	0604028N	Small and Medium Unmanned Undersea Vehicles	04	U	77,806	88,839		88,839	110,506
77	0604029N	Unmanned Undersea Vehicle Core Technologies	04	U	63,262	59,652		59,652	71,156
78	0604030N	Rapid Prototyping, Experimentation and Demonstration.	04	U		50,580		50,580	214,100
79	0604031N	Large Unmanned Undersea Vehicles	04	U	27,510				6,900
80	0604112N	Gerald R. Ford Class Nuclear Aircraft Carrier (CVN 78 - 80)	04	U	117,878	116,498		116,498	118,182
81	0604126N	Littoral Airborne MCM	04	U	18,067	30,240		30,240	
82	0604127N	Surface Mine Countermeasures	04	U	11,924	12,959		12,959	16,127
83	0604272N	Tactical Air Directional Infrared Countermeasures (TADIRCM)	04	U	32,530	39,028		39,028	34,684
84	0604289M	Next Generation Logistics	04	U	7,796	7,342		7,342	5,991
85	0604292N	Future Vertical Lift (Maritime Strike)	04	U	8,269	5,103		5,103	2,100
86	0604320M	Rapid Technology Capability Prototype	04	U	11,199	67,927		67,927	131,763
87	0604454N	LX (R)	04	U	3,332	18,830		18,830	21,319
88	0604536N	Advanced Undersea Prototyping	04	U	30,597	94,515		94,515	104,328
89	0604636N	Counter Unmanned Aircraft Systems (C-UAS)	04	U	5,462	7,438		7,438	11,567
90	0604659N	Precision Strike Weapons Development Program	04	U	80,661	34,824		34,824	5,976
91	0604707N	Space and Electronic Warfare (SEW) Architecture/Engineering Support	04	U	8,980	10,229		10,229	9,993

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Line No	Program Element Number	Item	Act	Sec	FY 2022 Actuals	FY 2023 Less Supplementals Enacted	FY 2023 Supplementals Enacted*	FY 2023 Total Enacted	FY 2024 Request
92	0604786N	Offensive Anti-Surface Warfare Weapon Development	04	U	75,093	223,826		223,826	237,655
93	0605512N	MEDIUM UNMANNED SURFACE VEHICLES (MUSVs))	04	U	57,872	85,966		85,966	85,800
94	0605513N	Unmanned Surface Vehicle Enabling Capabilities	04	U	115,436	181,534		181,534	176,261
95	0605514M	GROUND BASED ANTI-SHIP MISSILE	04	U	98,762	43,090		43,090	36,383
96	0605516M	LONG RANGE FIRES	04	U	85,073	36,693		36,693	36,763
97	0605518N	CONVENTIONAL PROMPT STRIKE (CPS)	04	U	1,282,595	1,230,041		1,230,041	901,064
98	0303354N	ASW Systems Development - MIP	04	U	8,536	9,769		9,769	10,167
99	0304240M	Advanced Tactical Unmanned Aircraft System	04	U	31,204	11,735		11,735	539
100	0304270N	Electronic Warfare Development - MIP	04	U	506	796		796	1,250
	Advanced Component Development & Prototypes				**6,663,911**	**8,548,769**		**8,548,769**	**9,734,483**
101	0603208N	Training System Aircraft	05	U	5,758	15,128		15,128	44,120
102	0604038N	Maritime Targeting Cell	05	U		69,600		69,600	30,922
103	0604212M	Other Helo Development	05	U					101,209
104	0604212N	Other Helo Development	05	U	47,802	66,010		66,010	2,604
105	0604214M	AV-8B Aircraft - Eng Dev	05	U	10,037	9,205		9,205	8,263
106	0604215N	Standards Development	05	U	4,066	3,766		3,766	4,039
107	0604216N	Multi-Mission Helicopter Upgrade Development	05	U	52,962	54,684		54,684	62,350
108	0604221N	P-3 Modernization Program	05	U	564	343		343	771
109	0604230N	Warfare Support System	05	U	14,945	16,337		16,337	109,485
110	0604231N	Command and Control Systems	05	U	118,895	143,573		143,573	87,457

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Department of the Navy
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(Dollars in Thousands)

Appropriation: 1319N Research, Development, Test and Evaluation, Navy

Line No	Program Element Number	Item	Act	Sec	FY 2022 Actuals	FY 2023 Less Supplementals Enacted	FY 2023 Supplementals Enacted*	FY 2023 Total Enacted	FY 2024 Request
111	0604234N	Advanced Hawkeye	05	U	339,032	487,281		487,281	399,919
112	0604245M	H-1 Upgrades	05	U	49,316	43,759		43,759	29,766
113	0604261N	Acoustic Search Sensors	05	U	47,534	50,231		50,231	51,531
114	0604262N	V-22A	05	U	89,448	125,233		125,233	137,597
115	0604264N	Air Crew Systems Development	05	U	20,271	50,282		50,282	42,155
116	0604269N	EA-18	05	U	58,692	116,589		116,589	172,507
117	0604270N	Electronic Warfare Development	05	U	126,373	144,471		144,471	171,384
118	0604273M	Executive Helo Development	05	U	40,496	45,645		45,645	35,376
119	0604274N	Next Generation Jammer (NGJ)	05	U	230,396	54,679		54,679	40,477
120	0604280N	Joint Tactical Radio System - Navy (JTRS-Navy)	05	U	225,867	334,787		334,787	451,397
121	0604282N	Next Generation Jammer (NGJ) Increment II	05	U	72,937	135,467		135,467	250,577
122	0604307N	Surface Combatant Combat System Engineering	05	U	321,118	345,489		345,489	453,311
123	0604311N	LPD-17 Class Systems Integration	05	U	869				
124	0604329N	Small Diameter Bomb (SDB)	05	U	39,366	42,881		42,881	52,211
125	0604366N	Standard Missile Improvements	05	U	341,355	309,943		309,943	418,187
126	0604373N	Airborne MCM	05	U	10,838	10,882		10,882	11,368
127	0604378N	Naval Integrated Fire Control - Counter Air Systems Engineering	05	U	49,110	45,892		45,892	66,445
128	0604419N	Advanced Sensors Application Program (ASAP)	05	U	10,000	13,000		13,000	
129	0604501N	Advanced Above Water Sensors	05	U	60,394	72,772		72,772	115,396
130	0604503N	SSN-688 and Trident Modernization	05	U	92,168	93,501		93,501	93,435

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Line No	Program Element Number	Item	Act	Sec	FY 2022 Actuals	FY 2023 Less Supplementals Enacted	FY 2023 Supplementals Enacted*	FY 2023 Total Enacted	FY 2024 Request
131	0604504N	Air Control	05	U	32,614	39,138		39,138	42,656
132	0604512N	Shipboard Aviation Systems	05	U	8,889	11,759		11,759	10,442
133	0604518N	Combat Information Center Conversion	05	U	11,389	16,160		16,160	11,359
134	0604522N	Air and Missile Defense Radar (AMDR) System	05	U	84,526	87,341		87,341	90,307
135	0604530N	Advanced Arresting Gear (AAG)	05	U	146	151		151	10,658
136	0604558N	New Design SSN	05	U	468,358	316,085		316,085	234,356
137	0604562N	Submarine Tactical Warfare System	05	U	60,806	58,741		58,741	71,516
138	0604567N	Ship Contract Design/ Live Fire T&E	05	U	52,878	60,791		60,791	22,462
139	0604574N	Navy Tactical Computer Resources	05	U	4,267	4,177		4,177	4,279
140	0604601N	Mine Development	05	U	37,054	60,793		60,793	104,731
141	0604610N	Lightweight Torpedo Development	05	U	92,274	135,500		135,500	229,668
142	0604654N	Joint Service Explosive Ordnance Development	05	U	8,315	8,618		8,618	9,064
143	0604657M	USMC Ground Combat/Supporting Arms Systems - Eng Dev	05	U	40,885	45,025		45,025	62,329
144	0604703N	Personnel, Training, Simulation, and Human Factors	05	U	7,128	7,454		7,454	9,319
145	0604727N	Joint Standoff Weapon Systems	05	U		758		758	1,964
146	0604755N	Ship Self Defense (Detect & Control)	05	U	139,580	156,426		156,426	158,426
147	0604756N	Ship Self Defense (Engage: Hard Kill)	05	U	105,984	84,518		84,518	47,492
148	0604757N	Ship Self Defense (Engage: Soft Kill/EW)	05	U	64,200	97,537		97,537	125,206
149	0604761N	Intelligence Engineering	05	U	20,684	23,742		23,742	19,969
150	0604771N	Medical Development	05	U	30,429	16,178		16,178	6,061

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151	0604777N	Navigation/ID System	05	U	48,510	60,209		60,209	45,262
152	0604800M	Joint Strike Fighter (JSF) - EMD	05	U	555	611		611	
153	0604800N	Joint Strike Fighter (JSF) - EMD	05	U	252	234		234	
154	0604850N	SSN(X)	05	U	29,174	133,772		133,772	361,582
155	0605013M	Information Technology Development	05	U	10,854	11,361		11,361	22,663
156	0605013N	Information Technology Development	05	U	261,195	318,103		318,103	282,138
157	0605024N	Anti-Tamper Technology Support	05	U	8,393	7,271		7,271	8,340
158	0605180N	TACAMO Modernization	05	U	48,644	502,493		502,493	213,743
159	0605212M	CH-53K RDTE	05	U	212,181	220,240		220,240	222,288
160	0605215N	Mission Planning	05	U	86,255	76,107		76,107	86,448
161	0605217N	Common Avionics	05	U	52,789	77,960		77,960	81,076
162	0605220N	Ship to Shore Connector (SSC)	05	U	6,295	17,886		17,886	1,343
163	0605327N	T-AO 205 Class	05	U	4,287	220		220	71
164	0605414N	Unmanned Carrier Aviation (UCA)	05	U	257,887	254,446		254,446	220,404
165	0605450M	Joint Air-to-Ground Missile (JAGM)	05	U	345	371		371	384
166	0605500N	Multi-mission Maritime Aircraft (MMA)	05	U	28,842	37,939		37,939	36,027
167	0605504N	Multi-Mission Maritime (MMA) Increment III	05	U	157,793	161,697		161,697	132,449
168	0605611M	Marine Corps Assault Vehicles System Development & Demonstration	05	U	71,237	91,501		91,501	103,236
169	0605813M	Joint Light Tactical Vehicle (JLTV) System Development & Demonstration	05	U	1,921	2,856		2,856	2,609
170	0204202N	DDG-1000	05	U	110,789	180,374		180,374	231,778

*Includes enacted funding in the Ukraine Supplemental Appropriation Act, 2023 (Division B of Public Law 117-180) and Additional Ukraine Supplemental Appropriation Act, 2023 (Division M of Public Law 117-328).

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Appropriation: 1319N Research, Development, Test and Evaluation, Navy

Line No	Program Element Number	Item	Act	Sec	FY 2022 Actuals	FY 2023 Less Supplementals Enacted	FY 2023 Supplementals Enacted*	FY 2023 Total Enacted	FY 2024 Request
171	0301377N	Countering Advanced Conventional Weapons (CACW)	05	U		12,341		12,341	17,531
172	0304785N	ISR & Info Operations	05	U	135,538	135,252		135,252	174,271
173	0306250M	Cyber Operations Technology Development	05	U	23,299	37,038		37,038	2,068
	System Development & Demonstration				**5,308,050**	**6,472,604**		**6,472,604**	**6,962,234**
174	0604256N	Threat Simulator Development	06	U	56,311	29,430		29,430	22,918
175	0604258N	Target Systems Development	06	U	19,553	73,708		73,708	18,623
176	0604759N	Major T&E Investment	06	U	95,451	141,371		141,371	74,221
177	0605152N	Studies and Analysis Support - Navy	06	U	3,069	3,286		3,286	3,229
178	0605154N	Center for Naval Analyses	06	U	34,686	37,685		37,685	45,672
179	0605502N	Small Business Innovative Research	06	U	531,825				
180	0605804N	Technical Information Services	06	U	1,562	987		987	1,000
181	0605853N	Management, Technical & International Support	06	U	104,950	109,565		109,565	124,328
182	0605856N	Strategic Technical Support	06	U	3,402	3,787		3,787	4,053
183	0605863N	RDT&E Ship and Aircraft Support	06	U	135,097	173,352		173,352	203,447
184	0605864N	Test and Evaluation Support	06	U	444,883	479,281		479,281	481,975
185	0605865N	Operational Test and Evaluation Capability	06	U	25,326	27,808		27,808	29,399
186	0605866N	Navy Space and Electronic Warfare (SEW) Support	06	U	17,238	27,172		27,172	27,504
187	0605867N	SEW Surveillance/Reconnaissance Support	06	U	8,065	7,186		7,186	9,183
188	0605873M	Marine Corps Program Wide Support	06	U	42,480	39,744		39,744	34,976

*Includes enacted funding in the Ukraine Supplemental Appropriation Act, 2023 (Division B of Public Law 117-180) and Additional Ukraine Supplemental Appropriation Act, 2023 (Division M of Public Law 117-328).

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Appropriation: 1319N Research, Development, Test and Evaluation, Navy

Line No	Program Element Number	Item	Act	Sec	FY 2022 Actuals	FY 2023 Less Supplementals Enacted	FY 2023 Supplementals Enacted*	FY 2023 Total Enacted	FY 2024 Request
189	0605898N	Management HQ - R&D	06	U	35,018	40,648		40,648	41,331
190	0606355N	Warfare Innovation Management	06	U	38,066	52,060		52,060	37,340
191	0305327N	Insider Threat	06	U	2,482	2,315		2,315	2,246
192	0902498N	Management Headquarters (Departmental Support Activities)	06	U	1,747	1,811		1,811	2,168
193	0909980N	Judgment Fund Reimbursement	06	U	579				
194	0909999N	Financing for Cancelled Account Adjustments	06	U	877				
	Management Support				**1,602,667**	**1,251,196**		**1,251,196**	**1,163,613**
196	0604840M	F-35 C2D2	07	U	501,609	531,032		531,032	544,625
197	0604840N	F-35 C2D2	07	U	473,749	503,365		503,365	543,834
198	0605520M	MARINE CORPS AIR DEFENSE WEAPONS SYSTEMS	07	U	59,018	69,663		69,663	99,860
199	0607658N	Cooperative Engagement Capability (CEC)	07	U	148,628	156,121		156,121	153,440
200	0101221N	Strategic Sub & Weapons System Support	07	U	190,928	312,502		312,502	321,648
201	0101224N	SSBN Security Technology Program	07	U	44,212	50,761		50,761	62,694
202	0101226N	Submarine Acoustic Warfare Development	07	U	58,645	81,237		81,237	92,869
203	0101402N	Navy Strategic Communications	07	U	34,474	49,424		49,424	51,919
204	0204136N	F/A-18 Squadrons	07	U	213,010	235,204		235,204	333,783
205	0204228N	Surface Support	07	U	13,195	12,197		12,197	8,619
206	0204229N	Tomahawk and Tomahawk Mission Planning Center (TMPC)	07	U	129,919	122,719		122,719	122,834
207	0204311N	Integrated Surveillance System	07	U	83,349	98,370		98,370	76,279
208	0204313N	Ship-Towed Array Surveillance Systems	07	U	6,080	1,188		1,188	1,103

*Includes enacted funding in the Ukraine Supplemental Appropriation Act, 2023 (Division B of Public Law 117-180) and Additional Ukraine Supplemental Appropriation Act, 2023 (Division M of Public Law 117-328).

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Appropriation: 1319N Research, Development, Test and Evaluation, Navy

Line No	Program Element Number	Item	Act	Sec	FY 2022 Actuals	FY 2023 Less Supplementals Enacted	FY 2023 Supplementals Enacted*	FY 2023 Total Enacted	FY 2024 Request
209	0204413N	Amphibious Tactical Support Units (Displacement Craft)	07	U	1,650	1,789		1,789	1,991
210	0204460M	Ground/Air Task Oriented Radar (G/ATOR)	07	U	43,761	61,104		61,104	92,674
211	0204571N	Consolidated Training Systems Development	07	U	53,099	100,339		100,339	115,894
212	0204575N	Electronic Warfare (EW) Readiness Support	07	U	53,412	45,936		45,936	61,677
213	0205601N	Anti-Radiation Missile Improvement	07	U	133,315	89,479		89,479	59,555
214	0205620N	Surface ASW Combat System Integration	07	U	27,781	28,999		28,999	29,973
215	0205632N	MK-48 ADCAP	07	U	98,707	155,868		155,868	213,165
216	0205633N	Aviation Improvements	07	U	140,478	149,450		149,450	143,277
217	0205675N	Operational Nuclear Power Systems	07	U	113,760	121,439		121,439	152,546
218	0206313M	Marine Corps Communications Systems	07	U	105,494	114,264		114,264	192,625
219	0206335M	Common Aviation Command and Control System (CAC2S)	07	U	12,503	14,865		14,865	12,565
220	0206623M	Marine Corps Ground Combat/Supporting Arms Systems	07	U	84,344	106,036		106,036	83,900
221	0206624M	Marine Corps Combat Services Support	07	U	20,254	26,522		26,522	27,794
222	0206625M	USMC Intelligence/Electronic Warfare Systems (MIP)	07	U	38,089	51,976		51,976	47,762
223	0206629M	Amphibious Assault Vehicle	07	U	7,475	8,246		8,246	373
224	0207161N	Tactical AIM Missiles	07	U	23,273	29,236		29,236	36,439
225	0207163N	Advanced Medium Range Air-to-Air Missile (AMRAAM)	07	U	31,776	30,898		30,898	29,198
226	0208043N	Planning and Decision Aid System (PDAS)	07	U	2,982	3,609		3,609	3,565

*Includes enacted funding in the Ukraine Supplemental Appropriation Act, 2023 (Division B of Public Law 117-180) and Additional Ukraine Supplemental Appropriation Act, 2023 (Division M of Public Law 117-328).

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Appropriation: 1319N Research, Development, Test and Evaluation, Navy

Line No	Program Element Number	Item	Act	Sec	FY 2022 Actuals	FY 2023 Less Supplementals Enacted	FY 2023 Supplementals Enacted*	FY 2023 Total Enacted	FY 2024 Request
230	0303138N	Afloat Networks	07	U	36,259	45,683		45,683	49,995
231	0303140N	Information Systems Security Program	07	U	32,592	33,752		33,752	33,390
232	0305192N	Military Intelligence Program (MIP) Activities	07	U	7,513	8,415		8,415	7,304
233	0305204N	Tactical Unmanned Aerial Vehicles	07	U	9,837	10,576		10,576	11,235
234	0305205N	UAS Integration and Interoperability	07	U	4,842	15,396		15,396	16,409
235	0305208M	Distributed Common Ground/Surface Systems	07	U	29,749	45,705		45,705	51,192
236	0305220N	MQ-4C Triton	07	U	13,029	13,893		13,893	12,094
237	0305231N	MQ-8 UAV	07	U	33,543	27,000		27,000	29,700
238	0305232M	RQ-11 UAV	07	U	533	1,234		1,234	2,107
239	0305234N	Small (Level 0) Tactical UAS (STUASL0)	07	U	1,772	3,761		3,761	2,999
240	0305241N	Multi-Intelligence Sensor Development	07	U	59,252	56,261		56,261	49,460
241	0305242M	Unmanned Aerial Systems (UAS) Payloads (MIP)	07	U	9,274	9,780		9,780	13,005
242	0305251N	Cyberspace Operations Forces and Force Support	07	U	34,977	36,505		36,505	2,000
243	0305421N	RQ-4 Modernization	07	U	134,323	150,093		150,093	300,378
244	0307577N	Intelligence Mission Data (IMD)	07	U	907	851		851	788
245	0308601N	Modeling and Simulation Support	07	U	9,479	9,437		9,437	10,994
246	0702207N	Depot Maintenance (Non-IF)	07	U	33,870	26,248		26,248	23,248
247	0708730N	Maritime Technology (MARITECH)	07	U	6,095	2,133		2,133	3,284
248	1203109N	Satellite Communications (SPACE)	07	U	596				
999	999999999	Classified Programs	07	U	2,136,820	2,361,311	40,577	2,401,888	2,021,376

*Includes enacted funding in the Ukraine Supplemental Appropriation Act, 2023 (Division B of Public Law 117-180) and Additional Ukraine Supplemental Appropriation Act, 2023 (Division M of Public Law 117-328).

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Appropriation: 1319N Research, Development, Test and Evaluation, Navy

Line No	Program Element Number	Item	Act	Sec	FY 2022 Actuals	FY 2023 Less Supplementals Enacted	FY 2023 Supplementals Enacted*	FY 2023 Total Enacted	FY 2024 Request
	Operational Systems Development				**5,544,231**	**6,221,872**	**40,577**	**6,262,449**	**6,359,438**
249	0608013N	Risk management Information - Software Pilot Program	08	U	13,565	12,810		12,810	11,748
250	0608231N	Maritime Tactical Command and Control (MTC2) - Software Pilot Program	08	U	15,563	11,198		11,198	10,555
	Software And Digital Technology Pilot Programs				**29,128**	**24,008**		**24,008**	**22,303**
Total Research, Development, Test and Evaluation, Navy					**22,032,867**	**26,003,697**	**40,577**	**26,044,274**	**26,922,225**

*Includes enacted funding in the Ukraine Supplemental Appropriation Act, 2023 (Division B of Public Law 117-180) and Additional Ukraine Supplemental Appropriation Act, 2023 (Division M of Public Law 117-328).

Department of Defense
FY 2024 President's Budget
Exhibit R-1 FY 2024 President's Budget
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(Dollars in Thousands)

Appropriation	FY 2023 Overseas Operations Costs (OOC)*	FY 2024 Overseas Operations Costs (OOC)*
Research, Development, Test and Evaluation, Navy		15
Total Research, Development, Test, & Evaluation		**15**

*FY 2023 and FY 2024 Overseas Operations Costs (OOC) numbers are a subset of the baseline submission.

Department of Defense
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(Dollars in Thousands)

	FY 2023 Overseas Operations Costs (OOC)*	FY 2024 Overseas Operations Costs (OOC)*
Summary Recap of Budget Activities		
Advanced Component Development & Prototypes		15
Total Research, Development, Test, & Evaluation		**15**
Summary Recap of FYDP Programs		
Research and Development		15
Total Research, Development, Test, & Evaluation		**15**

*FY 2023 and FY 2024 Overseas Operations Costs (OOC) numbers are a subset of the baseline submission.

Department of the Navy
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(Dollars in Thousands)

	FY 2023 Overseas Operations Costs (OOC)*	FY 2024 Overseas Operations Costs (OOC)*
Summary Recap of Budget Activities		
Advanced Component Development & Prototypes		15
Total Research, Development, Test, & Evaluation		**15**
Summary Recap of FYDP Programs		
Research and Development		15
Total Research, Development, Test, & Evaluation		**15**

*FY 2023 and FY 2024 Overseas Operations Costs (OOC) numbers are a subset of the baseline submission.

Department of the Navy
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Exhibit R-1 FY 2024 President's Budget
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(Dollars in Thousands)

Appropriation: 1319N Research, Development, Test and Evaluation, Navy

Line No	Program Element Number	Item	Act	Sec	FY 2023 Overseas Operations Costs (OOC)*	FY 2024 Overseas Operations Costs (OOC)*
70	0603795N	Land Attack Technology	04	U		15
		Other		U		15
	Advanced Component Development & Prototypes					**15**
Total Research, Development, Test and Evaluation, Navy						**15**

*FY 2023 and FY 2024 Overseas Operations Costs (OOC) numbers are a subset of the baseline submission.

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

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

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0604840M / *F-35B C2D2*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	501.609	531.032	544.625	-	544.625	550.377	462.193	415.339	430.007	Continuing	Continuing
0358: *Utility and Subsystem Support to Mission Systems*	0.000	0.000	0.000	8.113	-	8.113	13.521	13.521	8.113	5.409	Continuing	Continuing
2567: *Air Vehicle - Technology Refresh 3 (TR-3)*	0.000	66.849	33.759	3.023	-	3.023	1.279	1.296	5.359	10.569	Continuing	Continuing
2568: *Air Vehicle Block 4 Planning & Sys Eng*	0.000	168.878	211.087	177.118	-	177.118	179.737	131.748	86.477	123.886	Continuing	Continuing
2569: *Test and Evaluation (T&E)*	0.000	120.365	127.883	132.946	-	132.946	111.725	113.469	99.160	92.046	Continuing	Continuing
2570: *Propulsion (PP)*	0.000	14.541	7.436	130.251	-	130.251	135.151	103.927	107.933	98.294	Continuing	Continuing
2571: *Maintenance Systems (MxS)*	0.000	21.937	24.805	18.106	-	18.106	18.797	15.697	14.602	14.397	Continuing	Continuing
2572: *Combat Data Systems (CDS)*	0.000	20.355	26.396	17.817	-	17.817	16.330	9.992	19.308	9.505	Continuing	Continuing
2573: *Training Systems and Simulation (TSS)*	0.000	38.749	37.094	30.331	-	30.331	32.178	31.763	46.693	31.622	Continuing	Continuing
2574: *Infrastructure and Support Costs*	0.000	2.424	2.623	2.691	-	2.691	2.741	3.090	3.136	2.893	Continuing	Continuing
2575: *DevSecOps*	0.000	13.573	10.079	9.072	-	9.072	13.253	12.839	1.333	17.686	Continuing	Continuing
2576: *F-35 USMC Unique*	0.000	33.938	31.120	15.157	-	15.157	25.665	24.851	23.225	23.700	Continuing	Continuing
9999: *Congressional Adds*	0.000	0.000	18.750	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	18.750

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): 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, United States Air Force, United States Marine Corps and International Partners countries. There are three variants the F-35A Conventional Takeoff and Landing variant; 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 total air system life cycle costs. Planning, systems engineering, development, and testing for Block 4 and additional capabilities as part

of the C2D2 acquisition strategy continues across the F-35 Air System to include the air vehicle, propulsion system, combat data systems, maintenance systems, and training systems as Initial Operational Capability (IOC) has been met for each variant.

The JSF Continuous Capability Development & Delivery (C2D2) efforts provide incremental warfighting capability improvements to maintain joint air dominance against evolving threats. Block 4 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 Block 4 Mission Decomposition analysis completed in FY2014. These analyses served as the basis for the Block 4 Capability Development Document (CDD), staffed through the Air Force Requirements Oversight Council (AFROC) and signed by the USAF Chief of Staff in January 2015. Joint Requirements Oversight Council (JROC) approved the CDD 21 March 2017.) Modernization activities in FY2024 continue with the incremental releases of capabilities & execution of continuous development efforts as part of the C2D2 acquisition strategy. Block 4 efforts include a robust weapons integration portfolio and provide new opportunities for International Partners to assess, integrate, and field unique capabilities based on global sovereign requirements.

The United Kingdom, Italy, Netherlands, Canada, Australia, Denmark and Norway are participants in F-35 modernization. The program shown here reflects United States Navy funding. Total funding for all Service and International Partners is reported at the accomplishment/planned program level since activities support all aircraft variants. Foreign Military Sales are ongoing separately.

PE 0604840M/N replacing PE 0604810M/N beginning in FY2019 due to budget being moved from BA05 to BA07.

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. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	515.746	525.338	409.610	-	409.610
Current President's Budget	501.609	531.032	544.625	-	544.625
Total Adjustments	-14.137	5.694	135.015	-	135.015
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-13.056			
• Congressional Rescissions	-	-			
• Congressional Adds	-	18.750			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-14.137	0.000			
• Program Adjustments	0.000	0.000	132.709	-	132.709
• Rate/Misc Adjustments	0.000	0.000	2.306	-	2.306

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0604840M *I F-35B C2D2*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2022	FY 2023
Project: 9999: *Congressional Adds*		
Congressional Add: *F135 Engine Enhancement*	0.000	18.750
Congressional Add Subtotals for Project: 9999	0.000	18.750
Congressional Add Totals for all Projects	0.000	18.750

Change Summary Explanation

The FY2024 budget submission accomplishments/planned programs (R-2A) has been updated to mirror the Joint Strike Fighters Program Management Office organizational structure in order to provide more transparency and visibility to development efforts across the F-35 enterprise. Also, the Project Cost Analysis (R-3) exhibit has been updated to include additional cost categories to better display executing efforts. FY2021 values have been updated based on actuals to date.

FY2024 was increased by $161 million due to accelerated weapons capabilities development and integration, cyber co-pilot capability integration & cyber technologies, and development for new engine/PTMS solution funding provided for initiation of F135 Engine Upgrade and/or PTMS solution pending Business Case Analysis results, and to meet Lot 17 Block 4 upgrades as well as additional follow-on modernization requirements.

PU 0358 is a New Start.

Technical: Not applicable.
Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / *F-35B C2D2*	Project (Number/Name) 0358 / *Utility and Subsystem Support to Mission Systems*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
0358: *Utility and Subsystem Support to Mission Systems*	0.000	0.000	0.000	8.113	-	8.113	13.521	13.521	8.113	5.409	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 198

Note

As the United States and its allies are adding new capabilities to outpace growing threats, increased cooling and electrical power capacity will be required to support these new capabilities. In order to address increased thermal loads from new Mission Systems requirements, an upgrade to the Power Thermal Management System (PTMS) and Fuel Thermal Management System (FTMS) is required.

A. Mission Description and Budget Item Justification

This is a NEW START. Current Mission System planning estimates due to Block 4 capabilities and beyond indicate that additional cooling is required for aircraft beginning in Lot 22 (FY28). This upgrade/modification consists of an upgrade to the current Honeywell PTMS that includes larger heat exchangers, shifting some systems from the cold liquid loop to the hot liquid loop, increasing system pressure, increasing pump speeds and raising compressor discharge temperatures. This modification upgrades components that are relatively low cost and already at a high technical readiness level. All PTMS changes for this level of cooling would be accomplished within the existing PTMS bay and there are not expected to be any necessary changes to the capacity of the cold liquid loop or the hot liquid loop. This work includes nonrecurring engineering for the development, test, and certification of the upgraded PTMS system to ensure suitable cooling is available for future capacities. The Government has assessed that EMD phase would take 5-6 years.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: PTMS Upgrade	0.000	0.000	8.113	0.000	8.113
Articles:	-	-	-	-	-
Description: Current Mission System planning estimates due to Block 4 capabilities and beyond indicate that additional cooling is required for aircraft beginning in Lot 22 (FY28). This upgrade/modification consists of an upgrade to the current Honeywell PTMS that includes larger heat exchangers, shifting some systems from the cold liquid loop to the hot liquid loop, increasing system pressure, increasing pump speeds and raising compressor discharge temperatures. This modification upgrades components that are relatively low cost and already at a high technical readiness level. All PTMS changes for this level of cooling would be accomplished within the existing PTMS bay and there are not expected to be any necessary changes to the capacity of the cold liquid loop or the hot liquid loop. This work includes nonrecurring engineering for the development, test,					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 0358 / *Utility and Subsystem Support to Mission Systems*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
and certification of the upgraded PTMS system to ensure suitable cooling is available for future capacities. The Government has assessed that EMD phase would take 5-6 years. ***FY 2023 Plans:*** N/A ***FY 2024 Base Plans:*** The PTMS Upgrade program will begin nonrecurring engineering effort to increase PTMS Upgrade cooling requirements. This work includes the necessary labor and nonrecurring engineering to support development of the cooling PTMS system and a detailed schedule of EMD to include the necessary operational testing and flight tests. Note: This is a New Start ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The increase from FY2023 to FY2024 is due to the PTMS Upgrade requirements needed to meet Mission Systems Capabilities.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	8.113	0.000	8.113

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / *F-35B C2D2*	Project (Number/Name) 0358 / *Utility and Subsystem Support to Mission Systems*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SEIT NRE System	C/CPIF	Lockheed Martin : FT. Worth, TX	0.000	0.000		0.000		8.113	Feb 2024	-		8.113	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.000		8.113		-		8.113	Continuing	Continuing	N/A

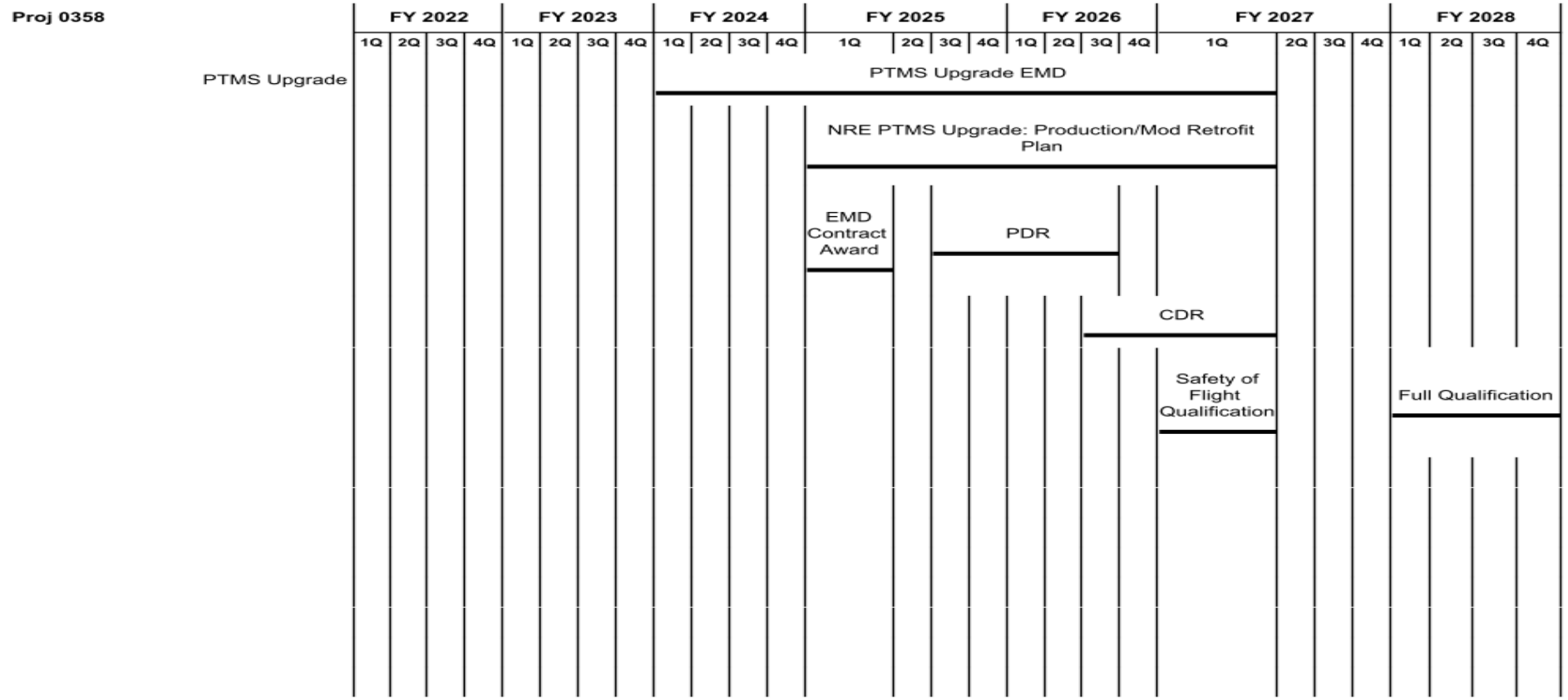
Remarks

This is a New Start.

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		0.000		8.113		-		8.113	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 0358 / *Utility and Subsystem Support to Mission Systems*



2024PB - 0604840M - 0358

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 0358 / *Utility and Subsystem Support to Mission Systems*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0358				
PTMS Upgrade: PTMS Upgrade EMD	1	2024	1	2027
PTMS Upgrade: NRE PTMS Upgrade: Production/Mod Retrofit Plan	1	2025	1	2027
PTMS Upgrade: EMD Contract Award	1	2025	1	2025
PTMS Upgrade: PDR	3	2025	3	2026
PTMS Upgrade: CDR	3	2026	1	2027
PTMS Upgrade: Safety of Flight Qualification	1	2027	1	2027
PTMS Upgrade: Full Qualification	1	2028	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / *F-35B C2D2*	Project (Number/Name) 2567 / *Air Vehicle - Technology Refresh 3 (TR-3)*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2567: *Air Vehicle - Technology Refresh 3 (TR-3)*	0.000	66.849	33.759	3.023	-	3.023	1.279	1.296	5.359	10.569	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 198

Note

Beginning in FY2022, Air Vehicle - Technology Refresh 3 (TR-3) was established as a separate, distinct project within the Continuous Capability Development & Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from Project Unit 3410, which is still included at the end of the R-2A for Fiscal years FY2021. This Project Unit has also been updated to reflect the directed project categories to provide traceability between current execution and the FY2024 request.

A. Mission Description and Budget Item Justification

Technology Refresh 3 (TR-3) conducts post Critical Design Review (CDR) design activities. This effort will develop and deliver a TR-3 system through full flight-worthy certification and production readiness review. The design of TR-3 subsystems Integrated Core Processor (ICP), Aircraft Memory System (AMS), and Panoramic Cockpit Display Electronics Unit and Display Unit (PCD-EU, PCD-DU) configurations will contain new backplane technology, commercial operating systems, and modified middleware necessary to support Block 3F functionality and incorporation of all Block 4 capabilities. This work includes nonrecurring engineering for the development, test, and certification of the ICP, AMS, PCD-EU, and PCD-DU, and includes processing capacity to ensure long term viability for future capabilities.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Technology Refresh 3 (TR-3)	66.849	33.759	3.023	0.000	3.023
Articles:	-	-	-	-	-
Description: Technology Refresh 3 (TR-3) conducts post Critical Design Review (CDR) design activities. This effort will develop and deliver a TR-3 system through full flight-worthy certification and production readiness review. The design of TR-3 subsystems Integrated Core Processor (ICP), Aircraft Memory System (AMS), and Panoramic Cockpit Display Electronics Unit and Display Unit (PCD-EU, PCD-DU) configurations will contain new backplane technology, commercial operating systems, and modified middleware necessary to support Block 3F functionality and incorporation of all Block 4 capabilities. This work includes nonrecurring engineering for the development, test, and certification of the ICP, AMS, PCD-EU, and PCD-DU, and includes processing capacity to ensure long term viability for future capabilities.					
FY 2023 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2567 / *Air Vehicle - Technology Refresh 3 (TR-3)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
The TR-3 program will complete laboratory system integration and test, flight test, and system certification requirements. The program will also deliver necessary hardware and complete modifications of Operational Test aircraft to support fleet fielding recommendations. ***FY 2024 Base Plans:*** The TR-3 program will complete final laboratory system integration and test, flight test, and system certification requirements for fleet fielding. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The decrease from FY2023 to FY2024 is due to the program nearing completion. This is driven by the ramp down and completion of sub tier supplier scope, and completion of system development at the Prime.					
Accomplishments/Planned Programs Subtotals	66.849	33.759	3.023	0.000	3.023

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The Technology Refresh-3 program is a delivery order part of a larger F-35 Joint Program Office Basic Ordering Agreement. The acquisition strategy for this delivery order employs a Cost Plus Incentive Fee for engineering and development of the Integrated Core Processor, Panoramic Cockpit Display, and Aircraft Memory System. This eliminates the current Diminishing Manufacturing Source for Technology Refresh-2. Additionally, brings open mission systems standards to the F-35 and enables new Embedded Training and Next Generation Distributed Aperture System capabilities.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2567 / *Air Vehicle - Technology Refresh 3 (TR-3)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
TR-3 Prime LM Development	C/CPIF	Lockheed Martin : Ft Worth TX	0.000	61.987	Oct 2021	33.759	Oct 2022	3.023	Oct 2023	-		3.023	0.000	98.769	98.769
TR-3 Prime LM Next Gen DAS Shipsets Proc	C/CPIF	Lockheed Martin : Ft Worth TX	0.000	4.638	Feb 2022	0.000		0.000		-		0.000	0.000	4.638	4.638
TR-3 Prime LM OT Next Gen DAS NRE	C/CPIF	Lockheed Martin : Ft Worth TX	0.000	0.122	Nov 2021	0.000		0.000		-		0.000	0.000	0.122	0.122
		Subtotal	0.000	66.747		33.759		3.023		-		3.023	0.000	103.529	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
TR-3 Project Support	MIPR	Various : Various	0.000	0.102	Nov 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	0.000	0.102		0.000		0.000		-		0.000	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	66.849		33.759		3.023		-		3.023	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2567 / *Air Vehicle - Technology Refresh 3 (TR-3)*

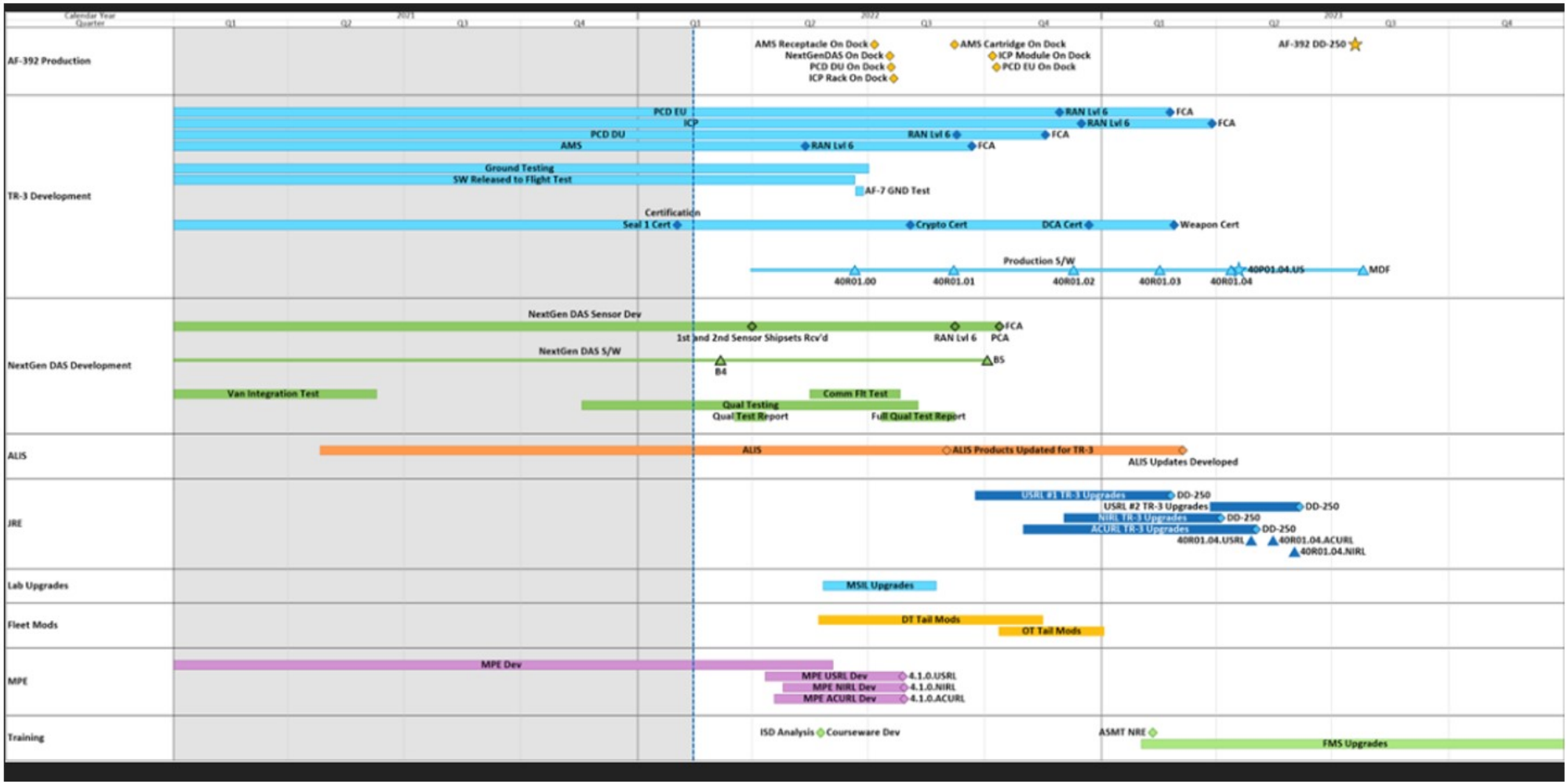


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2567 / *Air Vehicle - Technology Refresh 3 (TR-3)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2567				
Technology Refresh 3 (TR-3): Perform Safety of Flight Qualification Testing	1	2022	3	2022
Technology Refresh 3 (TR-3): Conduct TR-3 System Test Readiness Review	3	2022	3	2022
Technology Refresh 3 (TR-3): Perform Ground Test	4	2022	4	2022
Technology Refresh 3 (TR-3): Perform TR-3 Flight Test	4	2022	2	2023
Technology Refresh 3 (TR-3): Perform Final Hardware Qualification Testing	1	2022	1	2023
Technology Refresh 3 (TR-3): Deliver First Shipsets of TR-3 Hardware to Lot 15 Production Line	4	2022	4	2022
Technology Refresh 3 (TR-3): 1st Aircraft Lot 15 DD250	3	2023	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy												Date: March 2023
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0604840M / *F-35B C2D2*				Project (Number/Name) 2568 / *Air Vehicle Block 4 Planning & Sys Eng*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
2568: *Air Vehicle Block 4 Planning & Sys Eng*	0.000	168.878	211.087	177.118	-	177.118	179.737	131.748	86.477	123.886	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
Project MDAP/MAIS Code: 198												

Note

Beginning in FY2022, Air Vehicle - Block 4 Planning & Sys Eng was established as a separate, distinct project within the Continuous Capability Development & Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from Project Unit 3410, which is still included at the end of the R-2A for fiscal years FY2021. This Project Unit has also been updated to reflect the directed project categories to provide traceability between current execution and the FY2024 request.

A. Mission Description and Budget Item Justification

The F-35 Air Vehicle Program Management Office (AV PMO) development portfolio includes efforts to improve the F-35 air vehicle lethality, survivability, and interoperability in response to emerging threats outlined in the National Security Strategy and Operational Plans. The AV PMO delivers these capabilities utilizing a Continuous Capability Development and Delivery (C2D2) strategy combining traditional hardware upgrades and agile software integration processes. As a function of the F-35 organizational pivot, this is the first budget cycle in which AV PMO budget requirements have been comprehensively and discretely defined within a dedicated Project Unit.

F-35 Block 4 Modernization is designed to counter the full spectrum of evolving near-peer enemy threats to ensure US and Allied forces have freedom of operation even in the face of advanced adversary Anti-Access/Area Denial (A2/AD) capabilities. As designed, Block 4 consists of three principle lines of effort: development of software-based capabilities, development and integration of new and modernized aircraft hardware which enable the development of new capabilities, and new weapons integration. Efforts under the Air Vehicle / Block 4 Planning and Systems Engineering project range from requirements decomposition and preliminary design of capabilities through completion of Developmental Flight Test. These activities are a continuation of the previous Block 4 developmental contracts, and include activities required to enable the successful completion of Flight Test, to include select facility upgrades required for research, development, test and evaluation. Block 4 upgraded capabilities and continuous improvements will maintain Air System viability against the evolving threats indicated in the Electronic Warfare Initial Capabilities Document (ICD), the Fifth Generation Fighter Modernization ICD, and the Block 4 Capability Development Document (CDD). Additionally, the Block 4 capabilities will reduce life cycle cost, improve Air System Integration, and improve operational suitability. Weapons integration efforts included under this project include AARGM-ER integration, employment envelope expansion for current F-35 weapons, and Increased Air-to-Air Missile Carriage.

Included in the Air Vehicle (AV)/Block 4 Planning and Systems Engineering effort is both Prime and Government Systems Engineering Support needed for Avionics/ Electronic Warfare and Weapons Integration efforts to include studies, analysis and risk reduction efforts.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2568 / *Air Vehicle Block 4 Planning & Sys Eng*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Air Vehicle Planning & Sys Eng	168.878	211.087	177.118	0.000	177.118
Articles:	-	-	-	-	-
Description: The F-35 Air Vehicle Program Management Office (AV PMO) development portfolio includes efforts to improve the F-35 air vehicle lethality, survivability, and interoperability in response to emerging threats outlined in the National Security Strategy and Operational Plans. As designed, Block 4 consists of three principle lines of effort: development of software-based capabilities, development and integration of new and modernized aircraft hardware which enable the development of new capabilities, and new weapons integration. Included in the Air Vehicle (AV)/Block 4 Planning and Systems Engineering effort is both Prime and Government Systems Engineering Support needed for Avionics/Electronic Warfare and Weapons Integration efforts to include studies, analysis and risk reduction efforts.					
FY 2023 Plans: Continue with Agile development of capabilities through Developmental and Operational Flight Test. Continue requirements decomposition and preliminary design activities for advanced Block 4 capabilities. Continue development and maturity of key long lead capabilities and service unique weapons, enabling A2AD strategies including increased payloads, integrated fires, passive weapons, interoperability and multi-spectrum dominance in response to near-peer threats. Initiate development of enhanced cyber detection and mitigation capability for the F-35 in response to critical and emerging threats. Continue and expand application of cyber resilience engineering processes and tools for software, hardware, and weapons, though flight test. Continue and expand application of cyber resilient engineering processes and tools for software, hardware, and weapons, though flight test. Continuing development and timely delivery of software drops to meet warfighter need. Continue supporting efforts for airframe, air vehicle systems, Air-Ship integration, including Electromagnetic aircraft launch system - advanced arresting gear (EMALS-AAG) launch bulletins and related work, mission systems, future capabilities studies and weapons integration efforts. Continue support for Block 4 Capabilities and support preliminary systems engineering efforts associated with AARGM-ER, AGM-158 family of weapons, and increased air-to-air missile carriage. Continued systems engineering, integration, and test (SEIT) development for avionics, weapons, studies & analyses, and risk reduction efforts.					
FY 2024 Base Plans: Continue with Agile development of capabilities through Developmental and Operational Flight Test. Continue requirements decomposition and preliminary design activities for advanced Block 4 capabilities. Continue development and maturity of key long lead capabilities and service unique weapons, enabling A2AD strategies including increased payloads, integrated fires, passive weapons, interoperability and multi-spectrum dominance					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2568 / *Air Vehicle Block 4 Planning & Sys Eng*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
in response to near-peer threats. Initiate development of enhanced cyber detection and mitigation capability for the F-35 in response to critical and emerging threats. Continue and expand application of cyber resilience engineering processes and tools for software, hardware, and weapons, though flight test. Continue and expand application of cyber resilient engineering processes and tools for software, hardware, and weapons, though flight test. Continuing development and timely delivery of software drops to meet warfighter need. Continue supporting efforts for airframe, air vehicle systems, Air-Ship integration, including Electromagnetic aircraft launch system advanced arresting gear (EMALS-AAG) launch bulletins and related work, mission systems, future capabilities studies and weapons integration efforts. Continue support for Block 4 Capabilities and support preliminary systems engineering efforts associated with AARGM-ER, AGM-158 family of weapons, and increased air-to-air missile carriage. Continued systems engineering, integration, and test (SEIT) development for avionics, sensors, weapons, studies & analyses, and risk reduction efforts. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The decrease from FY2023 to FY2024 is due to completion of development and integration of the Block 4 capabilities. With the completion of SDD and introduction of the Block 4 development program, nearly 70 new capabilities were approved started, leading to an initial bow wave of development and associated costs culminating in FY23. The resultant steady state of development efforts in FY24 and beyond are projected to be at a lesser capacity than the peak established in the FY23 budget year.					
Accomplishments/Planned Programs Subtotals	168.878	211.087	177.118	0.000	177.118

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The C2D2 acquisition strategy is to employ both Cost and Fixed Price Incentive contracts for the Block 4 engineering and development efforts. A new modernization contract structure will be established for all post SDD Block 4 efforts. In addition, a separate Basic Ordering Agreement or Indefinite Quantity/Indefinite Delivery contract is planned to provide a long term approach to upgrading and maintaining laboratories and test aircraft and supporting technology maturation for future C2D2 capabilities. FY23 begins systems engineering, integration, and test (SEIT) development.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2568 / *Air Vehicle Block 4 Planning & Sys Eng*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
AV Prime LM Phase II Cape/Development	C/CPIF	Lockheed Martin : Ft Worth TX	0.000	151.300	Oct 2021	180.046	Oct 2022	128.030	Nov 2023	-		128.030	121.971	581.347	581.347
AV Prime LM Phase II Fee	C/CPIF	Lockheed Martin : Ft Worth TX	0.000	5.122	Oct 2021	5.122	Oct 2022	21.300	Nov 2023	-		21.300	0.000	31.544	31.544
AV Prime LM Air Vehicle Integration	C/CPFF	Lockheed Martin : Ft Worth TX	0.000	1.250	Oct 2021	1.250	Oct 2022	1.563	Nov 2023	-		1.563	1.024	5.087	5.087
AV Systems Engineering	Various	Various : Various	0.000	3.191	Dec 2021	4.312	Dec 2022	5.883	Nov 2023	-		5.883	7.410	20.796	20.796
AV Cyber Survivability	Various	Various : Various	0.000	0.000		4.917	Dec 2022	9.322	Nov 2023	-		9.322	32.500	46.739	46.739
		Subtotal	0.000	160.863		195.647		166.098		-		166.098	162.905	685.513	N/A

Remarks

1. Breaking out Cyber survivability as separate line item in FY23.
2. Phase 2.3 Performance Incentive Fee (PIF) events are tagged to incrementally mature hardware deliveries. FY24 will see increased hardware deliveries as development with potential PIF payouts upon delivery.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
AV Mission Systems Support	Various	Various : Various	0.000	5.265	Nov 2021	3.940	Nov 2022	5.009	Nov 2023	-		5.009	0.000	14.214	22.564
AV Vehicle Systems Support	Various	Various : Various	0.000	0.250	Nov 2021	8.500	Nov 2022	2.250	Nov 2023	-		2.250	0.000	11.000	13.500
AV CSO Development Support	Various	Various : Various	0.000	2.500	Nov 2021	3.000	Nov 2022	3.761	Nov 2023	-		3.761	Continuing	Continuing	Continuing
		Subtotal	0.000	8.015		15.440		11.020		-		11.020	Continuing	Continuing	N/A

Remarks

1. Increase FY23 AV Vehicle system support due to ramp up of EMALS AAG support.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / *F-35B C2D2*	Project (Number/Name) 2568 / *Air Vehicle Block 4 Planning & Sys Eng*	

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	168.878		211.087		177.118		-		177.118	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2568 / *Air Vehicle Block 4 Planning & Sys Eng*

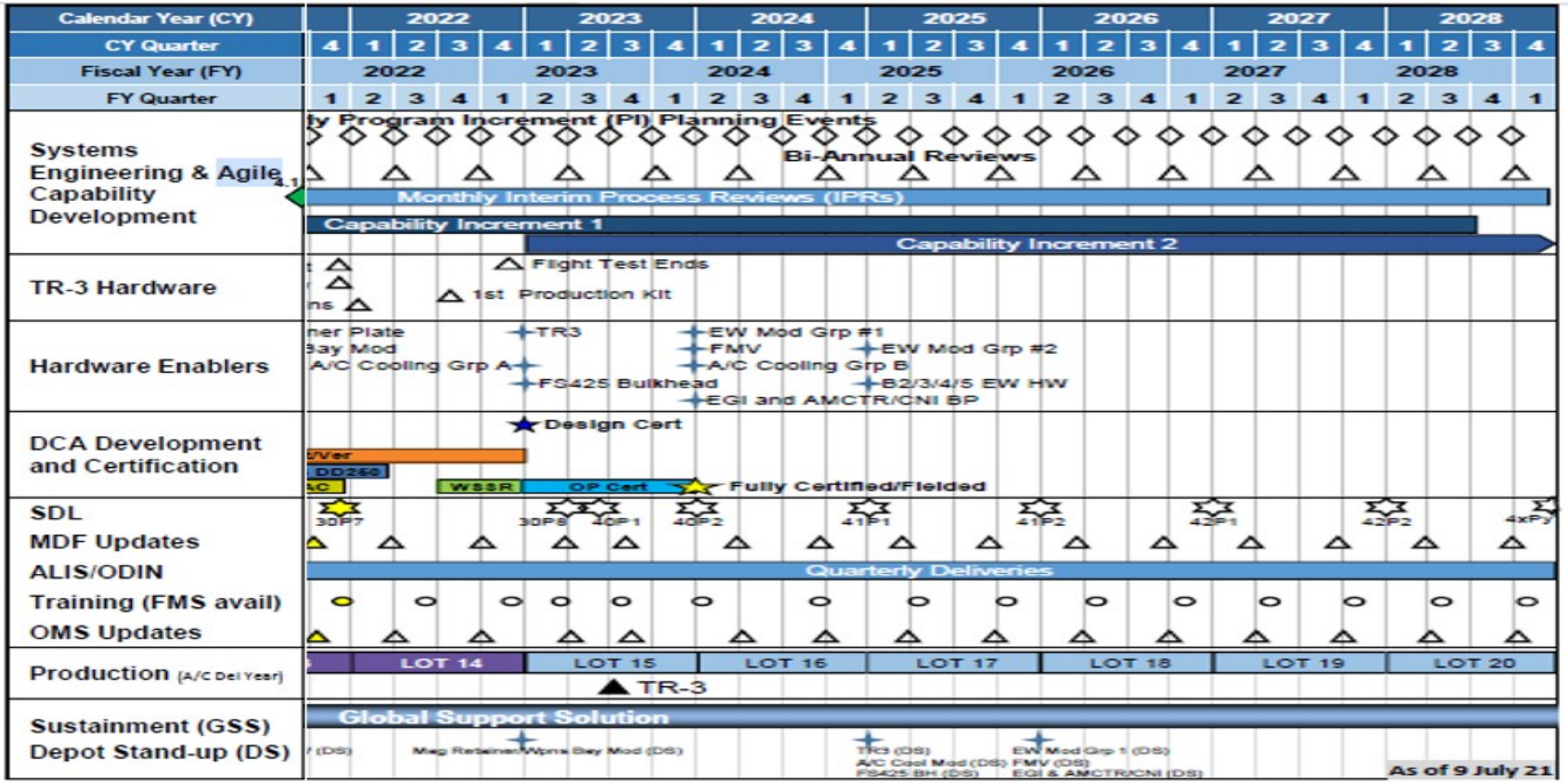


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2568 / *Air Vehicle Block 4 Planning & Sys Eng*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2568				
Systems Engineering & Agile Capability Development: Planning Events	1	2022	4	2028
Systems Engineering & Agile Capability Development: IPRs	1	2022	4	2028
Hardware Enablers: A/C Cooling	1	2022	4	2025
Hardware Enablers: Electronic Warfare (EW) Upgrade	1	2022	1	2028
Hardware Enablers: Embedded GPS Inertial (EGI)	1	2022	1	2027
Hardware Enablers: Beyond Line Of Sight (BLOS) Communications	4	2022	4	2028
Production: LOT 15	2	2023	1	2024
Production: LOT 16	2	2024	1	2025
Production: LOT 17	2	2025	1	2026
Production: LOT 18	2	2026	1	2027
Production: LOT 19	2	2027	1	2028
Production: LOT 20	2	2028	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / *F-35B C2D2*	Project (Number/Name) 2569 / *Test and Evaluation (T&E)*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2569: *Test and Evaluation (T&E)*	0.000	120.365	127.883	132.946	-	132.946	111.725	113.469	99.160	92.046	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 198

Note

Beginning in FY2022, Test and Evaluation (T&E) was established as a separate, distinct project within the Continuous Capability Development & Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from Project Unit 3410, which is still included at the end of the R-2A for fiscal years FY2021. This Project Unit has also been updated to reflect the directed project categories to provide traceability between current execution and the FY2024 request.

A. Mission Description and Budget Item Justification

Integrated Test activities in support of C2D2, to include Lockheed Martin support at all test sites. Non-recurring engineering required to plan for the service life extension of existing DT aircraft and modifications necessary to bring DT aircraft fleet to a more production-representative and sustainable configuration, and to develop flight test instrumentation and release test software to meet Block 4 requirements. Additional upgrades required to support development and evaluation of improvements driven by changes in the threat environment and as identified in the Electronic Warfare ICD, the Fifth Generation Fighter Modernization ICD, and the Block 4 Capability Development Document (CDD). Efforts include non-recurring engineering and procurement of a test article to evaluate service life of F-35B STOVL Aircraft. Integrated test also supports the evaluation of upgrades to ALIS, fielding of ODIN Base Kits, regression testing of fielded weapons upgrades, and various validation/verification efforts.

Costs in the Accomplishments/Planned and Program R2A section have been broken out into the following R-2A categories: Development Foundation Contract, Development Test, Operational Test, Future Flight Test Capabilities/Investments, Ground Test and Simulation Infrastructure. All of the development efforts presented in the budget submission existed in prior years and were rolled up under previously submitted Accomplishments/ Planned and Program costs in Test and Evaluation category.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Development Foundation Contract (DFC) Flight Test and Tech Refresh	41.404	42.661	41.635	0.000	41.635
Articles:	-	-	-	-	-
Description: Flight test infrastructure at Edwards Air Force Base (AFB) and Pax River Naval Air Station (NAS) and F-35 tech refresh for laboratory development at Fort Worth, TX for Lockheed Martin Aeronautics and its subcontractors (LM Aero). This includes investment planning and other test planning activities required for Block 4 development, integration, developmental test and evaluation. Funding is required for the Lockheed Martin Integrated Test Force contractor labor, suppliers, and material. Other support efforts are provided for airframe, air vehicle systems, air-ship integration, mission systems, weapons integration, offboard mission					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2569 / *Test and Evaluation (T&E)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
support, autonomic logistics development, joint reprogramming enterprise and modeling and joint simulation environment activities, including Nimble Lightning efforts. Other costs in support of ranges, chase planes and DT site operations. ***FY 2023 Plans:*** Support F-35 capability enhancements identified in approved requirements documents. DFC will provide flight test for C2D2 Block 4 capabilities including weapons testing, as well as continue annualized technology refresh and specific lab modernization efforts. These efforts will upgrade and modify hardware and software at the module level and facilitate test integration with the development process. ***FY 2024 Base Plans:*** Support F-35 capability enhancements. DFC will provide flight test for C2D2 Block 4 capabilities including weapons testing, as well as continue annualized equipment recapitalization along with technology refresh and specific lab modernization efforts. These efforts will sustain, replace, upgrade, and modify hardware and software. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease achieved by negotiating Development Foundation Contract to a lower cost while deferring FY24 efforts to ramp up again in FY25.					
Title: Developmental Test (DT)	17.825	20.326	19.120	0.000	19.120
Articles:	-	-	-	-	-
Description: Government test site Integrated Test activities to support development of Air Vehicle C2D2 and TR-3 programs, as well as inherent maintenance systems, training systems, and combat data systems test support. Testing includes ground, logistics, and flight testing of incremental flight software releases, weapon integration, DMS/ fleet sustainment, service-life extension, hardware refresh, and regression efforts to ensure total system integration meets program requirements. Test site capabilities to meet program requirements include infrastructure, ranges, engineering, administration, logistics, maintenance, controls, information technologies, classified facilities, and service unique					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2569 / *Test and Evaluation (T&E)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
supporting capabilities. The sites to be funded include but are not limited to NAWCAD Pax River, NAWCAD China Lake, and Edwards AFB. ***FY 2023 Plans:*** Continue to support Integrated Test capacity and flight test execution (manpower, weapons, flight hours, range time, and chase, target & tanker support assets) to develop and verify and test capabilities as directed by the F-35 JPO. Major program testing includes Block 4 weapons integration, incremental software releases with new capability and bug fixes, integrated system evaluations, multi-ship operations, and mission effectiveness evaluations. Continued funding for Development Test Aircraft Modification broken out from the rest of the Development activities. This is continued support from FY22 for Developmental Test (DT) aircraft modifications in order to be test-ready and operationally-representative. ***FY 2024 Base Plans:*** Continue to support Integrated Test capacity and flight test execution (manpower, weapons, flight hours, range time, and chase, target & tanker support assets) to develop and verify and test capabilities as directed by the F-35 JPO. Major program testing includes Block 4 weapons integration, integrated system evaluations, multi-ship operations, and mission effectiveness evaluations. Continued funding for Development Test Aircraft Modification broken out from the rest of the Development activities. This is continued support from FY22 for Developmental Test (DT) aircraft modifications in order to be test-ready and operationally-representative. Funding will also procure Developmental Test (DT) Kits. Continuing to support flight test capacity and flight test execution. This includes first increment testing through initial and fully operational increments. The funding will be used for continuing to develop and test incrementally, for new software releases and deficiency fixes. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease is due to the decrease in TR-3 Developmental Test (DT) efforts in FY24.					
Title: Operational Test (OT)	8.543	9.881	15.802	0.000	15.802
Articles:	-	-	-	-	-
Description: Government test site Integrated Test activities to support development of Air Vehicle C2D2 and TR-3 programs, as well as inherent maintenance systems, training systems, and combat data systems test support. Testing includes ground, logistics, and flight-testing of incremental flight software releases, weapon integration, DMS/fleet sustainment, hardware refresh and regression efforts to ensure total system integration					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2569 / *Test and Evaluation (T&E)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
meets program requirements in an operationally representative environment. Test site capabilities to meet program requirements include infrastructure, ranges, engineering, administration, logistics; maintenance, controls, information technologies, classified facilitates, and service unique supporting capabilities. The sites to be funded include but are not limited to Nellis AFB and Yuma Air Station. ***FY 2023 Plans:*** Funding will support Integrated Test capacity and flight test execution (manpower, weapons, flight hours, range time, and chase, target & tanker support assets) to develop and verify and test capabilities as directed by the F-35 JPO. Major program testing includes TR-3 integration, Block 4 weapons integration, incremental software releases with new capability and deficiency report fixes, integrated system evaluations, multi-ship operations and mission effectiveness evaluations in an operationally representative environment. Continued funding for Operational Test (OT) aircraft modifications in order to be test-ready and operationally-representative. Funding also includes the execution of the remaining 64 OT virtual mission trials and IOT&E close out tasks. ***FY 2024 Base Plans:*** Funding will support Integrated Test capacity and flight test execution (manpower, weapons, flight hours, range time, and chase, target & tanker support assets) to develop and verify and test capabilities as directed by the F-35 JPO. Major program testing includes TR-3 integration, Block 4 weapons integration, integrated system evaluations, multi-ship operations and mission effectiveness evaluations in an operationally representative environment. Continued funding for Operational Test (OT) aircraft modifications in order to be test-ready and operationally-representative. The funding will be used for continual to development through incremental test of new software and deficiency fixes. Funding also includes the execution of the remaining 64 OT virtual mission trials and IOT&E close out tasks. AV is the TR-3 system owner responsible for verifying capability (per their funding in PU 2567) with data provided from DT and OT funded in this chart. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase due to ramp up of Follow-on Modernization Phase 2.3 Operational Test Kit support.					
Title: Future Flight Test Capabilities/Investments	46.493	48.447	52.916	0.000	52.916
Articles:	-	-	-	-	-
Description: Test fleet modifications, test mission equipment/assets, instrumentation capability, and data center investments are required to continue to support Block 4 capability development and integrated test requirements. TR-3 related capability requires current test aircraft and replacement test aircraft configurations to be modified					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2569 / *Test and Evaluation (T&E)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
to new hardware, software, and instrumentation systems. Program priorities, flight test demand, data quantity/ bandwidth upgrades, and capability delivery schedules require a steady update to test fleet configurations. Modifications and instrumentation design/procurement/install are long-lead efforts requiring stable funding and contract vehicles to meet program needs. ***FY 2023 Plans:*** Continue incremental funding of Lot 14 Contract for FTI design, procurement and installation. Continues FTI design/ fabrication/installation (long-lead NRE, parts procurement, kit fabrication) for replacement test aircraft (16x unique designs). Continues NRE/procurement/installation to retrofit or maintain test aircraft viability. Additionally, development, procurement, and installation of flight test data center system upgrades to support Integrated Testing across multiple F-35 stakeholder sites. FTI development, procurement, fabrication, and installation for current/future service loaner aircraft in order to continue Integrated Testing with Service Operational Test organizations. Further, continue integration and procurement efforts for required Block 4 test mission assets, includes but not limited to weapons test vehicles, unique test mission equipment, and other test execution support equipment. ***FY 2024 Base Plans:*** Begin incremental funding for Flight Sciences Replacements jets FTI design, procurement and installation (1 per variant). Begin incremental funding for Flight Science Lite jets for FTI design in support of weapons testing (1xF-35B and 2xF-35C). Continues FTI design/fabrication/installation (long-lead NRE, parts procurement, kit fabrication) for replacement test aircraft (16x unique designs). Continues NRE/procurement/installation to retrofit or maintain test aircraft viability. Additionally, development, procurement, and installation of flight test data center system upgrades to support Integrated Testing across multiple F-35 stakeholder sites. FTI development, procurement, fabrication, and installation for current/future service loaner aircraft in order to continue Integrated Testing with Service Operational Test organizations. Further, continue integration and procurement efforts for required Block 4 test mission assets, includes but not limited to weapons test vehicles, unique test mission equipment, and other test execution support equipment. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase in funding due to continued ramp up of activities across the board, to include Lot 18/19 Flight Science, Flight					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2569 / *Test and Evaluation (T&E)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Science Lite, Operational Test in support of TR-3 Flight Test Instrumentation and ramp up in JASSM-ER/LRASM and AARGM-ER flight test assets in FY24.					
Title: Ground Test and Simulation Infrastructure (GTSI)	6.100	6.568	3.473	0.000	3.473
Articles:	-	-	-	-	-
Description: Development of Ground Test & Simulation Infrastructure capabilities from Block 4/TR-3 and other C2D2 early-on design and development through Installed Systems Verification activities prior to Developmental Flight Test for all variants of the F-35 aircraft. Infrastructure efforts include Laboratory Developments of Improvements & Modernization (I&M) assets used for design, development and test of Block 4 capabilities, and development of Ground Test & Evaluation Capabilities for digital and non-digital installed systems verification. Laboratory and/or Venue Developments will focus on the pure development of Block 4 capabilities through a Capability Verification Infrastructure that meets required fidelities that would advance the high-quality development of the Air System capabilities. Ground Test & Simulation Infrastructure will also include capabilities for cyber testing for TR-3 assessments within three main areas: air vehicle, information systems, and supply chain.					
FY 2023 Plans: Continue Ground Test & Simulation Infrastructure improvements and modernization capabilities needed for Block 4 air system developments to include but are not limited to Advanced Anti-Air Threat Simulation (AATS), Automatic Test & Re-Test (ATRT), Big Data Platform (BDP), Friendly and Threat Signal Development and Delivery, Multi-Spectral Environment improvements, etc. Efforts required to enable efficiencies in the Capability Verification process and decrease reliance on Flight Test Operations as the overwhelmingly sole means of Verification. Test Infrastructure improvements include Vendor lab capabilities as well as USG Organic Infrastructure. Develop F-35 mission threads for continued digital verification automated capabilities for early-on software development, and continue aircraft cyber improvements and testing efforts. Major Investments include improvements to Digital Capabilities and Analysis and Ground Integrated Battlespace Verification.					
FY 2024 Base Plans: Continue Ground Test & Simulation Infrastructure improvements and modernization capabilities needed for Block 4 air system developments. Efforts required to enable efficiencies in the Capability Verification process and decrease reliance on Flight Test Operations as the overwhelmingly sole means of Verification. Test Infrastructure improvements include Vendor lab capabilities as well as USG Organic Infrastructure. Develop F-35 mission threads for continued digital verification automated capabilities for early-on software development,					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2569 / *Test and Evaluation (T&E)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
and continue aircraft cyber improvements and testing efforts. Major Investments include improvements to Digital Capabilities and Analysis and Ground Integrated Battlespace Verification. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease due to fielding of some GT&S Developments for the Ground Test Infrastructure and other Developments. The GT&S Developments continue to be executed as planned for F-35 in FY25. This is subject to change in the future as advancements in Ground Test Infrastructure become available.					
Accomplishments/Planned Programs Subtotals	120.365	127.883	132.946	0.000	132.946

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The Test & Evaluation Project Unit will maximize use of existing F-35 contracts, where possible, for the various T&E-related capabilities and investments outlined in Sections A-C above. For example, provisions for new instrumentation on new flight test aircraft are being implemented when applicable via existing Production contracts in order to allow installation of the required hardware while those airframes are still on the assembly line. This will save significant costs and effort that would be required if instrumentation installation occurred after aircraft delivery. Other modifications and/or non-recurring engineering (NRE) may be implemented via existing contracts being managed by the Air Vehicle Program Management Office as part of the Block 4 engineering and development efforts. In addition, a separate Cost-Plus-Incentive-Fee-type contract is planned to provide a long-term approach to upgrading and maintaining laboratories and also for maintaining the older existing SDD test aircraft. Viability modifications to the SDD test aircraft are being contracted via a combination of Streamlined Delivery Orders for NRE and hardware as well as a Cost Plus-type contract, using both to expedite the right modifications as needed at the right time in order to avoid test aircraft grounding and to maximize their availability. In addition, separate Basic Ordering Agreements or Indefinite Quantity/Indefinite Delivery contracts may be used to implement a long-term approach to upgrading and maintaining laboratories and test aircraft and supporting technology maturation for future capabilities. Several new cost reduction initiatives are being studied to determine possible migration away from Lockheed-Martin support to less-expensive organic support (via either government solutions, local test-base support contracts, or a combination of both) in areas such as test aircraft maintenance, test operations support, and networks/knowledge management. Other initiatives are being pursued to move more test data collection requirements from the open-air ranges to ground test chambers, computer-based models and simulations, or other laboratory venues where possible.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2569 / *Test and Evaluation (T&E)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DFC - Prime LM Developmental Foundation Contract	C/CPIF	Lockheed Martin : Ft. Worth, TX	0.000	40.454	Nov 2021	41.029	Nov 2022	36.728	Nov 2023	-		36.728	184.640	302.851	302.851
OT - Prime LM Operation Test Aircraft Modification	C/CPIF	Lockheed Martin : Ft. Worth, TX	0.000	1.163	Jun 2022	1.800	Jun 2023	9.286	Aug 2024	-		9.286	8.941	21.190	21.190
FI - Prime LM DT AC Viability	C/CPIF	Lockheed Martin : Ft. Worth, TX	0.000	12.000	Dec 2021	12.938	Dec 2022	40.351	Dec 2023	-		40.351	17.414	82.703	82.703
FI - Flight Test Asset	C/CPFF	Lockheed Martin : Ft. Worth, TX	0.000	24.187	Dec 2021	25.201	Dec 2022	10.885	Dec 2023	-		10.885	22.741	83.014	83.014
DT- Prime LM Development Test Aircraft Modification	C/CPIF	Lockheed Martin : Ft. Worth, TX	0.000	1.000	Mar 2022	4.275	Dec 2022	2.204	Aug 2024	-		2.204	9.941	17.420	17.420
Laboratory Developments	C/CPIF	Lockheed Martin : Ft. Worth, TX	0.000	0.000		0.000		4.907	Nov 2023	-		4.907	0.000	4.907	4.907
		Subtotal	0.000	78.804		85.243		104.361		-		104.361	243.677	512.085	N/A

Remarks

R-3 Acronyms correspond to R-2A categories, per below breakout:
DFC - Development Foundation Contract (DFC) Flight Test
OT - Operational Test
DT - Developmental Test
FI - Future Flight Test Capabilities and Investments
GTS - Ground Test Simulation and Infrastructure

Flight Test assets include DT and OT weapons procurement to support Test and assets needed for flight test instrumentation

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	MIPR	Edwards AFB : Edwards AFB, CA	0.000	8.630	Dec 2021	9.057	Dec 2022	7.960	Dec 2023	-		7.960	16.390	42.037	42.037
Developmental Test & Evaluation (DT&E)	MIPR	IDT : Ballston, VA	0.000	0.410	Dec 2021	0.431	Dec 2022	0.766	Dec 2023	-		0.766	1.639	3.246	3.246

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / *F-35B C2D2*	Project (Number/Name) 2569 / *Test and Evaluation (T&E)*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	MIPR	JHU : Lauren, MD	0.000	7.785	Dec 2021	8.195	Dec 2022	0.414	Dec 2023	-		0.414	23.355	39.749	39.749
Developmental Test & Evaluation (DT&E)	WR	NAWCAD : Patuxent River, MD	0.000	5.089	Dec 2021	5.331	Dec 2022	7.911	Dec 2023	-		7.911	27.184	45.515	45.515
Developmental Test & Evaluation (DT&E)	WR	NAWCWD : China Lake, CA	0.000	8.746	Dec 2021	10.307	Dec 2022	0.666	Dec 2023	-		0.666	24.292	44.011	44.011
Operational Test & Evaluation (OT&E)	MIPR	Edwards AFB : Edwards AFB, CA	0.000	4.091	Dec 2021	2.750	Nov 2022	0.508	Nov 2023	-		0.508	Continuing	Continuing	Continuing
Operational Test & Evaluation (OT&E)	MIPR	Eglin AFB : Eglin AFB, FL	0.000	5.513	Apr 2022	5.204	Jul 2023	0.636	Jun 2024	-		0.636	8.238	19.591	19.591
Operational Test & Evaluation (OT&E)	WR	NAWCAD : Patuxent River, MD	0.000	1.297	Dec 2021	1.365	Dec 2022	0.098	Dec 2023	-		0.098	5.519	8.279	8.279
Operational Test & Evaluation (OT&E)	WR	NAWCWD : China Lake, CA	0.000	0.000		0.000		4.029	Dec 2023	-		4.029	0.000	4.029	4.029
Operational Test & Evaluation (OT&E)	MIPR	Nellis AFB : Nellis AFB, NV	0.000	0.000		0.000		4.968	Dec 2023	-		4.968	0.000	4.968	4.968
Operational Test & Evaluation (OT&E)	MIPR	NSMA : NSMA	0.000	0.000		0.000		0.629	Dec 2023	-		0.629	0.000	0.629	0.629
		Subtotal	0.000	41.561		42.640		28.585		-		28.585	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	120.365		127.883		132.946		-		132.946	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2569 / *Test and Evaluation (T&E)*

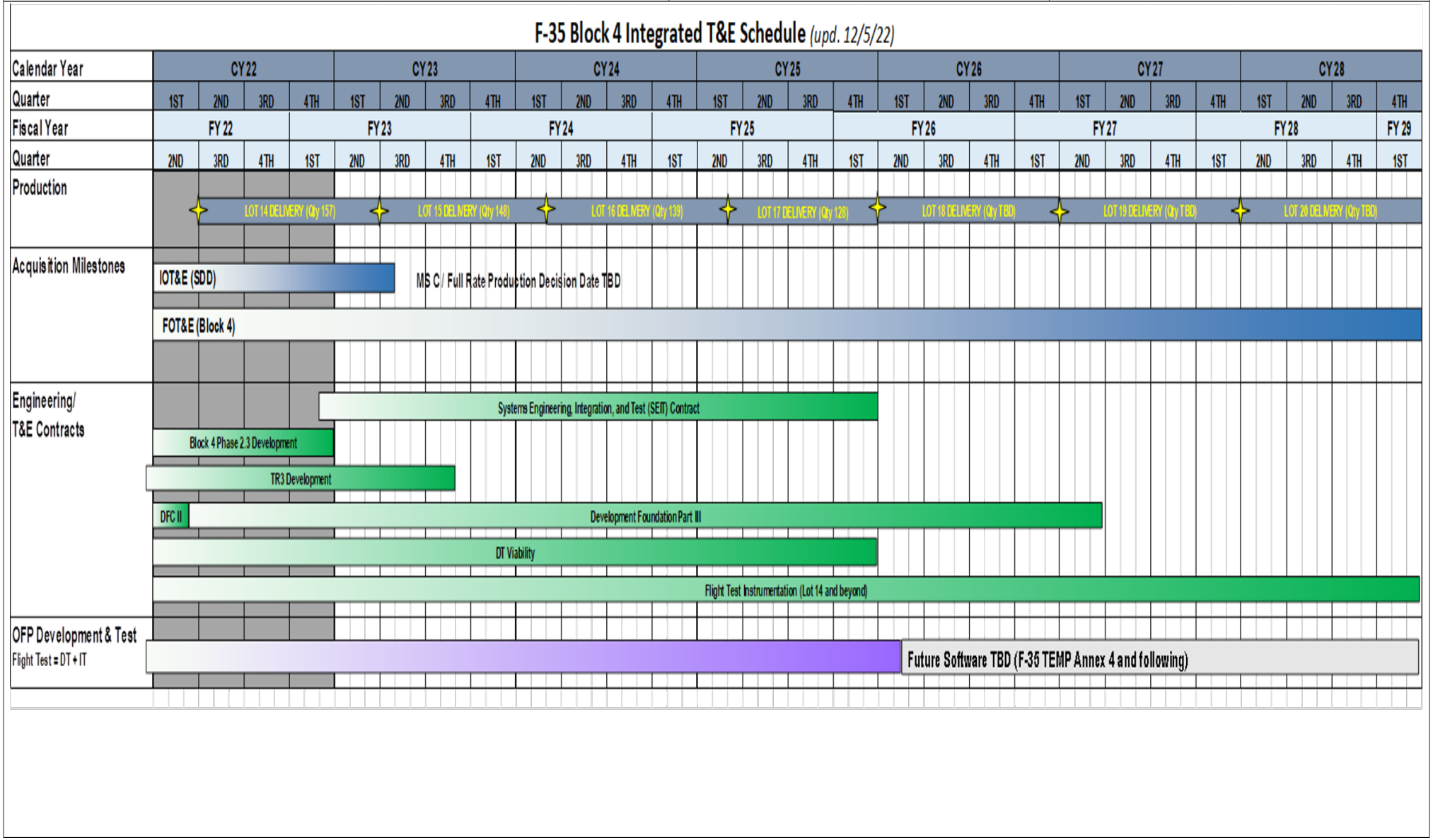


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2569 / *Test and Evaluation (T&E)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2569				
Development Foundation Contract Part III	1	2022	2	2027
DT Aircraft Viability	1	2022	1	2026
Flight Test Instrumentation	1	2022	4	2028
Systems Engineering, Integration, and Test Contract	1	2023	1	2026
OFP Development & Test	1	2022	2	2026

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0604840M / *F-35B C2D2*				Project (Number/Name) 2570 / *Propulsion (PP)*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
2570: *Propulsion (PP)*	0.000	14.541	7.436	130.251	-	130.251	135.151	103.927	107.933	98.294	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 198

Note

Beginning in FY2022, Propulsion (PP) was established as a separate, distinct project within the Continuous Capability Development & Delivery (C2D2) Program Element, per Congressional direction. This Project Unit includes continued efforts from Project Unit 3410 prior years. This Project Unit has been updated to reflect the directed project categories to provide traceability between current execution and future requests.

A. Mission Description and Budget Item Justification

Propulsion F135 projects within the Continuous Capability Development & Delivery (C2D2) are provided for developmental efforts for propulsion systems and test engine requirements such as Block 4 Integrated Flight Test Support, Engine Flight Test Mechanics, Flight Test Engineering, Engine Hardware, Test Engine Procurements, research, component and capability development, prototypes, various studies, and other associated government costs integral to support the developmental stages for F-35 engine modernization, affordability drivers for top engine availability degraders, and improvement to support the F135 Propulsion System for the F-35 Air Vehicle. Testing and development of the three F-35 aircraft variants require engine propulsion funding to enable continued flight hours. Flight hours are budgeted and planned to meet the Block 4 flight test timelines, and required Flight Test support. Flight Test Support efforts will transition to Organic support by FY2026. Transition of Flight Test Support requirements to organic capability includes efforts performed by contractor and government installations, Autonomic Logistics Information System / Operational Data Integrated Network (ALIS/ODIN) transition, and Final Flight Release (FFR) engine support efforts. Propulsion C2D2 provides funding for requirements to support the Air Vehicle modernization efforts with signature predicting improvements and a bridge program for engine modernization. Engine Modernization is part of the wider Air System Modernization effort. In FY22 and FY23, there was a Congressional Add for F135 Engine Enhancement that is being used to fund F135 Engine Core Upgrade (ECU) Preliminary Design through a Preliminary Design Review in December 2023. Starting in FY24, Engine Modernization will be funded through the standard funding process. ECU Detailed Design labor will be added to the F135 Engine Enhancement contract in December 2024, and the rest of ECU EMD will be awarded in June 2024.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Propulsion (PP)	14.541	7.436	130.251	0.000	130.251
Articles:	-	-	-	-	-
Description: Propulsion F135 projects within the Continuous Capability Development & Delivery (C2D2) are provided for developmental efforts for propulsion systems and test engine requirements such as Block 4 Integrated Flight Test Support, Engine Flight Test Mechanics, Flight Test Engineering, Engine Hardware, Test Engine Procurements, research, component and capability development, prototypes, various studies, and other associated government costs integral to support the developmental stages for F-35 engine modernization,					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2570 / *Propulsion (PP)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
affordability drivers for top engine availability degraders, and improvement to support the F135 Propulsion System for the F-35 Air Vehicle. Testing and development of the three F-35 aircraft variants require engine propulsion funding to enable continued flight hours. Flight hours are budgeted and planned to meet the Block 4 flight test timelines, and required Flight Test support. Flight Test Support efforts will transition to Organic support by FY2026. Transition of Flight Test Support requirements to organic capability includes efforts performed by contractor and government installations, Autonomic Logistics Information System / Operational Data Integrated Network (ALIS/ODIN) transition, and Final Flight Release (FFR) engine support efforts. Propulsion C2D2 provides funding for requirements to support the Air Vehicle modernization efforts with signature predicting improvements and a bridge program for engine modernization. Engine Modernization is part of the wider Air System Modernization effort. Starting in FY24, Engine Modernization will be funded through the standard funding process. ECU Detailed Design labor will be added to the F135 Engine Enhancement contract in December 2024, and the rest of ECU EMD will be awarded in June 2024. ***FY 2023 Plans:*** Continued Propulsion F135 Block 4 Integrated Flight Test Support to include Engine Flight Test Mechanics, Flight Test Engineering, Engine Hardware, Test Engine Procurements, research, component and capability development, prototypes, various studies, and other associated government costs integral to support the developmental stages for engine modernization and improvement to support the F135 Air Vehicle. The Flight Test Fleet will maintain elevated aircraft inventory at twelve aircraft in FY2023. This includes seven at Edwards Air Force Base and five at Patuxent River Naval Air Base. Flights and Engine Flight Hours (EFH) are expected to maintain their FY2021 and FY2022 levels at 240 flights and 480 flight hours per quarter. Flight Test Support efforts will transition to Organic support by FY2027. Transition of Flight Test Support requirements to organic capability includes efforts performed by contractor and government installations, Autonomic Logistics Information System / Operational Data Integrated Network (ALIS/ODIN) transition, and Final Flight Release (FFR) engine support efforts. FY2023 Propulsion C2D2 provides funding for requirements to support the Air Vehicle modernization efforts, Engine signature predicting improvement efforts, and continuing F135 Engine Modernization developmental efforts. ***FY 2024 Base Plans:*** Continued Propulsion F135 Block 4 Integrated Flight Test Support to include Engine Flight Test Mechanics, Flight Test Engineering, Engine Hardware, Test Engine Procurements, research, component and capability development, prototypes, various studies, and other associated government costs integral to support the developmental stages for engine modernization and improvement to support the F135 Air Vehicle. Propulsion Flight Test Support enables the execution of F135 Air Vehicle Air System Playbook (ASP 16.1), and Technology					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2570 / *Propulsion (PP)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Refresh 3 (TR3) Requirements. The Flight Test Fleet will maintain similar elevated aircraft inventory at twelve aircraft in FY2024. This includes seven at Edwards Air Force Base and five at Patuxent River Naval Air Base. Flights and Engine Flight Hours (EFH) are expected to maintain their prior year levels at 240 flights and 480 flight hours per quarter. Flight Test Support efforts will transition to Organic support by FY2027. Transition of Flight Test Support requirements to organic capability includes efforts performed by contractor and government installations, Autonomic Logistics Information System / Operational Data Integrated Network (ALIS/ODIN) transition, and Final Flight Release (FFR) engine support efforts. FY2024 Propulsion C2D2 provides funding for requirements to support the Air Vehicle modernization efforts, Engine signature predicting improvement efforts, and continuing F135 Engine Modernization/Propulsion System Upgrade developmental efforts. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY2023 to FY2024 due to Air Vehicle modernization efforts and continuing F135 Engine Modernization/Propulsion System Upgrade developmental efforts. FY24 Budget includes first year of EMD program for ECU, greatly increasing development funding in FY24.					
Accomplishments/Planned Programs Subtotals	14.541	7.436	130.251	0.000	130.251

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The C2D2 acquisition strategy is to employ both Cost and Fixed Price Incentive contracts for the Block 4 engineering and development efforts. A new modernization contract structure will be established for all post SDD Block 4 efforts. In addition, a separate Basic Ordering Agreement or Indefinite Quantity/Indefinite Delivery contract is planned to provide a long term approach to upgrading and maintaining laboratories and test aircraft and supporting technology maturation for future C2D2 capabilities.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2570 / *Propulsion (PP)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PP Prime PW C2D2 Propulsion DT Aircraft Procurement Engines	C/FPIF	Pratt & Whitney : East Hartford, Connecticut	0.000	5.870	Nov 2021	0.500	Nov 2022	0.000		-		0.000	0.000	6.370	6.370
PP Prime PW C2D2 Propulsion Flight Test	C/CPIF	Pratt & Whitney : East Hartford, Connecticut	0.000	6.767	Oct 2021	5.905	Oct 2022	7.200	Oct 2023	-		7.200	5.469	25.341	25.341
PP DevSecOps Emulation Lab	C/CPIF	Pratt & Whitney : East Hartford, Connecticut	0.000	1.229	Oct 2021	0.000		0.000		-		0.000	0.000	1.229	1.229
PP F135 Engine Modernization Development	Various	Various : Various	0.000	0.572	Oct 2021	0.736	Oct 2022	70.881	Jun 2024	-		70.881	0.000	72.189	72.189
PP F135 Engine Modernization Detailed Design	C/CPFF	Pratt & Whitney : East Hartford, Connecticut	0.000	0.000		0.000		50.000	Dec 2023	-		50.000	0.000	50.000	50.000
		Subtotal	0.000	14.438		7.141		128.081		-		128.081	5.469	155.129	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PP Program Management Support	Various	Various : Various	0.000	0.103	Nov 2021	0.295	Nov 2022	2.170	Jan 2024	-		2.170	Continuing	Continuing	Continuing
		Subtotal	0.000	0.103		0.295		2.170		-		2.170	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	14.541		7.436		130.251		-		130.251	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2570 / *Propulsion (PP)*

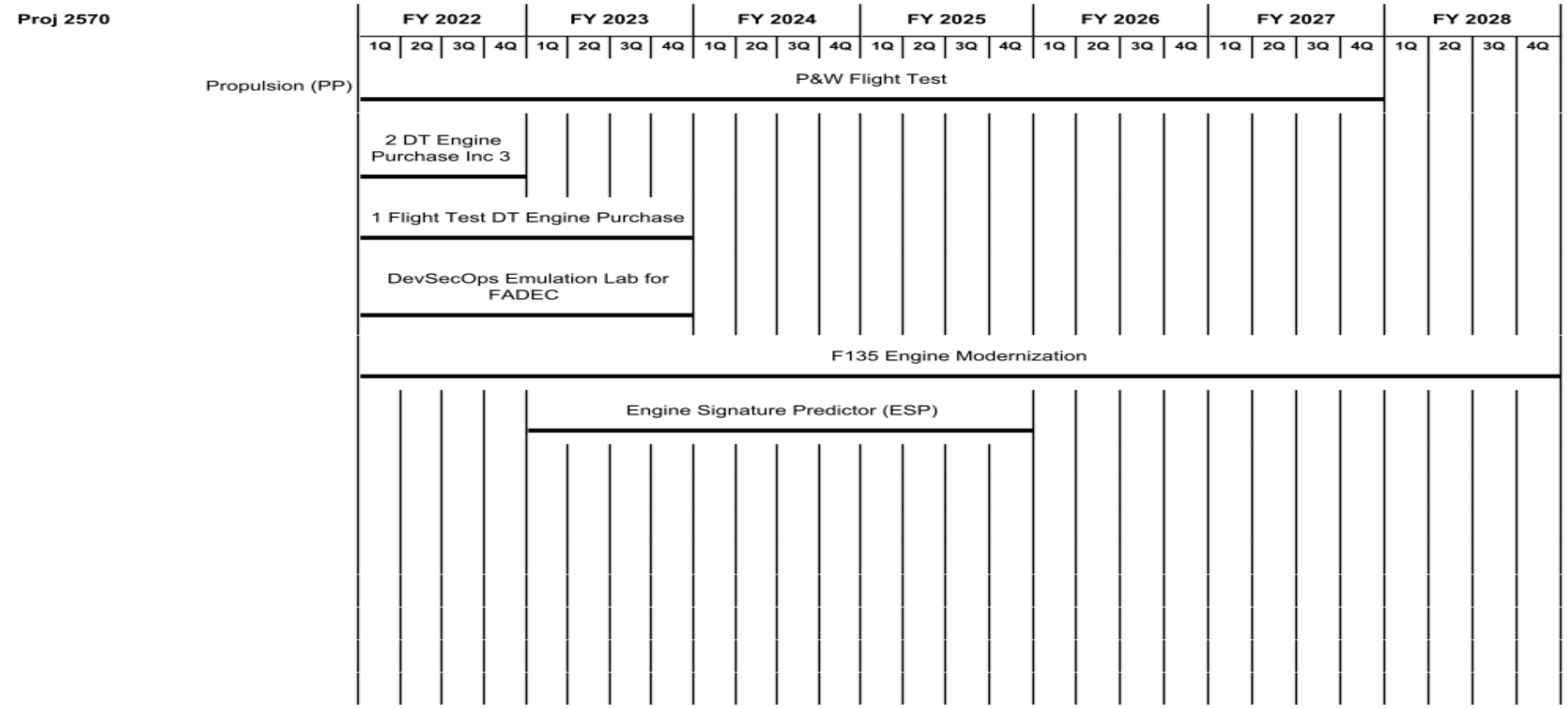


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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2570 / *Propulsion (PP)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2570				
Propulsion (PP): P&W Flight Test	1	2022	4	2027
Propulsion (PP): 2 DT Engine Purchase Inc 3	1	2022	4	2022
Propulsion (PP): 1 Flight Test DT Engine Purchase	1	2022	4	2023
Propulsion (PP): DevSecOps Emulation Lab for FADEC	1	2022	4	2023
Propulsion (PP): F135 Engine Modernization	1	2022	4	2028
Propulsion (PP): Engine Signature Predictor (ESP)	1	2023	4	2025

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / *F-35B C2D2*	Project (Number/Name) 2571 / *Maintenance Systems (MxS)*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2571: *Maintenance Systems (MxS)*	0.000	21.937	24.805	18.106	-	18.106	18.797	15.697	14.602	14.397	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 198

Note

Beginning in FY2022, Maintenance Systems (MxS) was established as a separate, distinct project within the Continuous Capability Development & Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from Project Unit 3410, which is still included at the end of the R-2A for fiscal years FY2021. This Project Unit has also been updated to reflect the directed project categories to provide traceability between current execution and the FY2024 request.

A. Mission Description and Budget Item Justification

Autonomic Logistics Information System (ALIS) is the current F-35 program solution for delivering core maintenance and logistics information solutions to F-35 warfighters. ALIS will continue to deliver the core logistics and maintenance infrastructure requirements for the F-35 enterprise as ALIS evolves into Operational Data Integrated Network (ODIN). ALIS includes features such as aircraft scheduling, training delivery, record keeping, technical data delivery, supply chain management, maintenance management, pilot and maintenance debriefing, and mission planning. Current ALIS development efforts are focused on low cost and high return investments that provide a high confidence return on investment in the short term, significant warfighter impact, and/or offer synergy with ODIN development efforts.

ODIN will incrementally provide a modern, user-friendly integrated information system for the F-35 to deliver core maintenance and logistics information solutions. ODIN will be comprised of multiple elements to include modern hardware, architectures, software development methods, data environments, and platforms. Leveraging agile and modern software development practices, ODIN will serve as the primary logistics tool to support F-35 warfighter operations, health and diagnostics, mission planning, supply chain management, maintenance, and training. ODIN will substantially decrease F-35 administrator and maintainer workload, increase readiness rates for all F-35 variants, and allow software engineers to rapidly develop and deploy updates in response to changing warfighter requirements and improve data management, quality, and integrity. The ALIS to ODIN transition is intended to enable holistic fleet management, improve performance, enhance readiness, and reduce costs to the F-35 program. ODIN is comprised of both hardware and software which support the flow of Unclassified and Classified aircraft and maintenance-related data.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Operational Data Integrated Network (ODIN)	20.987	24.305	18.106	0.000	18.106
Articles:	-	-	-	-	-
Description: ODIN will incrementally provide a modern, user-friendly integrated information system for the F-35 to deliver core maintenance and logistics information solutions. ODIN will be comprised of multiple elements to include modern hardware, architectures, software development methods, data environments, and platforms.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2571 / *Maintenance Systems (MxS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Leveraging agile and modern software development practices, ODIN will serve as the primary logistics tool to support F-35 warfighter operations, health and diagnostics, mission planning, supply chain management, maintenance, and training. ODIN will substantially decrease F-35 administrator and maintainer workload, increase readiness rates for all F-35 variants, and allow software engineers to rapidly develop and deploy updates in response to changing warfighter requirements and improve data management, quality, and integrity. The ALIS to ODIN transition is intended to enable holistic fleet management, improve performance, enhance readiness, and reduce costs to the F-35 program. ODIN is comprised of both hardware and software which support the flow of Unclassified and Classified aircraft and maintenance-related data. ***FY 2023 Plans:*** Continue to modernize and reduce sustainment costs of the F-35 logistics information system by delivering incremental capabilities to transition aircraft, data, and operations from ALIS to ODIN. Initiate next-gen ODIN hardware refresh analysis and trade studies to support targeted five year hardware replacement. Implement the ODIN cloud-based infrastructure, migrate ALIS development into the government managed cloud environment, and begin transition to the new ODIN Enterprise Architecture. Continue modernization of the ODIN data architecture and implementation of the government managed ODIN DataOps. Efforts will continue in cybersecurity survivability and development of user-focused training. Execute efforts continuing to modernize current logistics applications where applicable. ***FY 2024 Base Plans:*** Complete ALIS to ODIN software containerization efforts and development of foundational infrastructure for software and data modernization to increase user capability. Continue development of the Linux platform and ODIN data architecture. Finalize current generation hardware update. Continue analysis of alternatives on next-generational hardware tech insertion supporting ODIN development and test plan as well as capability requirements that are not currently encompassed in the baseline equipment. Optimize the ODIN cloud-based infrastructure while continuing migration and modernization of the ODIN enterprise. Leverage the establishment of modern software architecture from Unclassified development efforts to develop and release the Classified portion of the F-35 Maintenance Systems ODIN enterprise. Develop and deploy improved capabilities to replace legacy applications. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:***					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2571 / *Maintenance Systems (MxS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
The decrease from FY2023 to FY2024 is due to a periodic ramp down in hardware development as requirements are finalized following FY2023 current generation hardware development efforts.					
Title: Prognostics and Health Management (PHM) ***Articles:***	0.950 -	0.500 -	0.000 -	0.000 -	0.000 -
Description: Prognostics and Health Management (PHM) encompasses the Air-System set of software, technical data and capabilities to enable optimal maintenance, and resolution of aircraft failures and impending failures. On-aircraft software identifies failures, enables reporting of status to the pilot, and records data for life cycle management and sustaining engineering. The data processed by ALIS/ODIN supports maintenance debriefs, life cycle management via Assess Material Condition (AMC), and failure resolution via Health Reporting Codes (HRCs) and Anomaly and Failure Resolution System (AFRS). Maintenance performance (inclusive of reliability and maintainability) is enhanced via the collection and reporting of the Failure Reporting and Corrective Action System (FRACAS). Applied advanced analytics on the aggregate PHM is used for airframe lifting and enterprise use, and improves responsiveness to operational needs. ***FY 2023 Plans:*** Continue development of PHM failure resolution improvements by analyzing Anomaly and Failure Resolution System (AFRS) technical data, as identified by the associated affordability war room initiatives and Performance-to-Plan metrics, and Assess Material Condition algorithm development and implementation. Continue development of government-hosted PHM data storage and analytics infrastructure. Continue Systems Engineering and architecture development of PHM Downlink capability. ***FY 2024 Base Plans:*** N/A ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The decrease from FY2023 to FY2024 is due to program development and implementation of 12 of the 15 priority AMC algorithms on non-Annualized FY22-23 SAHW Mod 89 contract vehicle in FY2022. Final 3 algorithms began development in FY2022 and were completed in FY2023.					
Accomplishments/Planned Programs Subtotals	21.937	24.805	18.106	0.000	18.106

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2571 / *Maintenance Systems (MxS)*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2571 / *Maintenance Systems (MxS)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MxS Prime LM ODIN	C/CPFF	Lockheed Martin : FT. Worth, TX	0.000	15.206	Nov 2021	19.791	Nov 2022	8.601	Nov 2023	-		8.601	36.012	79.610	79.610
MxS Prime PW ODIN	C/CPFF	Pratt Whitney : East Hartford, Connecticut	0.000	0.985	Nov 2021	0.821	Nov 2022	1.900	Nov 2023	-		1.900	2.211	5.917	5.917
MxS Prime LM PHM	C/CPFF	Lockheed Martin : FT. Worth, TX	0.000	0.950	Nov 2021	0.500	Nov 2022	0.000		-		0.000	0.000	1.450	1.450
		Subtotal	0.000	17.141		21.112		10.501		-		10.501	38.223	86.977	N/A

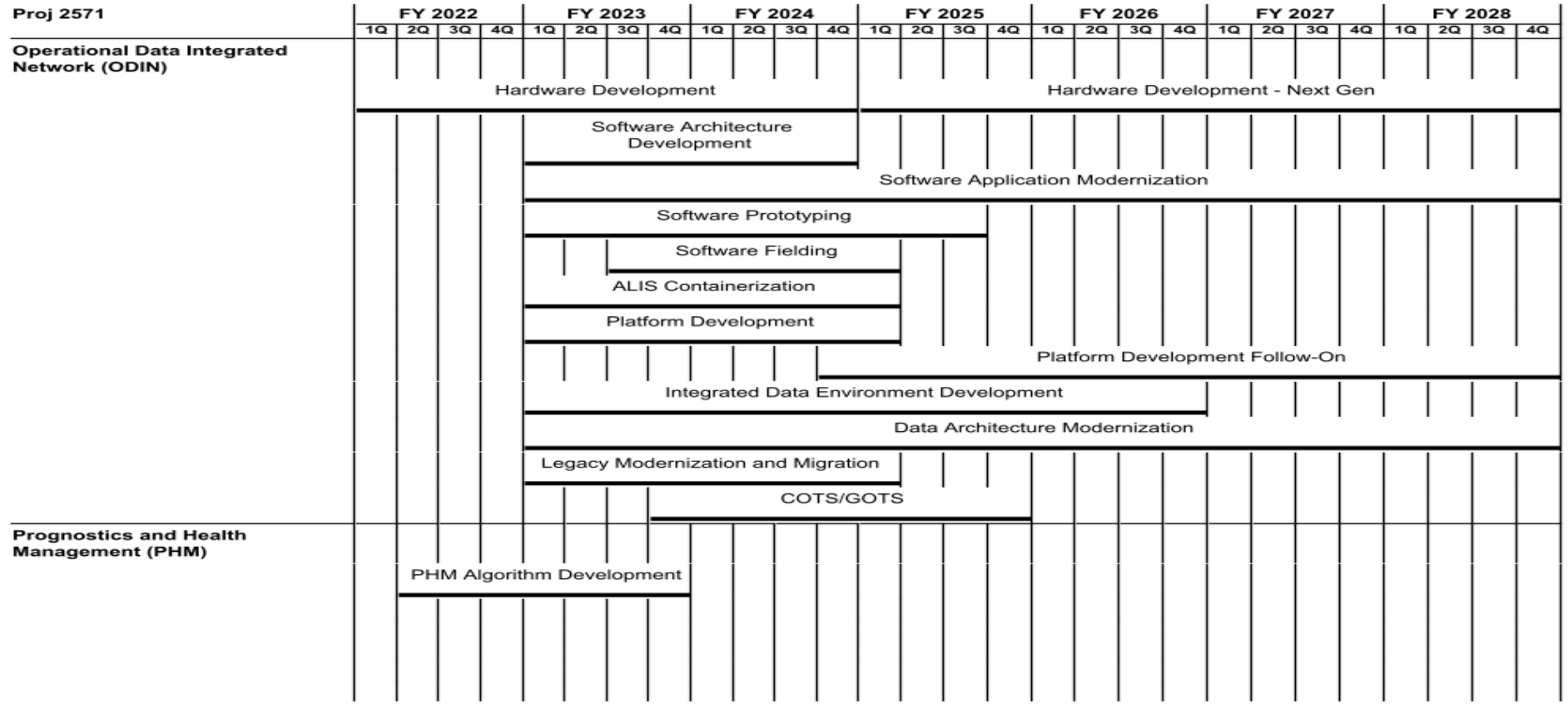
Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MxS ODIN Development Support	Various	Various : Various	0.000	4.796	Nov 2021	3.693	Nov 2022	7.605	Nov 2023	-		7.605	Continuing	Continuing	Continuing
		Subtotal	0.000	4.796		3.693		7.605		-		7.605	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	21.937		24.805		18.106		-		18.106	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2571 / *Maintenance Systems (MxS)*



2024PB - 0604840M - 2571

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2571 / *Maintenance Systems (MxS)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2571				
Operational Data Integrated Network (ODIN): Hardware Development	1	2022	4	2024
Operational Data Integrated Network (ODIN): Hardware Development - Next Gen	1	2025	4	2028
Operational Data Integrated Network (ODIN): Software Architecture Development	1	2023	4	2024
Operational Data Integrated Network (ODIN): Software Application Modernization	1	2023	4	2028
Operational Data Integrated Network (ODIN): Software Prototyping	1	2023	3	2025
Operational Data Integrated Network (ODIN): Software Fielding	3	2023	1	2025
Operational Data Integrated Network (ODIN): ALIS Containerization	1	2023	1	2025
Operational Data Integrated Network (ODIN): Platform Development	1	2023	1	2025
Operational Data Integrated Network (ODIN): Platform Development Follow-On	4	2024	4	2028
Operational Data Integrated Network (ODIN): Integrated Data Environment Development	1	2023	4	2026
Operational Data Integrated Network (ODIN): Data Architecture Modernization	1	2023	4	2028
Operational Data Integrated Network (ODIN): Legacy Modernization and Migration	1	2023	1	2025
Operational Data Integrated Network (ODIN): COTS/GOTS Application Configuration, Software Development, and Integration	4	2023	4	2025
Prognostics and Health Management (PHM): PHM Algorithm Development	2	2022	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / *F-35B C2D2*	Project (Number/Name) 2572 / *Combat Data Systems (CDS)*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2572: *Combat Data Systems (CDS)*	0.000	20.355	26.396	17.817	-	17.817	16.330	9.992	19.308	9.505	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 198

Note

Beginning in FY2022, Combat Data Systems (CDS) was established as a separate, distinct project within the Continuous Capability Development & Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from Project Unit 3410, which is still included at the end of the R-2A for fiscal years FY2021. This Project Unit has also been updated to reflect the directed project categories to provide traceability between current execution and the FY2024 request.

A. Mission Description and Budget Item Justification

Investment and modernization activities required for Block 4 development, integration, test and evaluation of Mission Data Tools, Verification & Validation Systems, and Mission Planning Software/Hardware. Funding related to key deliveries to Electronic Warfare Squadrons and F-35 Operational Squadrons and enables government and contractor labor for mission planning support environment and joint reprogramming enterprise. Other costs support Technology Investment for key Modernization / Innovation activities and cloud-based DevSecOps infrastructure.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Joint Reprogramming Environment (JRE)	12.050	19.768	12.822	0.000	12.822
Articles:	-	-	-	-	-
Description: Investment and modernization activities required for Block 4 development, integration, test and evaluation of Mission Data Tools, Verification & Validation Systems, and Mission Planning Software/Hardware. Funding related to key deliveries to Electronic Warfare Squadrons and F-35 Operational Squadrons and enables government and contractor labor for mission planning support environment and joint reprogramming enterprise. Other costs support Technology Investment for key Modernization/Innovation activities and Cloud based DevSecOps infrastructure.					
FY 2023 Plans: Continue efforts for the AGILE development of Common Reprogramming Tools (CRT) to provide Electronic Warfare Squadrons with essential software tools that reduce Mission Data File (MDF) development time and human error and increase combat effectiveness. The CRT effort will continue software coding and testing to support development / deployment of the software tool. Continue ongoing design and delivery efforts to upgrade Reprogramming Verification & Validation Systems (RVVS) to meet the Block 4 capability requirements					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2572 / *Combat Data Systems (CDS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
and meet next generation threats. Continue ongoing efforts to support aircraft in relation to Technology Refresh-3 (TR-3), Continuous Development Capability Delivery (C2D2), and Network Boundary Consolidation. Continue development support for defining, managing and acquiring the F-35 Reprogramming capability enhancements identified in approved requirements documents for Block 4 and modernization efforts and support efforts for joint reprogramming enterprise activities, including CRT and Software In The Loop (SITL). Begin efforts on the Systems, Engineering, Integration & Test (SEIT) contract to integrate Block 4 software data loads at reprogramming laboratories. Begin efforts to perform laboratory integration to complete of the F-35 Reprogramming Laboratory (FRL). ***FY 2024 Base Plans:*** Complete efforts for the AGILE development of Common Reprogramming Tools (CRT) to provide Electronic Warfare Squadrons with essential software tools that reduce Mission Data File (MDF) development time and human error and increase combat effectiveness. Continue software coding and testing to support development / deployment of the software tools. Continue to upgrade Reprogramming Verification & Validation Systems (RVVS) to meet the Block 4 capability requirements and meet next generation threats. Continue ongoing efforts to support aircraft in relation to Continuous Development Capability Delivery (C2D2), and Network Boundary Consolidation. Continue development support for defining, managing and acquiring the F-35 Reprogramming capability enhancements identified in approved requirements documents for Block 4 and modernization efforts and support efforts for joint reprogramming enterprise activities. Continue efforts on the Advanced Development, Integration & Test contract to integrate Block 4 software data loads at reprogramming laboratories. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease due to completion of efforts associated with Government Systems Engineering and Testing, specifically the Partner Analysis Laboratory Operations, Lab Based Security Assessment, Baseline Performance Measurement.					
Title: Mission Planning Support Environment (MPSE)	8.305	6.628	4.995	0.000	4.995
Articles:	-	-	-	-	-
Description: Investment and modernization activities required for Block 4 development, integration, test and evaluation of Mission Data Tools, Verification & Validation Systems, and Mission Planning Software/Hardware. Funding related to key deliveries to Electronic Warfare Squadrons and F-35 Operational Squadrons and enables government and contractor labor for mission planning support environment and joint reprogramming enterprise.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2572 / *Combat Data Systems (CDS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Other costs support Technology Investment for key Modernization/Innovation activities and Cloud based DevSecOps infrastructure.					
FY 2023 Plans: Continue development support for defining, managing and acquiring the F-35 Mission Planning capability enhancements identified in approved requirements documents for Block 4 and modernization efforts within the mission planning support hardware and software boundary. Continue development support of the Mission Planning System Environment (MPSE) software suite that is customized for each and every air vehicle Operational Flight Program (OFP) / Software Data Load (SDL) release to support the features and enhancements of that release. Continue development of the F-35 Next Generation Mission Planning in order to a) replace the Joint Mission Planning Software (JMPS) framework that is facing end-of-life, increasing cost, decreasing performance, and limited capability growth, and b) Replace the Ground Data Receptacle (GDR) cross-domain solution and encryption/decryption device that has been has been assessed by the NSA to have high cyber security risks and not able to meet NSA Raise-the-Bar requirements without a complete re-design. Continue ongoing efforts to transition F-35 mission planning software development to AGILE and DevSecOps methodologies to reduce costs and increase speed of delivering capabilities to the warfighter. Continue ongoing efforts to transition F-35 mission planning software development workload from contractor to the Government, securing organic software development capability and reducing costs.					
FY 2024 Base Plans: Continue development support for F-35 Mission Planning capability enhancements identified in approved requirements documents for Block 4 and modernization efforts within the mission planning support hardware and software. Continue development support of the Mission Planning System Environment (MPSE) software suite that is customized for each and every air vehicle Operational Flight Program (OFP) / Software Data Load (SDL) release to support the features and enhancements of that release. Continue development of the F-35 Next Generation Mission Planning. Continue efforts to transition F-35 mission planning software development to AGILE and DevSecOps methodologies to reduce costs and increase speed of delivering capabilities to the warfighter. Continue ongoing efforts to transition F-35 mission planning software development workload from contractor to the Government, securing organic software development capability and reducing costs.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2572 / *Combat Data Systems (CDS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Decrease due to completion of efforts associated with Government Systems Engineering and Testing, specifically the Partner Analysis Laboratory Operations, Lab Based Security Assessment, Baseline Performance Measurement.					
Accomplishments/Planned Programs Subtotals	20.355	26.396	17.817	0.000	17.817

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Combat Data Systems Program Management Office (CDS PMO) continues to develop JRE and MPSE requirements by leveraging existing F-35 Joint Program Office contracts, use of Other Government Contracts, and by developing and competing new contract actions for unique CDS PMO requirements.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2572 / *Combat Data Systems (CDS)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CDS Prime JRE Development - CRT Increment 1	C/CPFF	Lockheed Martin : FT. Worth, TX	0.000	3.450	Oct 2021	6.452	Dec 2022	3.486	Dec 2023	-		3.486	64.083	77.471	77.471
CDS Prime JRE Development - RVVS	C/CPIF	Lockheed Martin : FT. Worth, TX	0.000	0.000	Oct 2022	7.141	Dec 2022	4.167	Dec 2023	-		4.167	102.150	113.458	113.458
CDS Prime JRE Development - CURC	C/CPFF	Lockheed Martin : FT. Worth, TX	0.000	1.975	Oct 2021	0.000		0.000		-		0.000	0.000	1.975	1.975
CDS Prime JRE Development - TR-3	C/CPIF	Lockheed Martin : FT. Worth, TX	0.000	1.083	Oct 2021	0.371	Mar 2023	0.000		-		0.000	0.000	1.454	1.454
CDS Prime JRE Development - SEIT	C/CPFF	Lockheed Martin : FT. Worth, TX	0.000	0.000		1.444	Jul 2023	3.449	Jul 2024	-		3.449	48.300	53.193	53.193
CDS Prime JRE Development - FRL	MIPR	Pt. Magu, CA : Pt. Magu, CA	0.000	0.000		0.469	Jan 2023	0.000	Jan 2024	-		0.000	0.000	0.469	0.469
CDS Prime JRE Development - Capability Development	MIPR	Eglin AFB, FL : Eglin AFB, FL	0.000	1.050	Dec 2021	3.420	Dec 2022	0.890	Dec 2023	-		0.890	0.000	5.360	5.360
CDS Prime MPSE Development F-35 Next Gen Mission Planning	C/CPIF	Lockheed Martin : FT. Worth, TX	0.000	5.965	Mar 2023	1.961	Mar 2023	1.961	Mar 2024	-		1.961	17.600	27.487	27.487
CDS Prime MPSE Development - Capability Development	MIPR	Eglin AFB, FL : Eglin AFB, FL	0.000	0.000		2.954	Dec 2022	2.507	Dec 2023	-		2.507	0.000	5.461	5.461
		Subtotal	0.000	13.523		24.212		16.460		-		16.460	232.133	286.328	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CDS JRE Development Support	MIPR	Eglin AFB, FL : Eglin AFB, FL	0.000	4.492	Dec 2021	0.471	Dec 2022	0.830	Dec 2023	-		0.830	Continuing	Continuing	Continuing
CDS MPSE Development Support	MIPR	Eglin AFB, FL : Eglin AFB, FL	0.000	2.340	Dec 2021	1.713	Dec 2022	0.527	Dec 2023	-		0.527	Continuing	Continuing	Continuing
		Subtotal	0.000	6.832		2.184		1.357		-		1.357	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / *F-35B C2D2*	Project (Number/Name) 2572 / *Combat Data Systems (CDS)*	

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	20.355		26.396		17.817		-		17.817	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2572 / *Combat Data Systems (CDS)*

F-35 Combat Data Systems
Development Roadmap – Joint Reprogramming Environment

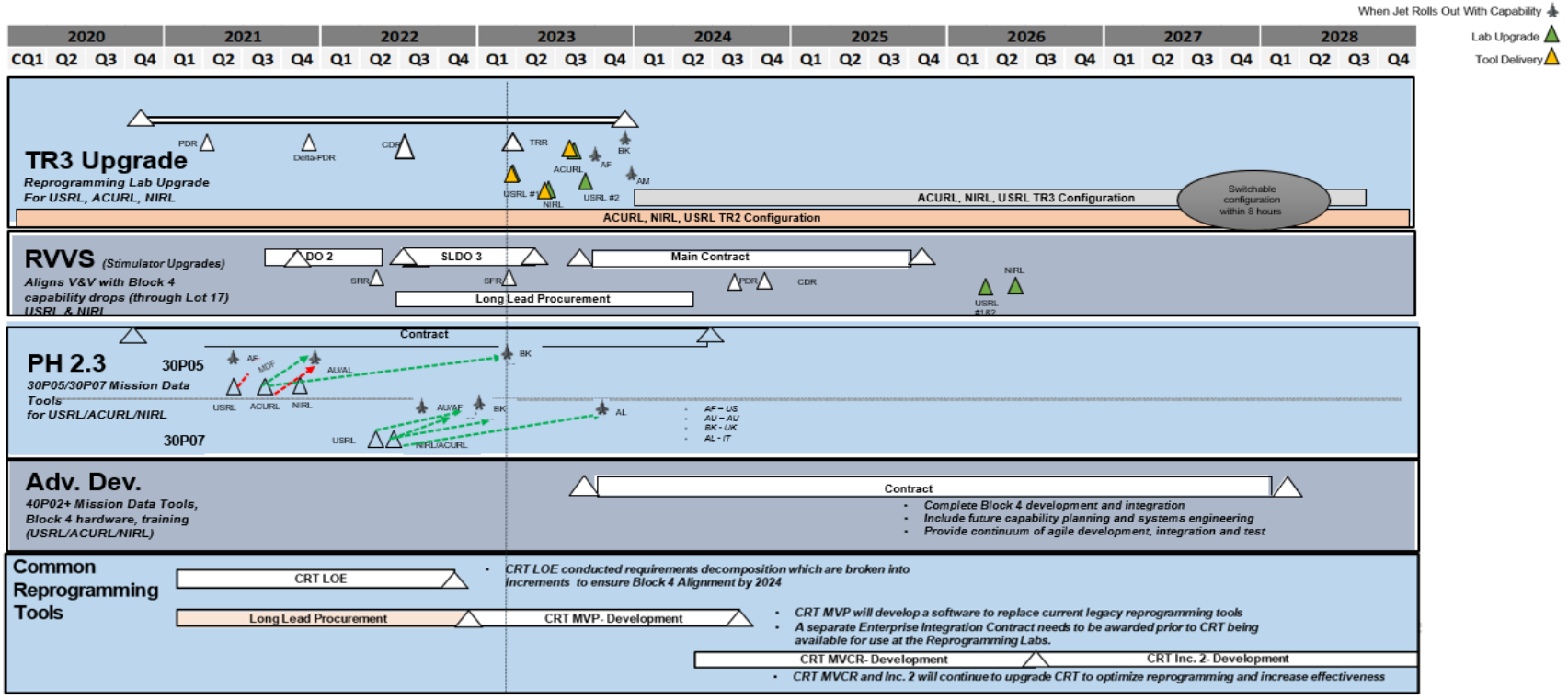


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2572 / *Combat Data Systems (CDS)*

F-35 Combat Data Systems
Development Roadmap – Mission Programming Enterprise (MPE)

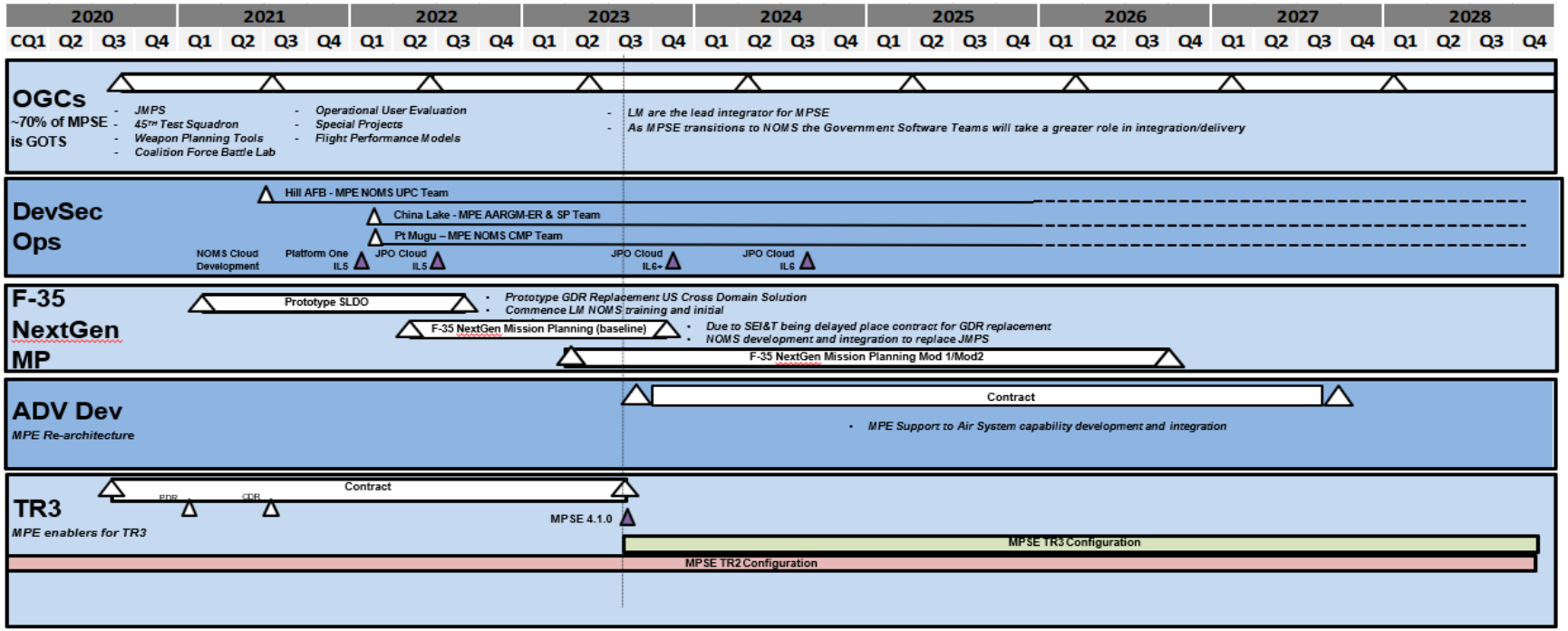


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2572 / *Combat Data Systems (CDS)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2572				
Joint Reprogramming Environment (JRE): Technology Refresh 3 (TR3) Reprogramming Lab Upgrade	1	2022	2	2023
Joint Reprogramming Environment (JRE): Reprogramming Verification & Validation Systems (RVVS): Stimulator Upgrades SLDO 3	1	2022	3	2022
Joint Reprogramming Environment (JRE): Reprogramming Verification & Validation Systems (RVVS): Stimulator Upgrades Main	4	2022	4	2024
Joint Reprogramming Environment (JRE): Reprogramming Verification & Validation Systems (RVVS): Long Lead Procurement	1	2022	3	2023
Joint Reprogramming Environment (JRE): Phase 2.3 - 30P05/30P07 Mission Data Tools - Contract	1	2022	4	2023
Joint Reprogramming Environment (JRE): 40P02+ Mission Data Tools, Block 4 Hardware, Training	3	2023	4	2028
Joint Reprogramming Environment (JRE): CRT INC 1 - CRT LOE	2	2022	2	2022
Joint Reprogramming Environment (JRE): CRT INC 1 - Long Lead Procurement	1	2022	2	2022
Joint Reprogramming Environment (JRE): CRT INC 1 - CRT INC 1 - Development	1	2022	2	2024
Mission Planning Support Environment (MPSE): TR-3/Enablers for TR-3 - Contract	1	2022	2	2023
Mission Planning Support Environment (MPSE): TR-3/Enablers for TR-3 - MPSE TR2 Configuration	1	2022	4	2028
Mission Planning Support Environment (MPSE): TR-3/Enablers for TR-3 - MPSE TR3 Configuration	1	2023	4	2028
Mission Planning Support Environment (MPSE): MPSE Re-architecture - Contract	3	2023	4	2028
Mission Planning Support Environment (MPSE): F-35 Next Gen Mission Planning - Prototype SLDO	1	2022	1	2022

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2572 / *Combat Data Systems (CDS)*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Mission Planning Support Environment (MPSE): F-35 Next Gen Mission Planning - Increment 1	1	2022	2	2023
Mission Planning Support Environment (MPSE): F-35 Next Gen Mission Planning - Increment 2	4	2022	3	2026
Mission Planning Support Environment (MPSE): DevSecOps - Hill AFB, China Lake, Pt Mugu	1	2022	4	2026
Mission Planning Support Environment (MPSE): DevSecOps - NOMS Cloud Development (Multiple)	1	2022	4	2022
Mission Planning Support Environment (MPSE): OGCs - Contracts	1	2022	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy												Date: March 2023
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0604840M / *F-35B C2D2*				Project (Number/Name) 2573 / *Training Systems and Simulation (TSS)*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
2573: *Training Systems and Simulation (TSS)*	0.000	38.749	37.094	30.331	-	30.331	32.178	31.763	46.693	31.622	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 198

Note

Beginning in FY2022, Training Systems and Simulation (TSS) was established as a separate, distinct project within the Continuous Capability Development & Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from Project Unit 3410, which is still included at the end of the R-2A for fiscal years FY2021. This Project Unit has also been updated to reflect the directed project categories to provide traceability between current execution and the FY2024 request.

A. Mission Description and Budget Item Justification

The F-35 Training Systems & Simulation Program Management Office (TSS PMO) development portfolio is aligned with the program's Continuous Capability Development & Delivery (C2D2) efforts and is organized in three primary lines of effort; Training System Capability Development (TSCD), Training Systems Investments (TSI) Roadmap, and Joint Simulation Environment (JSE) Development. As a function of the F-35 organizational pivot, this is the first budget cycle in which TSS PMO budget requirements have been comprehensively and discretely defined within a dedicated Project Unit.

Training System Capability Development (TSCD): Efforts will continue with a primary focus on alignment of Training System capabilities with other elements of the Air System. Specific efforts will include development of Block 4 capabilities to equivalent maturity of those in the Air Vehicle enabling release of one capability upgrade per year to the fleet, continued development of the Production Runtime Server (PRTS) - Pilot Training Device TR-3 equivalent - to enable Block 4 capabilities, continued development of Live-Virtual-Constructive (LVC) capabilities including Distributed Mission Training (DMT), and appropriate lab infrastructure to enable Training System development.

Training Systems Investments (TSI) Roadmap: Development efforts will continue to focus on modernization of activities outlined in the TSS PMO roadmaps that will target the requirement of bringing higher fidelity training to the warfighter. Specific development and testing efforts focus on software architecture modernization, hardware architecture modernization, and Synthetic Threat Enhancement.

Joint Simulation Environment (JSE) Development: Development and testing efforts will continue with a focus on remaining F-35 In-A-Box (FIAB) software integration, complex threat/sensor model integration to establish operationally representative simulation environment required for operational test trial validity, and the completion of Verification, Validation and Accreditation (VV&A) activities for F-35 Block 4 modernization. Efforts will include FIAB development, model fidelity and capability upgrades for existing threats/sensors/weapons, development of new threat/sensor/weapon models, and environment upgrades to enable effective verification of Block 4 capabilities. Efforts will continue toward expansion of JSE capability to Wright Patterson AFB, Edwards AFB and Nellis AFB.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2573 / *Training Systems and Simulation (TSS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Training Systems Capability Development (TSCD)	19.599	20.155	15.500	0.000	15.500
Articles:	-	-	-	-	-
Description: Efforts will continue with a primary focus on alignment of Training System capabilities with other elements of the Air System. Specific efforts will include development of capabilities (CI1-3) to equivalent maturity of those in the Air Vehicle enabling release of one capability upgrade per year to the fleet, continued development of the Production Runtime Server (PRTS) - Pilot Training Device TR-3 equivalent - to enable CI1-3 capabilities, continued development of Live-Virtual-Constructive (LVC) capabilities including Distributed Mission Training (DMT), and appropriate lab infrastructure to enable Training System development. ***FY 2023 Plans:*** Efforts will continue to support development, integration and test of Block 4 capabilities in the Training System with a focus on equivalent capability maturity between the Training System and other elements of the Air System and preparing a relevant capability upgrade (Pilot Training, Maintainer Training, Instructional Products) for release to the fleet in FY2022. Additionally, PRTS will continue critical development, integration and test activities required to enable Block 4 training capabilities. The DMT program will continue with development activities to ensure DMT capability remains fully integrated with CI1-3 capabilities and in-line with overall Air System capability to include certified and exportable Cross Domain Solutions (CDS) to enable fully integrated DMT across the F-35 Enterprise. Within the LVC portfolio, requirements derivation and planning activities for Enhanced Embedded Training and TCTS II integration will continue to evolve. Training System lab infrastructure assets will be configured to enable current and future Training System development activities across the portfolio. ***FY 2024 Base Plans:*** Efforts will continue to support development, integration and test of Block 4 capabilities in the Training System with a focus on equivalent capability maturity between the Training System and other elements of the Air System and preparing relevant capability upgrades (Pilot Training, Maintainer Training, Instructional Products) for release to the fleet in FY2024. Additionally, the Production RunTime Server (PRTS) will continue critical development, integration and test activities required to enable TR-3 training capabilities. The Distributed Mission Trainer (DMT) Program will continue with development activities to ensure DMT can support the CI1-3 capabilities to be leveraged via US networks and in-line with overall Air System Capability to include certified and exportable Cross Domain Solutions (CDS) to enable fully integrated DMT across the F-35 Enterprise. Within the Live-Virtual-Constructive (LVC) portfolio, requirements derivation and planning actives for Enhanced Embedded Training and TCTS II integration will continue to evolve to support the US Service's LVC integrated					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2573 / *Training Systems and Simulation (TSS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
training environment. Training System lab infrastructure assets will be configured to enable current and future Training System development activities across the portfolio. Effects Based Simulation (EBS) will continue design, development, and integration activities to support requirements analysis and pilot training tasks. EBS was formerly carried as an effort in the Joint Simulation Environment (JSE) R-2A category, but was aligned to the Training System Capability Development (TSCD) R-2A category beginning in FY23. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease from FY2023 to FY2024 is a result of the delayed Training System transition from TR-2 to TR-3. Because of delays with the Training System hardware and software architecture modernization that is required to field TR-3 OFPs, and because the initial TR-3 OFPs are rehosts of TR-2 capabilities, the Training System is not delivering a new software load to support the inital TR-3 series OFPs. The Training System will again align to the Air Vehicle in Lot 17.					
Title: Training Systems Investments (TSI) Roadmap	9.584	6.935	6.250	0.000	6.250
Articles:	-	-	-	-	-
Description: Development efforts will continue to focus on modernization of activities outlined in the TSS PMO roadmaps that will target the requirement of bringing higher fidelity training to the warfighter. Specific development and testing efforts focus on software architecture modernization, hardware architecture modernization, and Synthetic Threat Enhancement. ***FY 2023 Plans:*** Efforts will continue to support development, integration and test of Block 4 capabilities in the Training System with a focus on equivalent capability maturity between the Training System and other elements of the Air System and preparing a relevant capability upgrade (Pilot Training, Maintainer Training, Instructional Products) for release to the fleet in FY2022. Additionally, PRTS will continue critical development, integration and test activities required to enable Block 4 training capabilities. The DMT program will continue with development activities to ensure DMT capability remains fully integrated with CI1-3 capabilities and in-line with overall Air System capability to include certified and exportable Cross Domain Solutions (CDS) to enable fully integrated DMT across the F-35 Enterprise. Within the LVC portfolio, requirements derivation and planning activities for Enhanced Embedded Training and TCTS II integration will continue to evolve. Training System lab infrastructure					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
assets will be configured to enable current and future Training System development activities across the portfolio. ***FY 2024 Base Plans:*** Efforts will continue to support analysis, design, development, integration and test of Block 4 capabilities in the Training System with a focus on equivalent capability maturity between the Training System and other elements of the Air System and preparing relevant capability upgrades (Pilot Training, Maintainer Training, Instructional Products) for release to the fleet in FY24. Additionally, F-35 Lightning Integrated Training Environment (FLITE) will continue critical development, integration and test activities with the first delivery expected in FY26. The Distributed Mission Training (DMT) Program will continue with development activities to ensure DMT can support the CI1-3 capabilities to be leveraged via US networks and in-line with overall Air System Capability to include certified and exportable Cross Domain Solutions (CDS) to enable fully integrated DMT across the F-35 Enterprise. DMT will ensure the connection of F-35 Pilot Training Devices (PTDs) to customer provided and accredited Wide Area Networks (WAN) to facilitate connecting multiple sites and enabling a virtual training environment in a common synthetic environment for the US Services. Within the Live-Virtual-Constructed (LVC) portfolio, requirements derivation and planning actives for Enhanced Embedded Training and TCTS II integration will continue to evolve to support the US LVC integrated training environment. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease from FY23 to FY24 is primarily attributable to delays in the integration efforts of Joint Simulation Environment components, specifically Next Generation Threat System (NGTS), into the exportable Program of Record (PoR) Pilot Training Device (PTD).					
Title: Joint Simulation Environment (JSE) Development	9.566	10.004	8.581	0.000	8.581
Articles:	-	-	-	-	-
Description: Development and testing efforts will continue with a focus on remaining F-35 In-A-Box (FIAB) software integration, complex threat/sensor model integration to establish operationally representative simulation environment required for operational test trial validity, and the completion of Verification, Validation and Accreditation (VV&A) activities for F-35 Block 4 modernization. Efforts will include FIAB development, model fidelity and capability upgrades for existing threats/sensors/weapons, development of new threat/sensor/weapon					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2573 / *Training Systems and Simulation (TSS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
models, and environment upgrades to enable effective verification of Block 4 capabilities. Efforts will continue toward expansion of JSE capability to Wright Patterson AFB, Edwards AFB and Nellis AFB. ***FY 2023 Plans:*** Efforts will continue with a focus on the completion of sim deficiency corrections identified through VV&A and completion of IOT&E Run-for-Score test trials. Efforts will include FIAB software development and integration, threat/sensor model fidelity upgrades, new threat/sensor model development, and JSE upgrades to enable effective verification of Block 4 capabilities. Planning efforts will continue toward expansion of JSE capability to Wright Patterson AFB, Edwards AFB, and Nellis AFB. ***FY 2024 Base Plans:*** Efforts will include modernization of F-35 In-A-Box (FIAB) software development and integration, model fidelity and capability upgrades for exisitng threats/sensors/weapon models, development of new threat/sensor/weapon models, and environment upgrades to enable effective verification of Block 4 capabilities. Planning efforts will continue toward expansion of JSE capability to Wright Patterson AFB, Edwards AFB, and Nellis AFB. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease from FY23 to FY24 is primarily attributable to on-going FIAB Block 4 development, integration activities and development of new threats/ weapons models being extended due to contractor manpower constraints, the restructure of JPO contracts and the continuation of FIAB data rights litigation and licensing issues preventing documentation and software deliveries.					
Accomplishments/Planned Programs Subtotals	38.749	37.094	30.331	0.000	30.331

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The majority of Training System capability development requirements (CI1-3 development, PRTS development, Lab Infrastructure) will be executed via training specific CLINs in Enterprise-level development contracts (Block 4 - Phase 2.3, Development Foundation). Training System Investment requirements will be executed

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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via a combination of training specific CLINs in Enterprise-level contracts, TSS PMO specific contract actions and Other Transaction Authority (OTA) contracts. JSE development requirements will be executed via a combination of Enterprise-level contract actions and MIPR transactions to support OGC activities.

In concert with continued maturation of the F-35 organizational pivot, the TSS PMO acquisition strategy will transition toward TSS PMO controlled contract actions that will enable more effective oversight of PMO cost-schedule-performance execution.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2573 / *Training Systems and Simulation (TSS)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
TSS Prime LM Training System Alignment (TSCD)	C/CPIF	Lockheed Martin : FT. Worth, TX	0.000	7.900	Nov 2021	7.750	Nov 2022	5.960	Nov 2023	-		5.960	65.360	86.970	86.970
TSS Prime LM PTD TR-3 Development (TSCD)	C/CPIF	Lockheed Martin : FT. Worth, TX	0.000	6.581	Nov 2021	6.225	Nov 2022	4.787	Nov 2023	-		4.787	33.680	51.273	51.273
TSS Prime LM Training Lab Infrastructure (TSCD)	C/CPFF	Lockheed Martin : FT. Worth, TX	0.000	4.376	Nov 2021	4.755	Nov 2022	3.657	Nov 2023	-		3.657	28.764	41.552	41.552
TSS Live-Virtual-Constructive (LVC) - DMT (TSCD)	C/CPFF	Lockheed Martin : FT. Worth, TX	0.000	0.624	Nov 2021	0.625	Nov 2022	0.481	Nov 2023	-		0.481	16.587	18.317	18.317
TSS Effects Based Simulation Development (TSCD)	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.800	Nov 2022	0.615	Nov 2023	-		0.615	7.114	8.529	8.529
TSS Hardware Re-architecture (TSI)	MIPR	DTIC : Fort Belvoir, VA	0.000	3.619	Nov 2021	3.215	Nov 2022	2.897	Nov 2023	-		2.897	3.675	13.406	13.406
TSS Software Re-architecture (TSI)	C/CPIF	Lockheed Martin : FT. Worth, TX	0.000	3.843	Nov 2021	2.610	Nov 2022	2.353	Nov 2023	-		2.353	17.888	26.694	26.694
TSS Synthetic Threat Enhancement (TSI)	C/CPFF	Lockheed Martin : FT. Worth, TX	0.000	1.247	Nov 2021	1.110	Nov 2022	1.000	Nov 2023	-		1.000	6.107	9.464	9.464
TSS Prime LM FIAB Development (JSE)	C/CPIF	Lockheed Martin : FT. Worth, TX	0.000	5.034	Nov 2021	4.857	Nov 2022	4.166	Nov 2023	-		4.166	18.775	32.832	32.832
		Subtotal	0.000	33.224		31.947		25.916		-		25.916	197.950	289.037	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
TSS Pax Development Support (JSE)	WR	NAWCAD : Patuxent River, MD	0.000	4.349	Nov 2021	4.207	Nov 2022	3.609	Nov 2023	-		3.609	17.993	30.158	30.158
TSS Other Development Support (JSE)	Various	Various : Various	0.000	0.409	Nov 2021	0.940	Nov 2022	0.806	Nov 2023	-		0.806	1.692	3.847	3.847
TSS EBS Development Support (JSE)	Various	Various : Various	0.000	0.767	Nov 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2573 / *Training Systems and Simulation (TSS)*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	0.000	5.525		5.147		4.415		-		4.415	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	38.749		37.094		30.331		-		30.331	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2573 / *Training Systems and Simulation (TSS)*

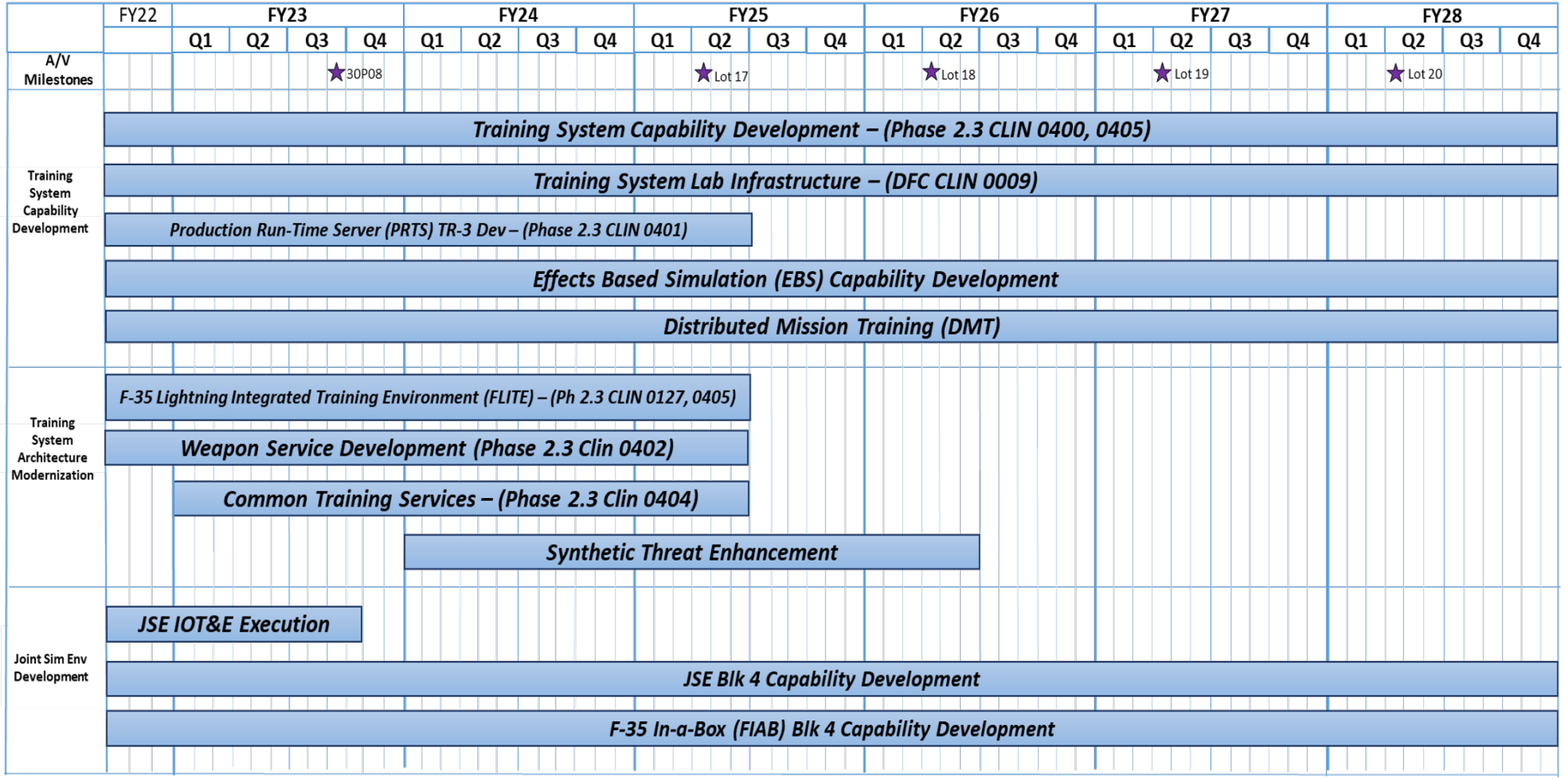


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2573 / *Training Systems and Simulation (TSS)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2573				
Training Systems and Simulation (TSS): Training System Capability Development	1	2022	4	2028
Training Systems and Simulation (TSS): Training System Lab Infrastructure	1	2022	4	2028
Training Systems and Simulation (TSS): Production Run-Time Server (PRTS) TR-3 Development	1	2022	3	2025
Training Systems and Simulation (TSS): Effects Based Simulation (EBS) Capability Development	1	2022	4	2028
Training Systems and Simulation (TSS): Distributed Mission Training (DMT)	1	2022	4	2028
Training Systems and Simulation (TSS): F-35 Lightning Integrated Training Environment (FLITE)	1	2022	3	2025
Training Systems and Simulation (TSS): Weapon Service Development	1	2022	3	2025
Training Systems and Simulation (TSS): Common Training Services	1	2023	3	2025
Training Systems and Simulation (TSS): Synthetic Threat Environment	1	2024	3	2026
Training Systems and Simulation (TSS): Joint Simulation Environment, Capability Development & Air System Alignment	1	2022	4	2028
Training Systems and Simulation (TSS): JSE IOT&E Execution	1	2022	4	2023
Training Systems and Simulation (TSS): JSE Block 4 Capability Development	1	2022	4	2028
Training Systems and Simulation (TSS): F-35 In-A-Box (FIAB) Block 4 Capability Development	1	2022	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0604840M / *F-35B C2D2*				Project (Number/Name) 2574 / *Infrastructure and Support Costs*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
2574: *Infrastructure and Support Costs*	0.000	2.424	2.623	2.691	-	2.691	2.741	3.090	3.136	2.893	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 198

Note

Beginning in FY2022, Infrastructure and Support Costs was established as a separate, distinct project within the Continuous Capability Development & Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from Project Unit 3410, which is still included at the end of the R-2A for fiscal years FY2021. This Project Unit has also been updated to reflect the directed project categories to provide traceability between current execution and the FY2024 request.

A. Mission Description and Budget Item Justification

The F-35 Joint Program Office equips U.S. and allied forces with operational F-35 weapon systems in support of military and national security operations. The acquisition and product support workforce provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee acquisition programs throughout their life cycle. The acquisition workforce funded in this program element will support development phases of acquisition programs to include material solution analysis, technology development, engineering and manufacturing development. This funding does not include costs for base operating support civilian personnel. This program element supports both civilian pay and non-pay support requirements. Additional infrastructure and program management support costs include travel, supplies, contractor support, off-base leases, program office IT, cybersecurity, model-based systems engineering, and risk reduction studies directly related to C2D2 development efforts.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Core Program Support/CSS Support	2.424	2.623	2.691	0.000	2.691
Articles:	-	-	-	-	-
Description: Includes off-base leases, Advisory and Assistance Services (A&AS), travel, supplies, Navy Working Capital fund subject matter expert support, program office IT, cybersecurity, model-based systems engineering, and risk reduction studies directly related to to C2D2 development efforts.					
FY 2023 Plans: Continue to support program office efforts, including Arlington, VA program unique off-base lease costs, CSS support, travel, supplies, Navy working capital technical SME labor, program office IT, cybersecurity, model-based systems engineering, and risk reduction studies directly related to Block 4 and TR3 developmental efforts.					
FY 2024 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2574 / *Infrastructure and Support Costs*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Continue to support program office efforts, including Arlington, VA program unique off-base lease costs, CSS support, travel, supplies, Navy working capital technical SME labor, program office IT, cybersecurity, model-based systems engineering, and risk reduction studies directly related to to C2D2 development efforts. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY2023 to FY2024 due to price adjustments and inflation.					
Accomplishments/Planned Programs Subtotals	2.424	2.623	2.691	0.000	2.691

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / *F-35B C2D2*	Project (Number/Name) 2574 / *Infrastructure and Support Costs*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Core Program Support Cyber Risk Reduction	Various	Various : Various	0.000	0.500	Dec 2021	0.500	Dec 2022	0.500	Dec 2023	-		0.500	Continuing	Continuing	Continuing
Core Program Support Model-Based Systems Engineering	Various	IBM : Arlington, VA	0.000	0.100	Dec 2021	0.100	Dec 2022	0.150	Feb 2024	-		0.150	Continuing	Continuing	Continuing
Core Program Support Air Worthiness Support and Cyber Safe Support	C/FFP	DTIC : Fort Belvoir, VA	0.000	0.000		0.681	Dec 2022	0.600	Feb 2024	-		0.600	Continuing	Continuing	Continuing
		Subtotal	0.000	0.600		1.281		1.250		-		1.250	Continuing	Continuing	N/A

Remarks

Core Program Support Air Worthiness Support and Cyber Safe Support is not a new start. Broken out to provide additional transparency into the JPO's Infrastructure & Support Cost requirements. Funds were under CSS Support/Civ Support in previous years.

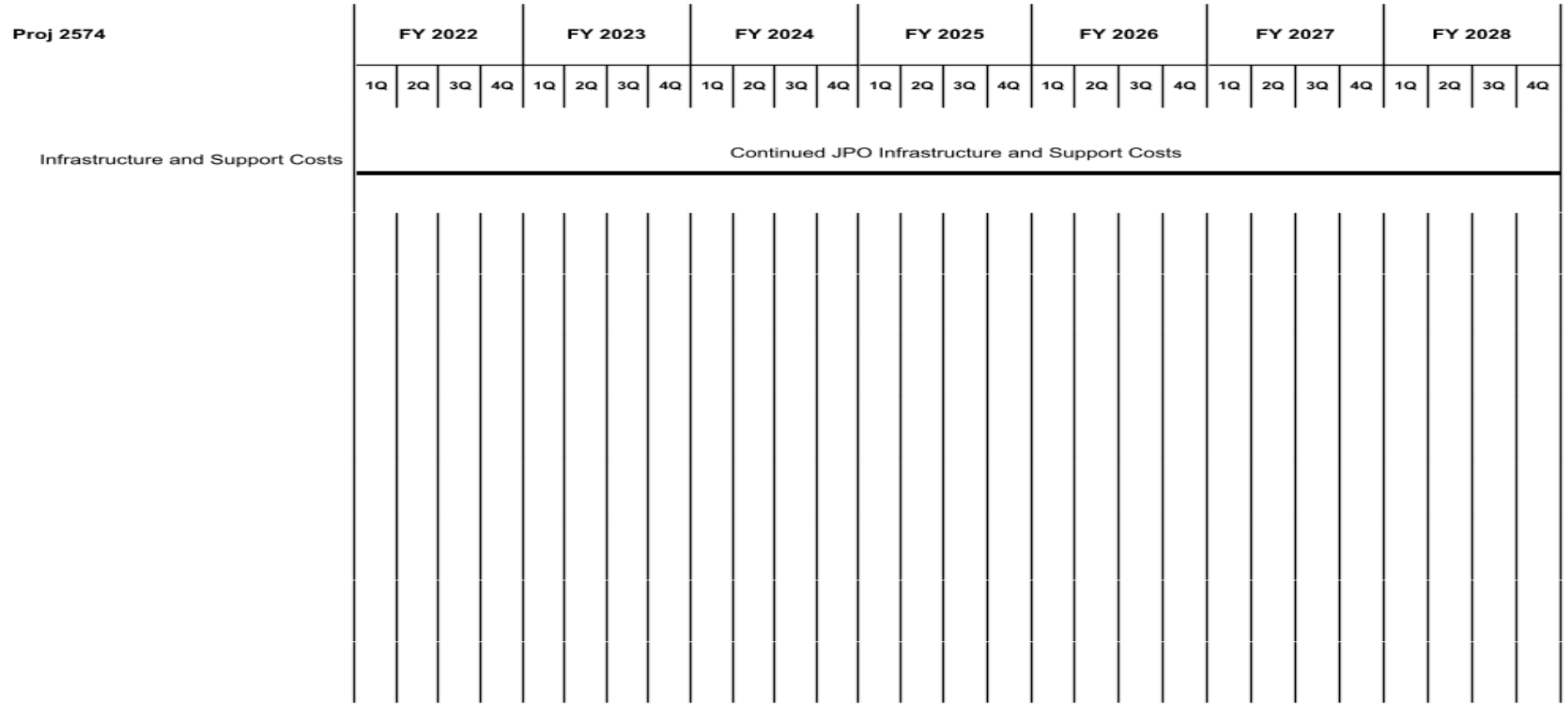
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CSS Support/Civ Support	Various	Various : Various	0.000	1.550	Dec 2021	1.000	Dec 2022	1.191	Dec 2023	-		1.191	Continuing	Continuing	Continuing
Core Program Support Off-Base Leases	MIPR	WHS : NCR	0.000	0.094	Oct 2021	0.092	Oct 2022	0.000		-		0.000	0.000	0.186	0.186
Core Program Support Travel	Various	Various : Various	0.000	0.180	Oct 2021	0.250	Oct 2022	0.250	Oct 2023	-		0.250	Continuing	Continuing	Continuing
		Subtotal	0.000	1.824		1.342		1.441		-		1.441	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	2.424		2.623		2.691		-		2.691	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2574 / *Infrastructure and Support Costs*



2024DON - 0604840M - 2574

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2574 / *Infrastructure and Support Costs*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2574				
Infrastructure and Support Costs: Continued JPO Infrastructure and Support Costs	1	2022	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0604840M / *F-35B C2D2*				Project (Number/Name) 2575 / *DevSecOps*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
2575: *DevSecOps*	0.000	13.573	10.079	9.072	-	9.072	13.253	12.839	1.333	17.686	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 198

Note

Beginning in FY2022, DevSecOps was established as a separate, distinct project within the Continuous Capability Development & Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from Project Unit 3410, which is still included at the end of the R-2A for fiscal years FY2021. This Project Unit has also been updated to reflect the directed project categories to provide traceability between current execution and the FY2024 request.

A. Mission Description and Budget Item Justification

The F-35 Software Development, Security & Operations (DevSecOps) Cloud platform environment allows for US Government and contracted software development teams to produce, test and deploy capabilities for F-35 supported Project Management Offices (PMO) and Directorates. This includes providing support to the Combat Data Systems (CDS), Air Vehicle (AV), Maintenance Systems (MxSYS), Propulsion, Training Systems and Simulation (TSS) PMOs, and Directorate of Engineering. The mission of DevSecOps is to provide a centralized F-35 Data repository, a consolidated F-35 software development environment, and support for system development lifecycle (SDLC) of the F-35 platform, allowing for rapid release cycles to keep the F-35 ahead of its adversaries. Investment in, and modernization of, DevSecOps include efforts to support F-35 Software modernization efforts, develop organic government software capabilities, support SDLC and flight testing capabilities, enhance the security posture of the software development pipeline, and support goals of reducing long-term on-premise infrastructure environments cost, ultimately resulting in reducing fleet delivery timelines.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: DevSecOps Support	13.573	10.079	9.072	0.000	9.072
Articles:	-	-	-	-	-
Description: The F-35 Software Development, Security & Operations (DevSecOps) Cloud platform environment allows for US Government and contracted software development teams to produce, test and deploy capabilities for F-35 supported Project Management Offices (PMO) and Directorates. This includes providing support to the Combat Data Systems (CDS), Air Vehicle (AV), Maintenance Systems (MxSYS), Propulsion, Training Systems and Simulation (TSS) PMOs, and Directorate of Engineering. The mission of DevSecOps is to provide a centralized F-35 Data repository, a consolidated F-35 software development environment, and support for system development lifecycle (SDLC) of the F-35 platform, allowing for rapid release cycles to keep the F-35 ahead of its adversaries. Investment in, and modernization of, DevSecOps include efforts to support F-35 Software modernization efforts, develop organic government software capabilities, support SDLC and flight testing capabilities, enhance the security posture of the software development pipeline, and support goals of					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2575 / *DevSecOps*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
reducing long-term on-premise infrastructure environments cost, ultimately resulting in reducing fleet delivery timelines. ***FY 2023 Plans:*** Mature DevSecOps environment into an operational platform for F-35 Software Development supporting US Government, contracted and partner nation applications plus Project Management Offices (PMO) software application development, model based system engineering. Continue transition of PMOs into centralized JPO-managed cloud environment. Continue obtaining appropriate software Cloud development environment, talent, licensing and tools. Maintain Cloud, talent and consumption contracts. Continue meeting cyber security requirements. Develop continuous Authority to Operate (cATO) DevSecOps pipeline and tools to meet compliance requirements and software modernization initiatives for all DevSecOps environments. ***FY 2024 Base Plans:*** Continue development and support for DevSecOps infrastructure, platform, software development pipeline, and joint F-35 organizational connections. Continue to develop a transition plan to stand-up a team consisting of Industry and Government software development in support of software modernization and DevSecOps Cloud transition. Establish initial capabilities and expand existing software development efforts with the goal of transitioning dispersed and separated software development environments into model based systems engineering and a fully collaborative requirements to development environment. Capabilities include software development environment for Maintenance Systems ODIN, ALIS to ODIN migration, Combat Data System's Mission Planning, Propulsion's Offboard Management System, and Air Vehicle Mission System domains. Additional goals of delivering flight-worthy rapid prototyping of capability, virtual test capability, and transitioning workloads to lower cost software sustainment efforts. New requirements from PMOs are expected. Prepare environment for on-boarding, as well as transitioning the PMOs from separate pillars to a centralized JPO-managed cloud environment. Includes software licensing for PMO tool sets and associated applications. Major cost drivers include requirements tool, and collaboration tools, authentication tools - supporting Single Sign On, Multi-Factor Authentication and development tools. For software tooling efforts, working towards an eventual consolidation of tools across the PMOs (i.e. application rationalization) with an end goal of a standardized compiler tool sets and Cybersecurity compliance. Accordingly, talent/consumption (hardware and software to run the environment) contracts must be renewed and expanded. Cybersecurity requirements must also be met, meaning additional resources for security processes, monitoring, scanning, vulnerability identification plus mitigation, and meeting all requirements for DoD compliance to obtain ongoing/continuous Authority to Operate (ATO) and continuous Authority to Operate (cATO). ***FY 2024 OCO Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2575 / *DevSecOps*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease from FY23 to FY24 is primarily attributable to a USN/USMC mark due to a lag in expenditure actuals.					
Accomplishments/Planned Programs Subtotals	13.573	10.079	9.072	0.000	9.072

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The DevSecOps Phase 1 demonstrates prototype designs, integration of Defense Industry Base partners and PMOs, appropriate set of technology stacks to be integrated, identifying Return on Investment (ROI) and buying down technical risk. Technology maturation; putting in place the necessary contracts for talent, licenses and Cloud consumption to support software pipeline delivery for F-35. Development; building, testing and deploying Cloud ecosystems Impact Level (IL) 2 - 6+ and software development pipeline utilizing contracted and government support. Operation and Support; maintain Cloud ecosystem utilizing industry research, resources, talent and technology modernization methodologies with the focus on reducing long-term costs for the program.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / *F-35B C2D2*	Project (Number/Name) 2575 / *DevSecOps*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DevSecOps Development Support - Talent	C/FFP	Various : Various	0.000	6.000	Dec 2021	5.154	Dec 2022	4.072	Jan 2024	-		4.072	Continuing	Continuing	Continuing
DevSecOps Development Support - Licenses	C/FFP	August Schell Enterprises, Inc. : Rockville, MD	0.000	4.000	Oct 2021	2.625	Dec 2022	2.200	Jun 2024	-		2.200	Continuing	Continuing	Continuing
DevSecOps Development Support - Cloud Support	C/FFP	Amazon Web Services, Inc. : Seattle, WA	0.000	3.573	Oct 2021	1.425	Dec 2022	1.400	Dec 2023	-		1.400	Continuing	Continuing	Continuing
DevSecOps Development Support - Industry Stand-up	C/FFP	Various : Various	0.000	0.000		0.875	Dec 2022	1.400	Mar 2024	-		1.400	Continuing	Continuing	Continuing
		Subtotal	0.000	13.573		10.079		9.072		-		9.072	Continuing	Continuing	N/A

Remarks

DevSecOps Ecosystem Standup used for centralized software development in JPO-managed cloud.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	13.573		10.079		9.072		-		9.072	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2575 / *DevSecOps*

F-35 JPO DevSecOps Roadmaps

Schedule Details	Start		End		FY22				FY23				FY24				FY25				FY26				FY27			
Events by Sub Project	Quarter	Year	Quarter	Year	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Production Milestones																												
Contract Award: DevSecOps Infrastructure/Platform/Tools	Q4	FY21	Q2	FY26																								
Contract Award: DevSecOps FENCES	Q4	FY21	Q2	FY26																								
Contract Award: DevSecOps Cloud	Q1	FY22	Q2	FY26																								
Contract Award: DevSecOps Industry Standup	Q4	FY23	Q4	FY28																								
System Development																												
AWS Impact Level 2 Research, Development and Test	Q4	FY20	Q3	FY23																								
AWS Impact Level 5 Buildout	Q1	FY20	Q1	FY22																								
AWS Impact Level 5 Research, Development and Test	Q4	FY21	N/A	N/A																								
AWS Impact Level 6 Buildout	Q4	FY23	Q3	FY25																								
AWS Impact Level 6 Research, Development and Test	Q3	FY24	N/A	N/A																								
AWS Impact Level 6+ (SAP) Buildout	Q4	FY22	Q2	FY24																								
AWS Impact Level 6+ (SAP) Research, Development and Test	Q3	FY23	N/A	N/A																								
Data Transfer as a Service Buildout	Q2	FY21	Q2	FY23																								
Data Transfer as a Service Research, Development and Test	Q1	FY23	N/A	N/A																								
Cloud Gateway (Collateral) LM Connection	Q1	FY25	Q3	FY25																								
Cloud Gateway (Collateral) Research, Development and Test	Q2	FY25	N/A	N/A																								
Cloud Gateway (SAP) LM Connection	Q3	FY21	Q1	FY24																								
Cloud Gateway (SAP) Research, Development and Test	Q4	FY23	N/A	N/A																								

Updated: 2/22/2024

RDT&E Development with customer requirements

RDT&E Initial Development

Key:

Contract Award and/or Option Exercised

Initial Operational Capability

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2575 / *DevSecOps*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2575				
System Development: AWS Impact Level 2 Research, Development and Test	1	2022	3	2023
System Development: AWS Impact Level 5 Buildout	1	2022	1	2022
System Development: AWS Impact Level 5 Research, Development and Test	1	2022	1	2022
System Development: AWS Impact Level 6 Buildout	4	2023	3	2025
System Development: AWS Impact Level 6 Research, Development and Test	3	2024	3	2024
System Development: AWS Impact Level 6+ (SAP) Buildout	4	2022	2	2024
System Development: AWS Impact Level 6+ (SAP) Research, Development and Test	3	2023	3	2023
System Development: Data Transfer as a Service Buildout	1	2022	2	2023
System Development: Data Transfer as a Service Research, Development and Test	1	2023	1	2023
System Development: Cloud Gateway (Collateral) LM Connection	1	2025	3	2025
System Development: Cloud Gateway (Collateral) Research, Development and Test	2	2025	2	2025
System Development: Cloud Gateway (SAP) LM Connection	1	2022	1	2024
System Development: Cloud Gateway (SAP) Research, Development and Test	4	2023	4	2023
Production Milestones: DevSecOps Infrastructure/Platform/Tools	1	2022	2	2026
Production Milestones: DevSecOps FENCES	1	2022	2	2026
Production Milestones: DevSecOps Cloud	1	2022	2	2026
Production Milestones: DevSecOps Industry Standup	4	2023	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / *F-35B C2D2*	Project (Number/Name) 2576 / *F-35 USMC Unique*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2576: *F-35 USMC Unique*	0.000	33.938	31.120	15.157	-	15.157	25.665	24.851	23.225	23.700	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 198

Note

Beginning in FY2022, F-35 USMC Unique was established as a separate, distinct project within the Continuous Capability Development & Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from Project Unit 3410, which is still included at the end of the R-2A for fiscal years FY2021. This Project Unit has also been updated to reflect the directed project categories to provide traceability between current execution and the FY2024 request.

A. Mission Description and Budget Item Justification

New USMC Unique Project Unit being established in support of the C2D2 effort for discreet tracking of USMC efforts to include USMC Operational Testing and government engineering support, as well USMC systems engineering efforts and other emerging USMC requirements. Efforts continued from PU 3410, not a new start. Continuing efforts include: Non-recurring engineering and procurement of a test article to evaluate service life of F-35B STOVL Aircraft; Lab Based Security Assessment (LBSA) testing for Interim Full Motion Video (IFMV) Cross Domain Solution (CDS) improvements introduced to fulfill NSA requirements for cybersecurity.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: USMC Unique	33.938	31.120	15.157	0.000	15.157
Articles:	-	-	-	-	-
Description: Continuing efforts include: Non-recurring engineering and procurement of a test article to evaluate service life of F-35B STOVL Aircraft; Lab Based Security Assessment (LBSA) testing for Interim Full Motion Video (IFMV) Cross Domain Solution (CDS) improvements introduced to fulfill NSA requirements for cybersecurity, as well USMC systems engineering efforts and other emerging USMC requirements.					
FY 2023 Plans: Continue test planning and F-35B STOVL durability test article build in preparation for test execution. This durability test effort is required to verify the 8,000 hour full service life of the F-35B variant. Lab Based Security Assessment (LBSA) testing will be executed to verify Cross Domain Solution (CDS) improvements introduced to fulfill NSA Raise The Bar (RTB) requirements for cybersecurity. Various STOVL performance tests will funded such as fuel densitometer and narrow runway, as well as envelope expansion efforts for certain weapon types identified in Block 4 ASP 16.1. USMC Unique Operational Test funding will support various integrated tests and investigations. The following will be funded in order to support the various tests and investigations: manpower,					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2576 / *F-35 USMC Unique*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
F-35 SAPF facilities, weapons, flight hours, range time, and chase, target & tanker support assets, as well USMC systems engineering efforts and other emerging USMC requirements. ***FY 2024 Base Plans:*** Continue test planning and F-35B STOVL durability test article build in preparation for test execution. This durability test effort is required to verify the 8,000 hour full service life of the F-35B variant. Lab Based Security Assessment (LBSA) testing will be executed to verify Cross Domain Solution (CDS) improvements introduced to fulfill NSA Raise The Bar (RTB) requirements for cybersecurity. Various STOVL performance tests will funded such as fuel densiometer and narrow runway, as well as envelope expansion efforts for certain weapon types. USMC Unique Operational Test funding will support various integrated tests and investigations. The following will be funded in order to support the various tests and investigations: manpower, F-35 SAPF facilities, weapons, flight hours, range time, and chase, target & tanker support assets, as well USMC systems engineering efforts and other emerging USMC requirements. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The decrease from FY2023 to FY2024 is due BH-2 Fatigue Test Article Development costs peaking in FY22.					
Accomplishments/Planned Programs Subtotals	33.938	31.120	15.157	0.000	15.157

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The C2D2 acquisition strategy is to employ both Cost Plus Fixed Fee and various organic funding sources for the USMC unique development efforts.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2576 / *F-35 USMC Unique*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
BH-2 Fatigue Test Article	C/CPFF	Lockheed Martin : Ft. Worth, TX	0.000	25.438	Nov 2021	20.429	Nov 2022	11.128	Nov 2023	-		11.128	43.557	100.552	100.552
		Subtotal	0.000	25.438		20.429		11.128		-		11.128	43.557	100.552	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation (OT&E)	Various	Various : Various	0.000	8.000	Dec 2021	10.691	Dec 2022	4.029	Dec 2023	-		4.029	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	Various	Various : Various	0.000	0.500	Dec 2021	0.000		0.000		-		0.000	0.000	0.500	0.500
		Subtotal	0.000	8.500		10.691		4.029		-		4.029	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	33.938		31.120		15.157		-		15.157	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2576 / *F-35 USMC Unique*

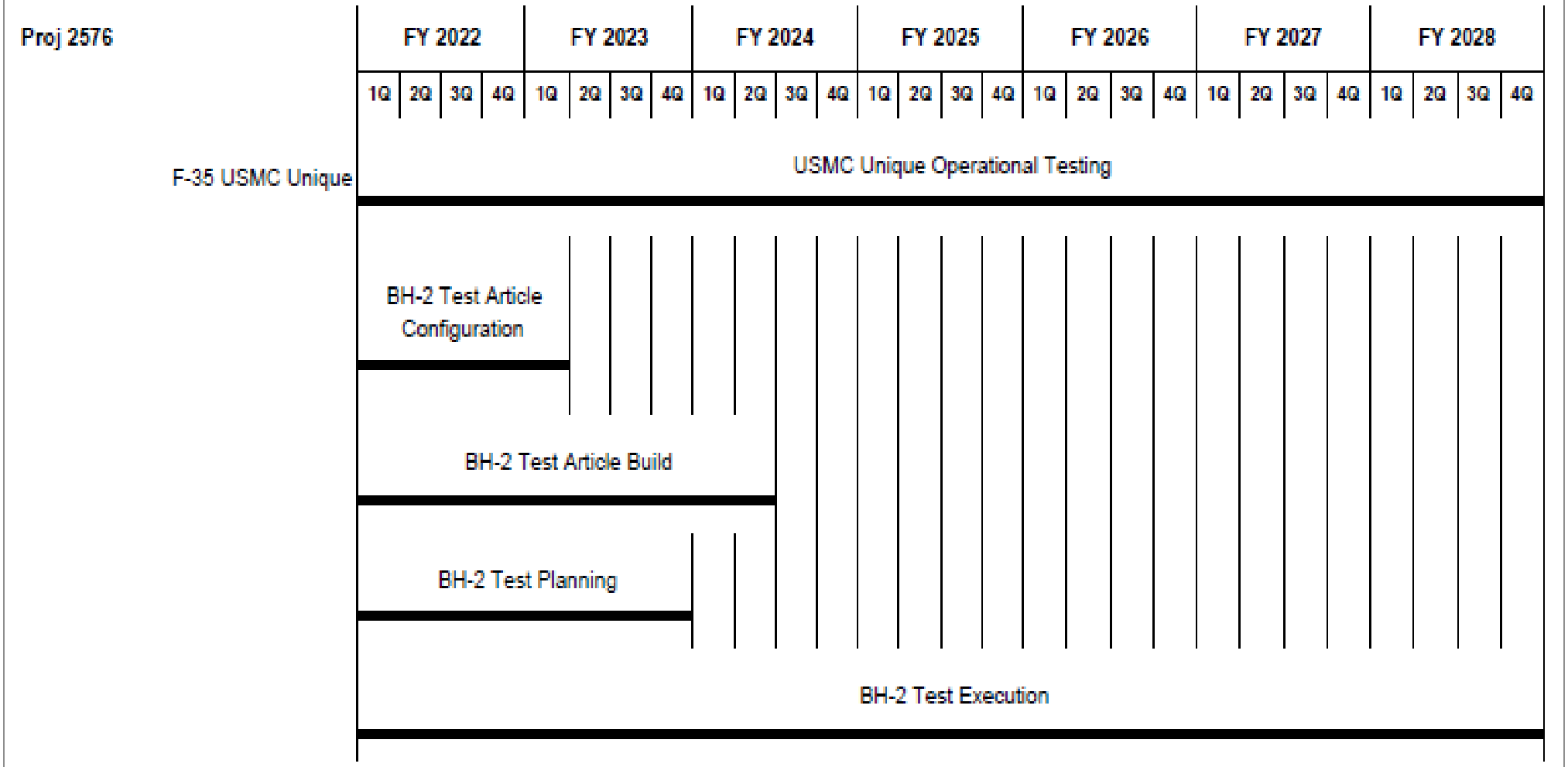


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 2576 / *F-35 USMC Unique*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2576				
F-35 USMC Unique: USMC Unique Operational Testing	1	2022	4	2028
F-35 USMC Unique: BH-2 Test Article Configuration	1	2022	1	2023
F-35 USMC Unique: BH-2 Test Article Build	1	2022	2	2024
F-35 USMC Unique: BH-2 Test Planning	1	2022	4	2023
F-35 USMC Unique: BH-2 Test Execution	1	2022	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840M / *F-35B C2D2*	Project (Number/Name) 9999 / *Congressional Adds*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
9999: *Congressional Adds*	0.000	0.000	18.750	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	18.750
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Congressional Interest Items not included in other Projects.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023
Congressional Add: F135 Engine Enhancement	0.000	18.750
FY 2022 Accomplishments: N/A		
FY 2023 Plans: N/A		
Congressional Adds Subtotals	0.000	18.750

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 9999 / *Congressional Adds*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prime Enhanced Engine Package (EEP)	C/CPFF	Pratt & Whitney : East Hartford, Connecticut	0.000	0.000		16.580	Aug 2023	0.000		-		0.000	0.000	16.580	16.580
		Subtotal	0.000	0.000		16.580		0.000		-		0.000	0.000	16.580	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engine Enhancement Engineering Support	Various	Various : Various	0.000	0.000		2.170	Aug 2023	0.000		-		0.000	0.000	2.170	2.170
		Subtotal	0.000	0.000		2.170		0.000		-		0.000	0.000	2.170	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		18.750		0.000		-		0.000	0.000	18.750	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 9999 / *Congressional Adds*

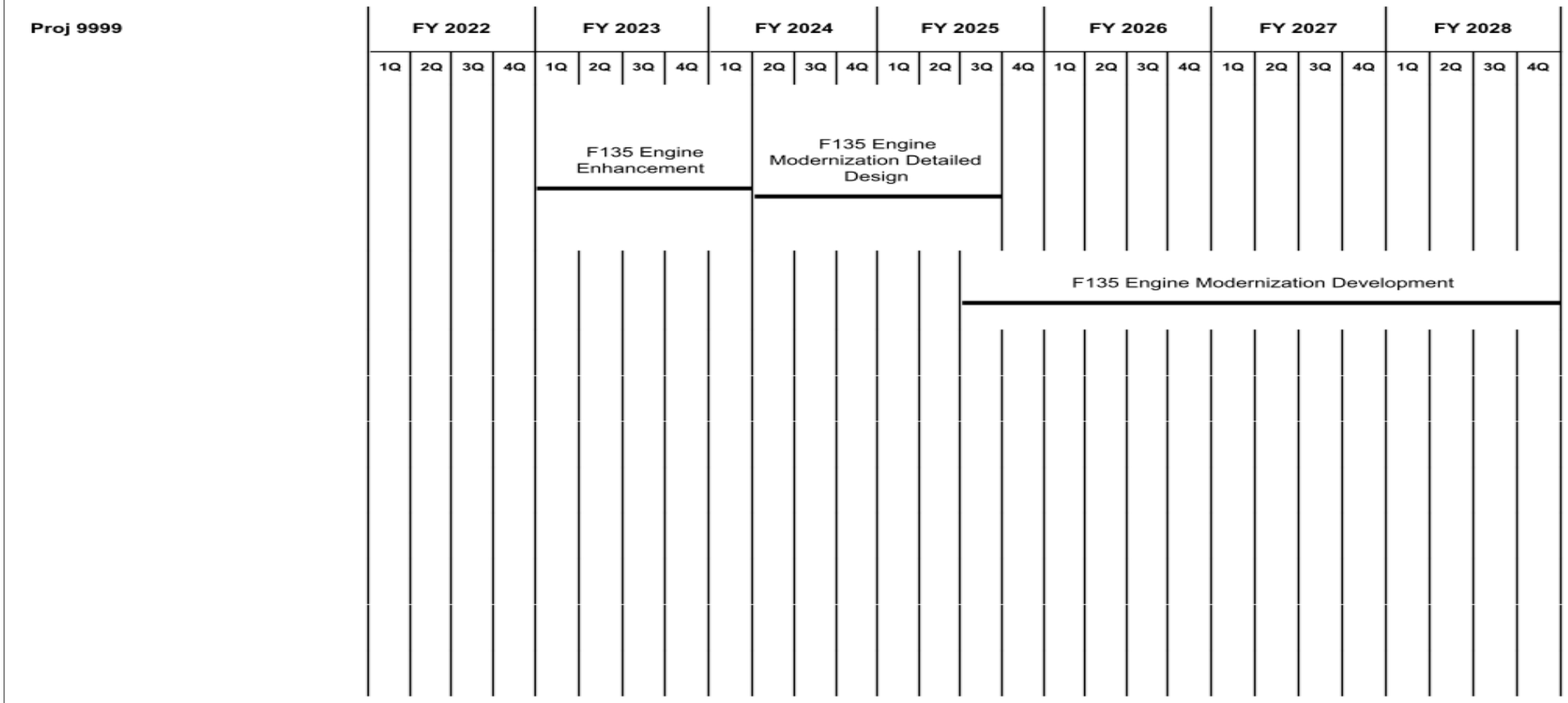


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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840M / *F-35B C2D2*	**Project (Number/Name)** 9999 / *Congressional Adds*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 9999				
F135 Engine Enhancement (FY22 and FY23 Congressional Add Funding Only)	1	2023	1	2024
PP F135 Engine Modernization Detailed Design	2	2024	3	2025
PP F135 Engine Modernization Development	3	2025	4	2028

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy												Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0604840N / *F-35C C2D2*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	473.749	503.365	543.834	-	543.834	534.928	435.450	417.632	417.465	Continuing	Continuing
0358: *Utility and Subsystem Support to Mission Systems*	0.000	0.000	0.000	72.463	-	72.463	85.558	71.607	41.454	74.343	Continuing	Continuing
2553: *Air Vehicle - Technology Refresh 3 (TR-3)*	0.000	66.864	33.618	3.004	-	3.004	1.196	1.138	5.138	10.501	Continuing	Continuing
2554: *Air Vehicle Block 4 Planning & Sys Eng*	0.000	161.401	192.854	178.378	-	178.378	179.316	119.674	110.955	134.644	Continuing	Continuing
2555: *Test and Evaluation (T&E)*	0.000	120.411	128.128	132.591	-	132.591	103.729	108.056	97.354	76.755	Continuing	Continuing
2556: *Propulsion (PP)*	0.000	14.547	7.415	65.769	-	65.769	62.896	45.594	74.570	29.306	Continuing	Continuing
2557: *Maintenance Systems (MxS)*	0.000	22.267	25.090	18.061	-	18.061	19.038	15.909	14.896	14.650	Continuing	Continuing
2558: *Combat Data Systems (CDS)*	0.000	20.365	26.334	17.707	-	17.707	16.190	9.848	19.409	9.356	Continuing	Continuing
2559: *Training Systems and Simulation (TSS)*	0.000	38.761	36.995	30.151	-	30.151	32.221	31.529	33.479	31.382	Continuing	Continuing
2560: *Infrastructure and Support Costs*	0.000	2.425	2.616	2.675	-	2.675	2.724	3.071	3.164	2.874	Continuing	Continuing
2561: *DevSecOps*	0.000	13.578	10.032	8.367	-	8.367	12.272	12.369	1.487	17.612	Continuing	Continuing
2562: *F-35 USN Unique*	0.000	8.303	16.533	14.668	-	14.668	19.788	16.655	15.726	16.042	Continuing	Continuing
9999: *Congressional Adds*	0.000	4.827	23.750	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	28.577

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): 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, United States Air Force, United States Marine Corps and International Partners countries. There are three variants the F-35A Conventional Takeoff and Landing variant; 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 total air system life cycle costs. Planning, systems engineering, development, and testing for Block 4 and additional capabilities as part

of the C2D2 acquisition strategy continues across the F-35 Air System to include the air vehicle, propulsion system, combat data systems, maintenance systems, and training systems as Initial Operational Capability (IOC) has been met for each variant.

The JSF Continuous Capability Development & Delivery (C2D2) efforts provide incremental warfighting capability improvements to maintain joint air dominance against evolving threats. Block 4 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 Block 4 Mission Decomposition analysis completed in FY2014. These analyses served as the basis for the Block 4 Capability Development Document (CDD), staffed through the Air Force Requirements Oversight Council (AFROC) and signed by the USAF Chief of Staff in January 2015. Joint Requirements Oversight Council (JROC) approved the CDD 21 March 2017.) Modernization activities in FY2024 continue with the incremental releases of capabilities & execution of continuous development efforts as part of the C2D2 acquisition strategy. Block 4 efforts include a robust weapons integration portfolio and provide new opportunities for International Partners to assess, integrate, and field unique capabilities based on global sovereign requirements.

The United Kingdom, Italy, Netherlands, Canada, Australia, Denmark and Norway are participants in F-35 modernization. The program shown here reflects United States Navy funding. Total funding for all Service and International Partners is reported at the accomplishment/planned program level since activities support all aircraft variants. Foreign Military Sales are ongoing separately.

PE 0604840M/N replacing PE 0604810M/N beginning in FY2019 due to budget being moved from BA05 to BA07.

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. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	486.962	491.513	386.118	-	386.118
Current President's Budget	473.749	503.365	543.834	-	543.834
Total Adjustments	-13.213	11.852	157.716	-	157.716
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-11.898			
• Congressional Rescissions	-	-			
• Congressional Adds	-	23.750			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-13.214	0.000			
• Program Adjustments	0.000	0.000	156.085	-	156.085
• Rate/Misc Adjustments	0.001	0.000	1.631	-	1.631

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0604840N *I F-35C C2D2*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2022	FY 2023
Project: 9999: *Congressional Adds*		
Congressional Add: *Joint Enterprise Data Interoperability for F-35 Depots*	4.827	5.000
Congressional Add: *F135 Engine Enhancement*	0.000	18.750
Congressional Add Subtotals for Project: 9999	4.827	23.750
Congressional Add Totals for all Projects	4.827	23.750

Change Summary Explanation

The FY2024 budget submission accomplishments/planned programs (R-2A) has been updated to mirror the Joint Strike Fighters Program Management Office organizational structure in order to provide more transparency and visibility to development efforts across the F-35 enterprise. Also, the Project Cost Analysis (R-3) exhibit has been updated to include additional cost categories to better display executing efforts. FY2021 values have been updated based on actuals to date.

FY2024 was increased by $179.6 million since the previous President's Budget submission due to accelerated weapons capabilities development and integration, cyber co-pilot capability integration & cyber technologies, and increased flight test infrastructure capacity & enhanced engine program (EEP) development.

PU 0358 is a New Start.

Technical: Not applicable.
Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840N / *F-35C C2D2*	Project (Number/Name) 0358 / *Utility and Subsystem Support to Mission Systems*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
0358: *Utility and Subsystem Support to Mission Systems*	0.000	0.000	0.000	72.463	-	72.463	85.558	71.607	41.454	74.343	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

As the United States and its allies add new capabilities to outpace the growing threat of the People Republic of China other near-peer threats, increased cooling and electrical power capacity will be required to support these new capabilities. In order to address increased thermal loads from new Mission Systems requirements, an upgrade to the Power Thermal Management System (PTMS) and Fuel Thermal Management System (FTMS) is required.

A. Mission Description and Budget Item Justification

This is a NEW START. Current Mission System planning estimates due to Block 4 capabilities and beyond indicate that additional cooling is required for aircraft beginning in Lot 22 (FY28). This upgrade/modification consists of an upgrade to the current Honeywell PTMS that includes larger heat exchangers, shifting some systems from the cold liquid loop to the hot liquid loop, increasing system pressure, increasing pump speeds and raising compressor discharge temperatures. This modification upgrades components that are relatively low cost and already at a high technical readiness level. All PTMS changes for this level of cooling would be accomplished within the existing PTMS bay and there are not expected to be any necessary changes to the capacity of the cold liquid loop or the hot liquid loop. This work includes nonrecurring engineering for the development, test, and certification of the upgraded PTMS system to ensure suitable cooling is available for future capacities. The Government has assessed that EMD phase would take 5-6 years.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: PTMS Upgrade	0.000	0.000	72.463	0.000	72.463
Articles:	-	-	-	-	-
Description: Current Mission System planning estimates due to Block 4 capabilities and beyond indicate that additional cooling is required for aircraft beginning in Lot 22 (FY28). This upgrade/modification consists of an upgrade to the current Honeywell PTMS that includes larger heat exchangers, shifting some systems from the cold liquid loop to the hot liquid loop, increasing system pressure, increasing pump speeds and raising compressor discharge temperatures. This modification upgrades components that are relatively low cost and already at a high technical readiness level. All PTMS changes for this level of cooling would be accomplished within the existing PTMS bay and there are not expected to be any necessary changes to the capacity of the cold liquid loop or the hot liquid loop. This work includes nonrecurring engineering for the development, test, and certification of the upgraded PTMS system to ensure suitable cooling is available for future capacities. The Government has assessed that EMD phase would take 5-6 years.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 0358 / *Utility and Subsystem Support to Mission Systems*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
FY 2023 Plans: N/A ***FY 2024 Base Plans:*** The PTMS Upgrade program will begin nonrecurring engineering effort to increase PTMS Upgrade cooling requirements. This work includes the necessary labor and nonrecurring engineering to support development of the cooling PTMS system and a detailed schedule of EMD to include the necessary operational testing and flight tests. Note: This is a New Start ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The increase from FY2023 to FY2024 is due to the PTMS Upgrade requirements needed to meet Mission Systems Capabilities.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	72.463	0.000	72.463

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 0358 / *Utility and Subsystem Support to Mission Systems*

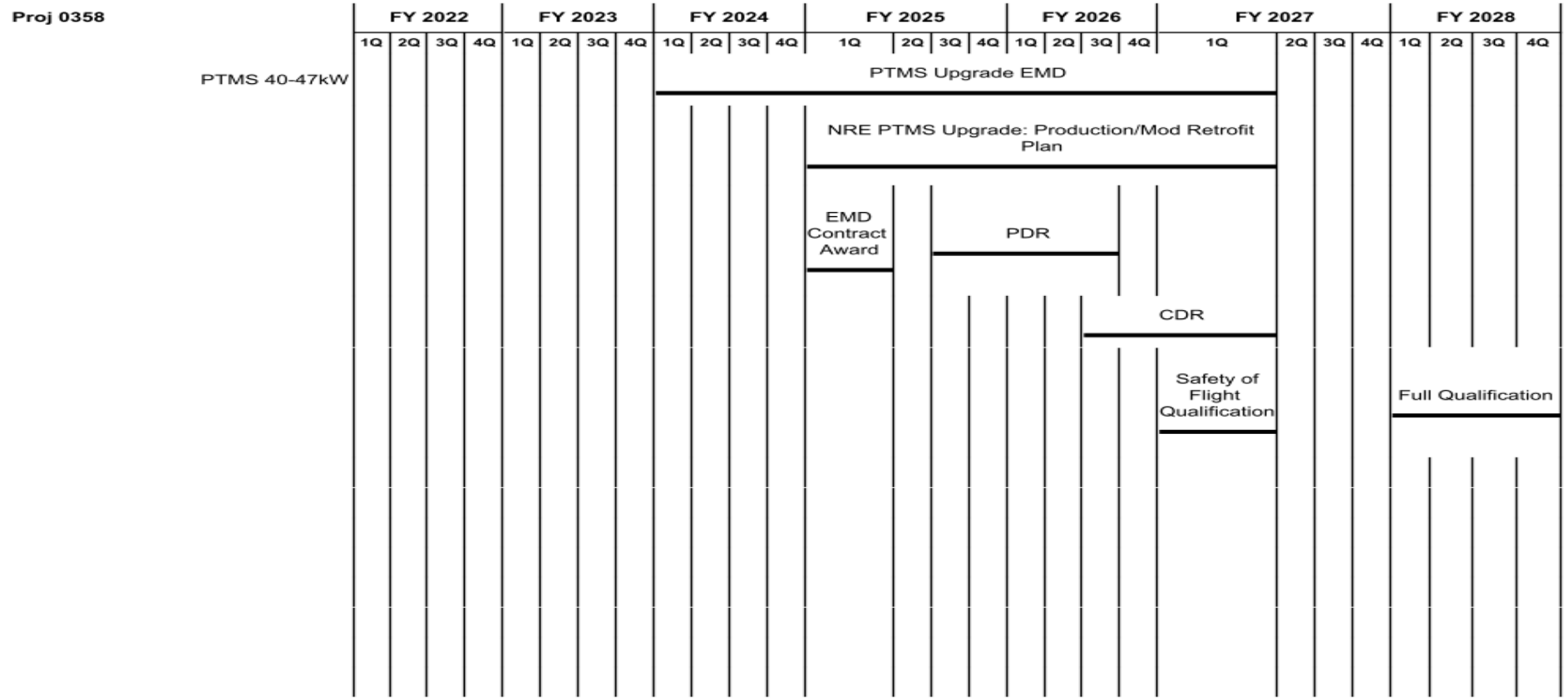
Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SEIT NRE System	C/CPIF	Lockheed Martin : FT. Worth, TX	0.000	0.000		0.000		72.463	Feb 2024	-		72.463	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.000		72.463		-		72.463	Continuing	Continuing	N/A

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		0.000		72.463		-		72.463	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 0358 / *Utility and Subsystem Support to Mission Systems*



2024PB - 0604840N - 0358

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 0358 / *Utility and Subsystem Support to Mission Systems*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0358				
PTMS Upgrade: PTMS Upgrade EMD	1	2024	1	2027
PTMS Upgrade: NRE PTMS Upgrade: Production/Mod Retrofit Plan	1	2025	1	2027
PTMS Upgrade: EMD Contract Award	1	2025	1	2025
PTMS Upgrade: PDR	3	2025	3	2026
PTMS Upgrade: CDR	3	2026	1	2027
PTMS Upgrade: Safety of Flight Qualification	1	2027	1	2027
PTMS Upgrade: Full Qualification	1	2028	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840N / *F-35C C2D2*	Project (Number/Name) 2553 / *Air Vehicle - Technology Refresh 3 (TR-3)*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2553: *Air Vehicle - Technology Refresh 3 (TR-3)*	0.000	66.864	33.618	3.004	-	3.004	1.196	1.138	5.138	10.501	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 198

Note

Beginning in FY2022, Air Vehicle - Technology Refresh 3 (TR-3) was established as a separate, distinct project within the Continuous Capability Development & Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from Project Unit 2936, which is still included at the end of the R-2A for fiscal years FY2021. This Project Unit has also been updated to reflect the directed project categories to provide traceability between current execution and the FY2024 request.

A. Mission Description and Budget Item Justification

Technology Refresh 3 (TR-3) conducts post Critical Design Review (CDR) design activities. This effort will develop and deliver a TR-3 system through full flight-worthy certification and production readiness review. The design of TR-3 subsystems Integrated Core Processor (ICP), Aircraft Memory System (AMS), and Panoramic Cockpit Display Electronics Unit and Display Unit (PCD-EU, PCD-DU) configurations will contain new backplane technology, commercial operating systems, and modified middleware necessary to support Block 3F functionality and incorporation of all Block 4 capabilities. This work includes nonrecurring engineering for the development, test, and certification of the ICP, AMS, PCD-EU, and PCD-DU, and includes processing capacity to ensure long term viability for future capabilities.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Technology Refresh 3 (TR-3)	66.864	33.618	3.004	0.000	3.004
Articles:	-	-	-	-	-
Description: Technology Refresh 3 (TR-3) conducts post Critical Design Review (CDR) design activities. This effort will develop and deliver a TR-3 system through full flight-worthy certification and production readiness review. The design of TR-3 subsystems Integrated Core Processor (ICP), Aircraft Memory System (AMS), and Panoramic Cockpit Display Electronics Unit and Display Unit (PCD-EU, PCD-DU) configurations will contain new backplane technology, commercial operating systems, and modified middleware necessary to support Block 3F functionality and incorporation of all Block 4 capabilities. This work includes nonrecurring engineering for the development, test, and certification of the ICP, AMS, PCD-EU, and PCD-DU, and includes processing capacity to ensure long term viability for future capabilities.					
FY 2023 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2553 / *Air Vehicle - Technology Refresh 3 (TR-3)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
The TR-3 program will complete laboratory system integration and test, flight test, and system certification requirements. The program will also deliver necessary hardware and complete modifications of Operational Test aircraft to support fleet fielding recommendations. ***FY 2024 Base Plans:*** The TR-3 program will complete final laboratory system integration and test, flight test, and system certification requirements for fleet fielding. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The decrease from FY2023 to FY2024 is due to the program nearing completion. This is driven by the ramp down and completion of sub tier supplier scope, and completion of system development at the Prime.					
Accomplishments/Planned Programs Subtotals	66.864	33.618	3.004	0.000	3.004

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The Technology Refresh-3 program is a delivery order part of a larger F-35 Joint Program Office Basic Ordering Agreement. The acquisition strategy for this delivery order employs a Cost Plus Incentive Fee for engineering and development of the Integrated Core Processor, Panoramic Cockpit Display, and Aircraft Memory System. This eliminates the current Dimensioning Manufacturing Source for Technology Refresh-2. Additionally, brings open mission systems standards to the F-35 and enables new Embedded Training and Next Generation Distributed Aperture System capabilities.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2553 / *Air Vehicle - Technology Refresh 3 (TR-3)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
TR-3 Prime LM Development	C/CPIF	Lockheed Martin : Ft Worth TX	0.000	62.002	Oct 2021	33.618	Oct 2022	3.004	Oct 2023	-		3.004	0.000	98.624	98.624
TR-3 Prime LM Next Gen DAS Shipsets Proc	C/CPIF	Lockheed Martin : Ft Worth TX	0.000	4.638	Oct 2021	0.000		0.000		-		0.000	0.000	4.638	4.638
TR-3 Prime LM OT Next Gen DAS NRE	C/CPIF	Lockheed Martin : Ft Worth TX	0.000	0.122	Nov 2021	0.000		0.000		-		0.000	0.000	0.122	0.122
		Subtotal	0.000	66.762		33.618		3.004		-		3.004	0.000	103.384	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
TR-3 Project Support	MIPR	Various : Various	0.000	0.102	Nov 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	0.000	0.102		0.000		0.000		-		0.000	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	66.864		33.618		3.004		-		3.004	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2553 / *Air Vehicle - Technology Refresh 3 (TR-3)*

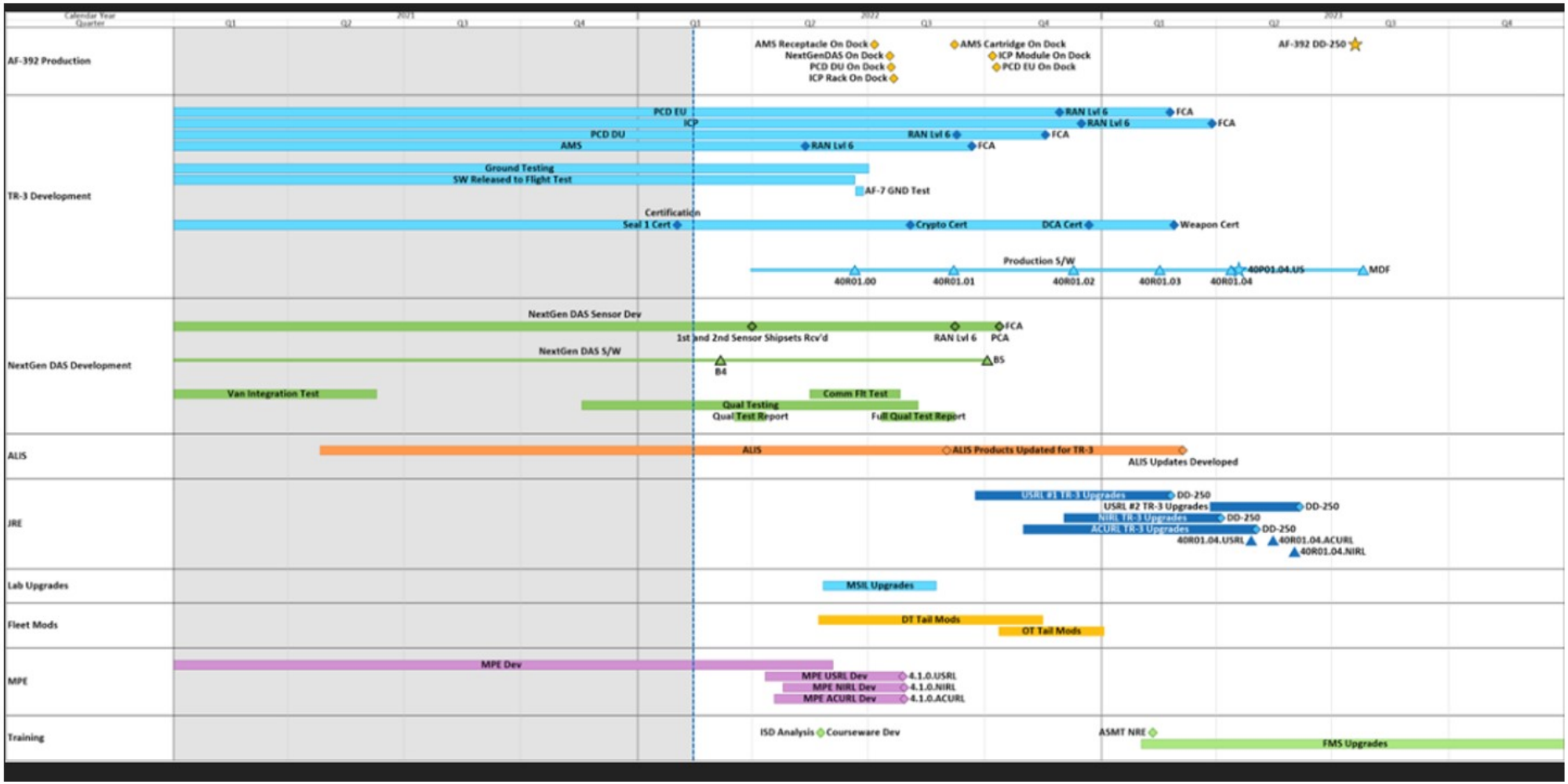


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2553 / *Air Vehicle - Technology Refresh 3 (TR-3)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2553				
Technology Refresh 3 (TR-3): Perform Safety of Flight Qualification Testing	1	2022	3	2022
Technology Refresh 3 (TR-3): Conduct TR-3 System Test Readiness Review	3	2022	3	2022
Technology Refresh 3 (TR-3): Perform Ground Test	4	2022	4	2022
Technology Refresh 3 (TR-3): Perform TR-3 Flight Test	4	2022	2	2023
Technology Refresh 3 (TR-3): Perform Final Hardware Qualification Testing	1	2022	1	2023
Technology Refresh 3 (TR-3): Deliver First Shipsets of TR-3 Hardware to Lot 15 Production Line	4	2022	4	2022
Technology Refresh 3 (TR-3): 1st Aircraft Lot 15 DD250	3	2023	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840N / *F-35C C2D2*	Project (Number/Name) 2554 / *Air Vehicle Block 4 Planning & Sys Eng*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2554: *Air Vehicle Block 4 Planning & Sys Eng*	0.000	161.401	192.854	178.378	-	178.378	179.316	119.674	110.955	134.644	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 198

Note

Beginning in FY2022, Air Vehicle - Block 4 Planning & Sys Eng was established as a separate, distinct project within the Continuous Capability Development & Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from Project Unit 2936, which is still included at the end of the R-2A for fiscal years FY2021. This Project Unit has also been updated to reflect the directed project categories to provide traceability between current execution and the FY2024 request.

A. Mission Description and Budget Item Justification

The F-35 Air Vehicle Program Management Office (AV PMO) development portfolio includes efforts to improve the F-35 air vehicle lethality, survivability, and interoperability in response to emerging threats outlined in the National Security Strategy and Operational Plans. The AV PMO delivers these capabilities utilizing a Continuous Capability Development and Delivery (C2D2) strategy combining traditional hardware upgrades and agile software integration processes. As a function of congressional desire for increased transparency and the F-35 organizational pivot, this is the second budget cycle in which AV PMO budget requirements have been comprehensively and discretely defined within a dedicated Project Unit.

F-35 Block 4 Modernization is designed to counter the full spectrum of evolving near-peer enemy threats to ensure US and Allied forces have freedom of operation even in the face of advanced adversary Anti-Access/Area Denial (A2/AD) capabilities. As designed, Block 4 consists of three principle lines of effort: development of software-based capabilities, development and integration of new and modernized aircraft hardware which enable the development of new capabilities, and new weapons integration. Efforts under the Air Vehicle / Block 4 Planning and Systems Engineering project range from requirements decomposition and preliminary design of capabilities through completion of Developmental Flight Test. These activities are a continuation of the previous Block 4 developmental contracts, and include activities required to enable the successful completion of Flight Test, to include select facility upgrades required for research, development, test and evaluation. Block 4 upgraded capabilities and continuous improvements will maintain Air System viability against the evolving threats indicated in the Electronic Warfare Initial Capabilities Document (ICD), the Fifth Generation Fighter Modernization ICD, and the Block 4 Capability Development Document (CDD). Additionally, the Block 4 capabilities will reduce life cycle cost, improve Air System Integration, and improve operational suitability. Weapons integration efforts included under this project include AARGM-ER integration, employment envelope expansion for current F-35 weapons, and Increased Air-to-Air Missile Carriage.

Included in the Air Vehicle (AV)/Block 4 Planning and Systems Engineering effort is both Prime and Government Systems Engineering Support needed for Avionics/ Electronic Warfare and Weapons Integration efforts to include studies, analysis and risk reduction efforts.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2554 / *Air Vehicle Block 4 Planning & Sys Eng*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Air Vehicle Planning & Sys Eng	161.401	192.854	178.378	0.000	178.378
Articles:	-	-	-	-	-

Description: The F-35 Air Vehicle Program Management Office (AV PMO) development portfolio includes efforts to improve the F-35 air vehicle lethality, survivability, and interoperability in response to emerging threats outlined in the National Security Strategy and Operational Plans. As designed, Block 4 consists of three principle lines of effort: development of software-based capabilities, development and integration of new and modernized aircraft hardware which enable the development of new capabilities, and new weapons integration. Included in the Air Vehicle (AV)/Block 4 Planning and Systems Engineering effort is both Prime and Government Systems Engineering Support needed for Avionics/Electronic Warfare and Weapons Integration efforts to include studies, analysis and risk reduction efforts.

FY 2023 Plans:
Continue with Agile development of capabilities through Developmental and Operational Flight Test. Continue requirements decomposition and preliminary design activities for advanced Block 4 capabilities. Continue development and maturity of key long lead capabilities and service unique weapons, enabling A2AD strategies including increased payloads, integrated fires, passive weapons, interoperability and multi-spectrum dominance in response to near-peer threats. Initiate development of enhanced cyber detection and mitigation capability for the F-35 in response to critical and emerging threats. Continue and expand application of cyber resilience engineering processes and tools for software, hardware, and weapons, though flight test. Continue and expand application of cyber resilient engineering processes and tools for software, hardware, and weapons, though flight test. Continuing development and timely delivery of software drops to meet warfighter need. Continue supporting efforts for airframe, air vehicle systems, Air-Ship integration, including Electromagnetic Aircraft Launch System and Advanced Arresting Gear (EMALS/AAG) launch bulletins and related work, mission systems, future capabilities studies and weapons integration efforts. Continue support for Block 4 Capabilities and support preliminary systems engineering efforts associated with AARGM-ER, AGM-158 family of weapons, and increased air-to-air missile carriage. Continued systems engineering, integration, and test (SEIT) development for avionics, weapons, studies & analyses, and risk reduction efforts.

FY 2024 Base Plans:
Continue with Agile development of capabilities through Developmental and Operational Flight Test. Continue requirements decomposition and preliminary design activities for advanced Block 4 capabilities. Continue development and maturity of key long lead capabilities and service unique weapons, enabling A2AD strategies including increased payloads, integrated fires, passive weapons, interoperability and multi-spectrum dominance

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2554 / *Air Vehicle Block 4 Planning & Sys Eng*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
in response to near-peer threats. Initiate development of enhanced cyber detection and mitigation capability for the F-35 in response to critical and emerging threats. Continue and expand application of cyber resilience engineering processes and tools for software, hardware, and weapons, though flight test. Continue and expand application of cyber resilient engineering processes and tools for software, hardware, and weapons, though flight test. Continuing development and timely delivery of software drops to meet warfighter need. Continue supporting efforts for airframe, air vehicle systems, Air-Ship integration, including Electromagnetic aircraft launch system advanced arresting gear (EMALS-AAG) launch bulletins and related work, mission systems, future capabilities studies and weapons integration efforts. Continue support for Block 4 Capabilities and support preliminary systems engineering efforts associated with AARGM-ER, AGM-158 family of weapons, and increased air-to-air missile carriage. Continued systems engineering, integration, and test (SEIT) development for avionics, sensors, weapons, studies & analyses, and risk reduction efforts. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The decrease from FY2023 to FY2024 is due to completion of development and integration of the Block 4 capabilities. With the completion of SDD and introduction of the Block 4 development program, nearly 70 new capabilities were approved started, leading to an initial bow wave of development and associated costs culminating in FY23. The resultant steady state of development efforts in FY24 and beyond are projected to be at a lesser capacity than the peak established in the FY23 budget year.					
Accomplishments/Planned Programs Subtotals	161.401	192.854	178.378	0.000	178.378

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The C2D2 acquisition strategy is to employ both Cost and Fixed Price Incentive contracts for the Block 4 engineering and development efforts. A new modernization contract structure will be established for all post SDD Block 4 efforts. In addition, a separate Basic Ordering Agreement or Indefinite Quantity/Indefinite Delivery contract is planned to provide a long term approach to upgrading and maintaining laboratories and test aircraft and supporting technology maturation for future C2D2 capabilities. FY23 begins systems engineering, integration, and test (SEIT) development.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2554 / *Air Vehicle Block 4 Planning & Sys Eng*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
AV Prime LM Phase II Cape/Development	C/CPIF	Lockheed Martin : Ft Worth TX	0.000	143.823	Oct 2021	161.813	Oct 2022	123.293	Nov 2023	-		123.293	121.971	550.900	550.900
AV Prime LM Phase II Fee	C/CPIF	Lockheed Martin : Ft Worth TX	0.000	5.122	Oct 2021	5.122	Oct 2022	21.300	Nov 2023	-		21.300	0.000	31.544	31.544
AV Prime LM Air Vehicle Integration	C/CPFF	Lockheed Martin : Ft Worth TX	0.000	1.250	Oct 2021	1.250	Oct 2022	1.560	Nov 2023	-		1.560	1.024	5.084	5.084
AV Systems Engineering	Various	Various : Various	0.000	3.191	Dec 2021	4.312	Dec 2022	5.883	Nov 2023	-		5.883	7.410	20.796	20.796
AV Cyber Survivability	Various	Various : Various	0.000	0.000		4.917	Dec 2022	9.322	Nov 2023	-		9.322	32.500	46.739	46.739
		Subtotal	0.000	153.386		177.414		161.358		-		161.358	162.905	655.063	N/A

Remarks

1. Breaking out Cyber survivability as separate line item in FY23.
2. Phase 2.3 Performance Incentive Fee (PIF) events are tagged to incrementally mature hardware deliveries. FY24 will see increased hardware deliveries as development with potential PIF payouts upon delivery.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
AV Mission Systems Support	Various	Various : Various	0.000	5.265	Nov 2021	3.940	Nov 2022	5.009	Nov 2023	-		5.009	8.350	22.564	22.564
AV Vehicle Systems Support	Various	Various : Various	0.000	0.250	Nov 2021	8.500	Nov 2022	8.250	Nov 2023	-		8.250	2.500	19.500	19.500
AV CSO Development Support	Various	Various : Various	0.000	2.500	Nov 2021	3.000	Nov 2022	3.761	Nov 2023	-		3.761	Continuing	Continuing	Continuing
		Subtotal	0.000	8.015		15.440		17.020		-		17.020	Continuing	Continuing	N/A

Remarks

1. Increase FY23 AV Vehicle system support due to ramp up of EMALS AAG support.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840N / *F-35C C2D2*	Project (Number/Name) 2554 / *Air Vehicle Block 4 Planning & Sys Eng*	

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	161.401		192.854		178.378		-		178.378	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2554 / *Air Vehicle Block 4 Planning & Sys Eng*

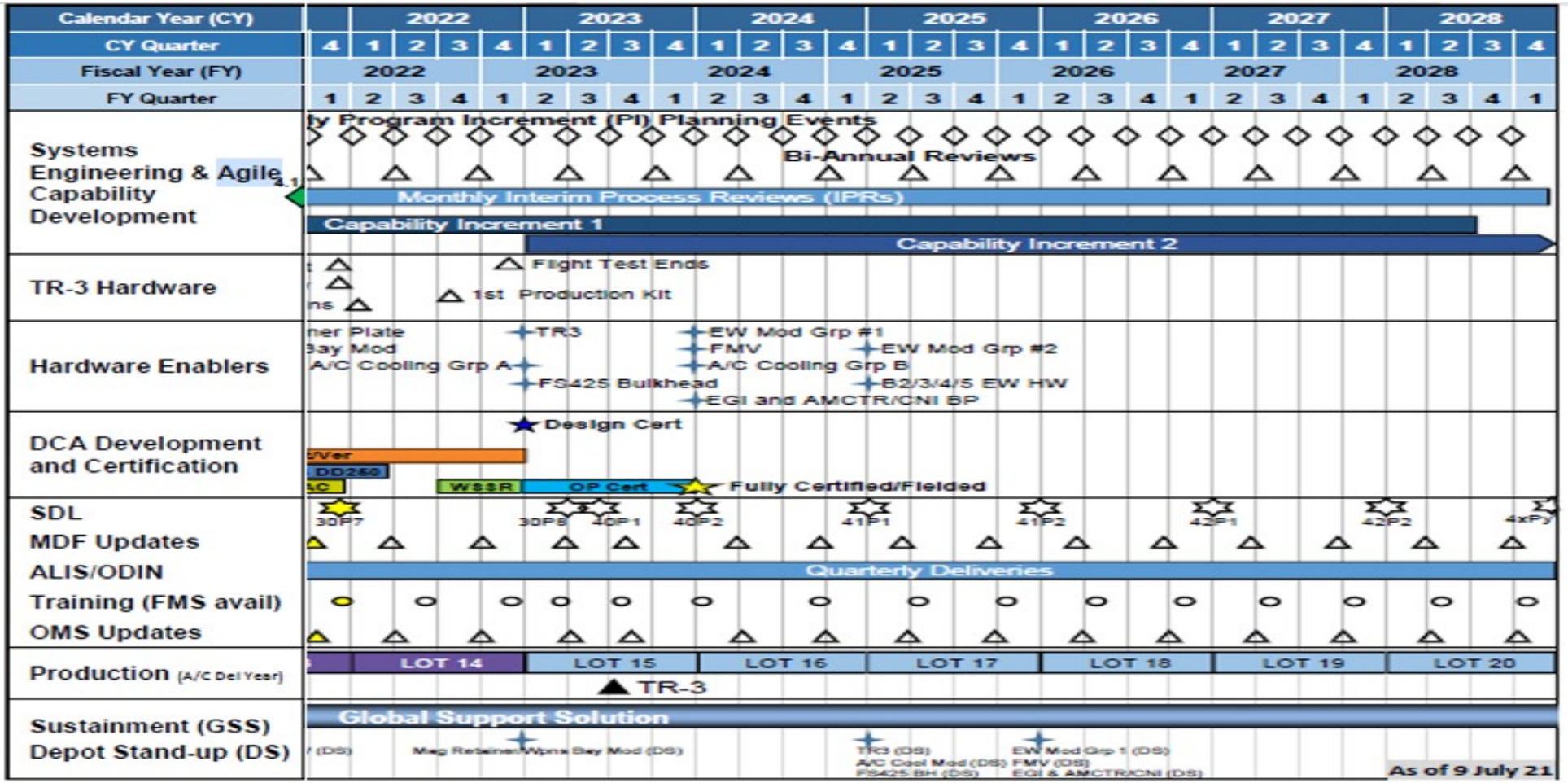


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2554 / *Air Vehicle Block 4 Planning & Sys Eng*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2554				
Systems Engineering & Agile Capability Development: Planning Events	1	2022	4	2028
Systems Engineering & Agile Capability Development: IPRs	1	2022	4	2028
Hardware Enablers: A/C Cooling	1	2022	4	2025
Hardware Enablers: Electronic Warfare (EW) Upgrade	1	2022	1	2028
Hardware Enablers: Embedded GPS Inertial (EGI)	1	2022	1	2027
Hardware Enablers: Beyond Line Of Sight (BLOS) Communications	4	2022	4	2028
Production: LOT 15	2	2023	1	2024
Production: LOT 16	2	2024	1	2025
Production: LOT 17	2	2025	1	2026
Production: LOT 18	2	2026	1	2027
Production: LOT 19	2	2027	1	2028
Production: LOT 20	2	2028	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0604840N / *F-35C C2D2*				Project (Number/Name) 2555 / *Test and Evaluation (T&E)*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
2555: *Test and Evaluation (T&E)*	0.000	120.411	128.128	132.591	-	132.591	103.729	108.056	97.354	76.755	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
Project MDAP/MAIS Code: 198												

Note

Beginning in FY2022, Test and Evaluation (T&E) was established as a separate, distinct project within the Continuous Capability Development & Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from Project Unit 2936, which is still included at the end of the R-2A for fiscal years FY2021. This Project Unit has also been updated to reflect the directed project categories to provide traceability between current execution and the FY2024 request.

A. Mission Description and Budget Item Justification

Integrated Test activities in support of C2D2, to include Lockheed Martin support at all test sites. Non-recurring engineering required to plan for the service life extension of existing DT aircraft and modifications necessary to bring DT aircraft fleet to a more production-representative and sustainable configuration, and to develop flight test instrumentation and release test software to meet Block 4 requirements. Additional upgrades required to support development and evaluation of improvements driven by changes in the threat environment and as identified in the Electronic Warfare ICD, the Fifth Generation Fighter Modernization ICD, and the Block 4 Capability Development Document (CDD). Efforts include non-recurring engineering and procurement of a test article to evaluate service life of F-35B STOVL Aircraft. Integrated test also supports the evaluation of upgrades to ALIS, fielding of ODIN Base Kits, regression testing of fielded weapons upgrades, and various validation/verification efforts.

Costs in the Accomplishments/Planned and Program R2A section have been broken out into the following R-2A categories: Development Foundation Contract, Development Test, Operational Test, Future Flight Test Capabilities/Investments, Ground Test and Simulation Infrastructure. All of the development efforts presented in the budget submission existed in prior years and were rolled up under previously submitted Accomplishments/ Planned and Program costs in Test and Evaluation category.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Development Foundation Contract (DFC) Flight Test and Tech Refresh	41.417	42.838	41.524	0.000	41.524
Articles:	-	-	-	-	-
Description: Flight test infrastructure at Edwards Air Force Base (AFB) and Pax River Naval Air Station (NAS) and F-35 tech refresh for laboratory development at Fort Worth, TX for Lockheed Martin Aeronautics and its subcontractors (LM Aero). This includes investment planning and other test planning activities required for Block 4 development, integration, developmental test and evaluation. Funding is required for the Lockheed Martin Integrated Test Force contractor labor, suppliers, and material. Other support efforts are provided for airframe, air vehicle systems, air-ship integration, mission systems, weapons integration, offboard mission					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2555 / *Test and Evaluation (T&E)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
support, autonomic logistics development, joint reprogramming enterprise and modeling and joint simulation environment activities, including Nimble Lightning efforts. Other costs in support of ranges, chase planes and DT site operations. ***FY 2023 Plans:*** Support F-35 capability enhancements identified in approved requirements documents. DFC will provide flight test for C2D2 Block 4 capabilities including weapons testing, as well as continue annualized technology refresh and specific lab modernization efforts. These efforts will sustain, replace, upgrade, and modify hardware and software at the module level and facilitate test integration with the development process. ***FY 2024 Base Plans:*** Support F-35 capability enhancements. DFC will provide flight test for C2D2 Block 4 capabilities including weapons testing, as well as continue annualized equipment recapitalization along with technology refresh and specific lab modernization efforts. These efforts will sustain, replace, upgrade, and modify hardware and software. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease achieved by negotiating Development Foundation Contract to a lower cost while deferring FY24 efforts to ramp up again in FY25.					
Title: Developmental Test (DT) ***Articles:*** ***Description:*** Government test site Integrated Test activities to support development of Air Vehicle C2D2 and TR-3 programs, as well as inherent maintenance systems, training systems, and combat data systems test support. Testing includes ground, logistics, and flight testing of incremental flight software releases, weapon integration, DMS/ fleet sustainment, service-life extension, hardware refresh, and regression efforts to ensure total system integration meets program requirements. Test site capabilities to meet program requirements include infrastructure, ranges, engineering, administration, logistics, maintenance, controls, information technologies, classified facilities, and service unique	17.850 -	20.372 -	19.069 -	0.000 -	19.069 -

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2555 / *Test and Evaluation (T&E)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
supporting capabilities. The sites to be funded include but are not limited to NAWCAD Pax River, NAWCAD China Lake, and Edwards AFB. ***FY 2023 Plans:*** Continue to support Integrated Test capacity and flight test execution (manpower, weapons, flight hours, range time, and chase, target & tanker support assets) to develop and verify and regression test capabilities as directed by the F-35 JPO. Major program testing includes TR-3 integration, Block 4 weapons integration, incremental software releases with new capability and bug fixes, integrated system evaluations, multi-ship operations, and mission effectiveness evaluations. ***FY 2024 Base Plans:*** Continue to support Integrated Test capacity and flight test execution (manpower, weapons, flight hours, range time, and chase, target & tanker support assets) to develop and verify and test capabilities as directed by the F-35 JPO. Major program testing includes Block 4 weapons integration, integrated system evaluations, multi-ship operations, and mission effectiveness evaluations. Continued funding for Development Test Aircraft Modification broken out from the rest of the Development activities. This is continued support from FY22 for Developmental Test (DT) aircraft modifications in order to be test-ready and operationally-representative. Funding will also procure Developmental Test (DT) Kits. Continuing to support flight test capacity and flight test execution. This includes first increment testing through initial and fully operational increments. The funding will be used for continuing to develop and test incrementally, for new software releases and deficiency fixes. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease is due to the decrease in TR-3 Developmental Test (DT) efforts in FY24.					
Title: Operational Test (OT)	8.542	9.891	15.760	0.000	15.760
Articles:	-	-	-	-	-
Description: Government test site Integrated Test activities to support development of Air Vehicle C2D2 and TR-3 programs, as well as inherent maintenance systems, training systems, and combat data systems test support. Testing includes ground, logistics, and flight-testing of incremental flight software releases, weapon integration, DMS/fleet sustainment, hardware refresh and regression efforts to ensure total system integration meets program requirements in an operationally representative environment. Test site capabilities to meet					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2555 / *Test and Evaluation (T&E)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
program requirements include infrastructure, ranges, engineering, administration, logistics; maintenance, controls, information technologies, classified facilitates, and service unique supporting capabilities. The sites to be funded include but are not limited to Nellis AFB and Yuma Air Station. ***FY 2023 Plans:*** Funding will support Integrated Test capacity and flight test execution (manpower, weapons, flight hours, range time, and chase, target & tanker support assets) to develop and verify and test capabilities as directed by the F-35 JPO. Major program testing includes TR-3 integration, Block 4 weapons integration, incremental software releases with new capability and deficiency report fixes, integrated system evaluations, multi-ship operations and mission effectiveness evaluations in an operationally representative environment. Continued funding for Operational Test (OT) aircraft modifications in order to be test-ready and operationally-representative. Funding will also procure Developmental Test (DT) Kits. Funding also includes the execution of the remaining 64 OT virtual mission trials and IOT&E close out tasks. ***FY 2024 Base Plans:*** Funding will support Integrated Test capacity and flight test execution (manpower, weapons, flight hours, range time, and chase, target & tanker support assets) to develop and verify and test capabilities as directed by the F-35 JPO. Major program testing includes TR-3 integration, Block 4 weapons integration, integrated system evaluations, multi-ship operations and mission effectiveness evaluations in an operationally representative environment. Continued funding for Operational Test (OT) aircraft modifications in order to be test-ready and operationally-representative. The funding will be used for continual to development through incremental test of new software and deficiency fixes. Funding also includes the execution of the remaining 64 OT virtual mission trials and IOT&E close out tasks. AV is the TR-3 system owner responsible for verifying capability (per their funding in PU 2553) with data provided from DT and OT funded in this chart. ***FY 2024 OCO Plans:*** NA ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase due to ramp up of Follow-on Modernization Phase 2.3 Operational Test Kit support.					
Title: Future Flight Test Capabilities/Investments	46.490	48.451	52.774	0.000	52.774
Articles:	-	-	-	-	-
Description: Test fleet modifications, test mission equipment/assets, instrumentation capability, and data center investments are required to continue to support Block 4 capability development and integrated test requirements. TR-3 related capability requires current test aircraft and replacement test aircraft configurations to be modified					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2555 / *Test and Evaluation (T&E)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
to new hardware, software, and instrumentation systems. Program priorities, flight test demand, data quantity/ bandwidth upgrades, and capability delivery schedules require a steady update to test fleet configurations. Modifications and instrumentation design/procurement/install are long-lead efforts requiring stable funding and contract vehicles to meet program needs. ***FY 2023 Plans:*** Continue incremental funding of Lot 14 Contract for FTI design, procurement and installation. Continues FTI design/ fabrication/installation (long-lead NRE, parts procurement, kit fabrication) for replacement test aircraft (16x unique designs). Continues NRE/procurement/installation to retrofit or maintain test aircraft viability. Additionally, development, procurement, and installation of flight test data center system upgrades to support Integrated Testing across multiple F-35 stakeholder sites. FTI development, procurement, fabrication, and installation for current/future service loaner aircraft in order to continue Integrated Testing with Service Operational Test organizations. Further, continue integration and procurement efforts for required Block 4 test mission assets, includes but not limited to weapons test vehicles, unique test mission equipment, and other test execution support equipment. ***FY 2024 Base Plans:*** Begin incremental funding for Flight Sciences Replacements jets FTI design, procurement and installation (1 per variant). Begin incremental funding for Flight Science Lite jets for FTI design in support of weapons testing (1xF-35B and 2xF-35C). Continues FTI design/fabrication/installation (long-lead NRE, parts procurement, kit fabrication) for replacement test aircraft (16x unique designs). Continues NRE/procurement/installation to retrofit or maintain test aircraft viability. Additionally, development, procurement, and installation of flight test data center system upgrades to support Integrated Testing across multiple F-35 stakeholder sites. FTI development, procurement, fabrication, and installation for current/future service loaner aircraft in order to continue Integrated Testing with Service Operational Test organizations. Further, continue integration and procurement efforts for required Block 4 test mission assets, includes but not limited to weapons test vehicles, unique test mission equipment, and other test execution support equipment. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase in funding due to continued ramp up of activities across the board, to include Lot 18/19 Flight Science, Flight					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2555 / *Test and Evaluation (T&E)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Science Lite, Operational Test in support of TR-3 Flight Test Instrumentation and ramp up in JASSM-ER/LRASM and AARGM-ER flight test assets in FY24.					
Title: Ground Test and Simulation Infrastructure (GTSI)	6.112	6.576	3.464	0.000	3.464
Articles:	-	-	-	-	-
Description: Development of Ground Test & Simulation Infrastructure capabilities from Block 4/TR-3 and other C2D2 early-on design and development through Installed Systems Verification activities prior to Developmental Flight Test for all variants of the F-35 aircraft. Infrastructure efforts include Laboratory Developments of Improvements & Modernization (I&M) assets used for design, development and test of Block 4 capabilities, and development of Ground Test & Evaluation Capabilities for digital and non-digital installed systems verification. Laboratory and/or Venue Developments will focus on the pure development of Block 4 capabilities through a Capability Verification Infrastructure that meets required fidelities that would advance the high-quality development of the Air System capabilities. Ground Test & Simulation Infrastructure will also include capabilities for cyber testing for TR-3 assessments within three main areas: air vehicle, information systems, and supply chain.					
FY 2023 Plans: Continue Ground Test & Simulation Infrastructure improvements and modernization capabilities needed for Block 4 air system developments to include but are not limited to Advanced Anti-Air Threat Simulation (AATS), Automatic Test & Re-Test (ATRT), Big Data Platform (BDP), Friendly and Threat Signal Development and Delivery, Multi-Spectral Environment improvements, etc. Efforts required to enable efficiencies in the Capability Verification process and decrease reliance on Flight Test Operations as the overwhelmingly sole means of Verification. Test Infrastructure improvements include Vendor lab capabilities as well as USG Organic Infrastructure. Develop F-35 mission threads for continued digital verification automated capabilities for early-on software development, and continue aircraft cyber improvements and testing efforts. Major Investments include improvements to Digital Capabilities and Analysis and Ground Integrated Battlespace Verification.					
FY 2024 Base Plans: Continue Ground Test & Simulation Infrastructure improvements and modernization capabilities needed for Block 4 air system developments. Efforts required to enable efficiencies in the Capability Verification process and decrease reliance on Flight Test Operations as the overwhelmingly sole means of Verification. Test Infrastructure improvements include Vendor lab capabilities as well as USG Organic Infrastructure. Develop F-35 mission threads for continued digital verification automated capabilities for early-on software development,					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2555 / *Test and Evaluation (T&E)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
and continue aircraft cyber improvements and testing efforts. Major Investments include improvements to Digital Capabilities and Analysis and Ground Integrated Battlespace Verification. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease due to fielding of some GT&S Developments for the Ground Test Infrastructure and other Developments. The GT&S Developments continue to be executed as planned for F-35 in FY25. This is subject to change in the future as advancements in Ground Test Infrastructure become available.					
Accomplishments/Planned Programs Subtotals	120.411	128.128	132.591	0.000	132.591

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The Test & Evaluation Project Unit will maximize use of existing F-35 contracts, where possible, for the various T&E-related capabilities and investments outlined in Sections A-C above. For example, provisions for new instrumentation on new flight test aircraft are being implemented when applicable via existing Production contracts in order to allow installation of the required hardware while those airframes are still on the assembly line. This will save significant costs and effort that would be required if instrumentation installation occurred after aircraft delivery. Other modifications and/or non-recurring engineering (NRE) may be implemented via existing contracts being managed by the Air Vehicle Program Management Office as part of the Block 4 engineering and development efforts. In addition, a separate Cost-Plus-Incentive-Fee-type contract is planned to provide a long-term approach to upgrading and maintaining laboratories and also for maintaining the older existing SDD test aircraft. Viability modifications to the SDD test aircraft are being contracted via a combination of Streamlined Delivery Orders for NRE and hardware as well as a Cost Plus-type contract, using both to expedite the right modifications as needed at the right time in order to avoid test aircraft grounding and to maximize their availability. In addition, separate Basic Ordering Agreements or Indefinite Quantity/Indefinite Delivery contracts may be used to implement a long-term approach to upgrading and maintaining laboratories and test aircraft and supporting technology maturation for future capabilities. Several new cost reduction initiatives are being studied to determine possible migration away from Lockheed-Martin support to less-expensive organic support (via either government solutions, local test-base support contracts, or a combination of both) in areas such as test aircraft maintenance, test operations support, and networks/knowledge management. Other initiatives are being pursued to move more test data collection requirements from the open-air ranges to ground test chambers, computer-based models and simulations, or other laboratory venues where possible.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840N / *F-35C C2D2*	Project (Number/Name) 2555 / *Test and Evaluation (T&E)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DFC - Prime LM Developmental Foundation Contract	C/CPIF	Lockheed Martion : Ft. Worth, TX	0.000	40.128	Nov 2021	40.985	Nov 2022	36.630	Nov 2023	-		36.630	184.640	302.383	302.383
OT - Prime LM Operational Test Aircraft Modification	C/CPIF	Lockheed Martion : Ft. Worth, TX	0.000	0.770	Jun 2022	1.800	Aug 2023	9.261	Aug 2024	-		9.261	8.941	20.772	20.772
FI - Prime LM DT AC Viability	C/CPIF	Lockheed Martion : Ft. Worth, TX	0.000	12.000	Dec 2021	12.938	Dec 2022	40.244	Dec 2023	-		40.244	17.414	82.596	82.596
FI - Flight Test Asset	C/CPFF	Lockheed Martion : Ft. Worth, TX	0.000	23.286	Dec 2021	25.490	Dec 2022	10.856	Dec 2023	-		10.856	22.741	82.373	82.373
DT- Prime LM Development Test Aircraft Modification	C/CPIF	Lockheed Martin : Ft. Worth, TX	0.000	1.000	Mar 2022	4.275	Aug 2023	2.198	Aug 2024	-		2.198	9.941	17.414	17.414
Laboratory Developments	C/CPIF	Lockheed Martin : Ft. Worth, TX	0.000	0.000		0.000		4.894	Nov 2023	-		4.894	0.000	4.894	4.894
		Subtotal	0.000	77.184		85.488		104.083		-		104.083	243.677	510.432	N/A

Remarks

R-3 Acronyms correspond to R-2A categories, per below breakout:
DFC - Development Foundation Contract (DFC) Flight Test
OT - Operational Test
DT- Development Test Aircraft Modification
Breaking out DT-Development Test Aircraft Modification to track separate from Operation Test Aircraft Modification
DT - Developmental Test
FI - Future Flight Test Capabilities and Investments
GTS - Ground Test Simulation and Infrastructure

Flight Test assets include DT and OT weapons procurement to support Test and assets needed for flight test instrumentation

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	MIPR	Edwards AFB : Edwards AFB, CA	0.000	8.630	Dec 2021	9.057	Dec 2022	7.938	Dec 2023	-		7.938	16.390	42.015	42.015

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	MIPR	IDT : Ballston, VA	0.000	0.410	Dec 2021	0.431	Dec 2022	0.764	Dec 2023	-		0.764	1.639	3.244	3.244
Developmental Test & Evaluation (DT&E)	MIPR	JHU : Lauren, MD	0.000	7.784	Dec 2021	8.195	Dec 2022	0.413	Dec 2023	-		0.413	23.355	39.747	39.747
Developmental Test & Evaluation (DT&E)	WR	NAWCAD : Patuxent River, MD	0.000	5.189	Dec 2021	5.331	Dec 2022	7.890	Dec 2023	-		7.890	27.184	45.594	45.594
Developmental Test & Evaluation (DT&E)	WR	NAWCWD : China Lake, CA	0.000	9.793	Dec 2021	10.307	Dec 2022	0.664	Dec 2023	-		0.664	24.292	45.056	45.056
Operational Test & Evaluation (OT&E)	MIPR	Edwards AFB : Edwards AFB, CA	0.000	4.091	Dec 2021	2.750	Nov 2022	0.507	Nov 2023	-		0.507	Continuing	Continuing	Continuing
Operational Test & Evaluation (OT&E)	MIPR	Eglin AFB : Eglin AFB, FL	0.000	6.033	Apr 2022	5.204	Jun 2023	0.635	Jun 2024	-		0.635	8.238	20.110	20.110
Operational Test & Evaluation (OT&E)	WR	NAWCAD : Patuxent River, MD	0.000	1.297	Dec 2021	1.365	Dec 2022	0.097	Dec 2023	-		0.097	5.519	8.278	8.278
Operational Test & Evaluation (OT&E)	WR	NAWCWD : China Lake, CA	0.000	0.000		0.000		4.018	Dec 2023	-		4.018	0.000	4.018	4.018
Operational Test & Evaluation (OT&E)	MIPR	Nellis AFB : Nellis AFB, NV	0.000	0.000		0.000		4.955	Dec 2023	-		4.955	0.000	4.955	4.955
Operational Test & Evaluation (OT&E)	MIPR	NSMA : NSMA	0.000	0.000		0.000		0.627	Dec 2023	-		0.627	0.000	0.627	0.627
		Subtotal	0.000	43.227		42.640		28.508		-		28.508	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	120.411		128.128		132.591		-		132.591	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2555 / *Test and Evaluation (T&E)*

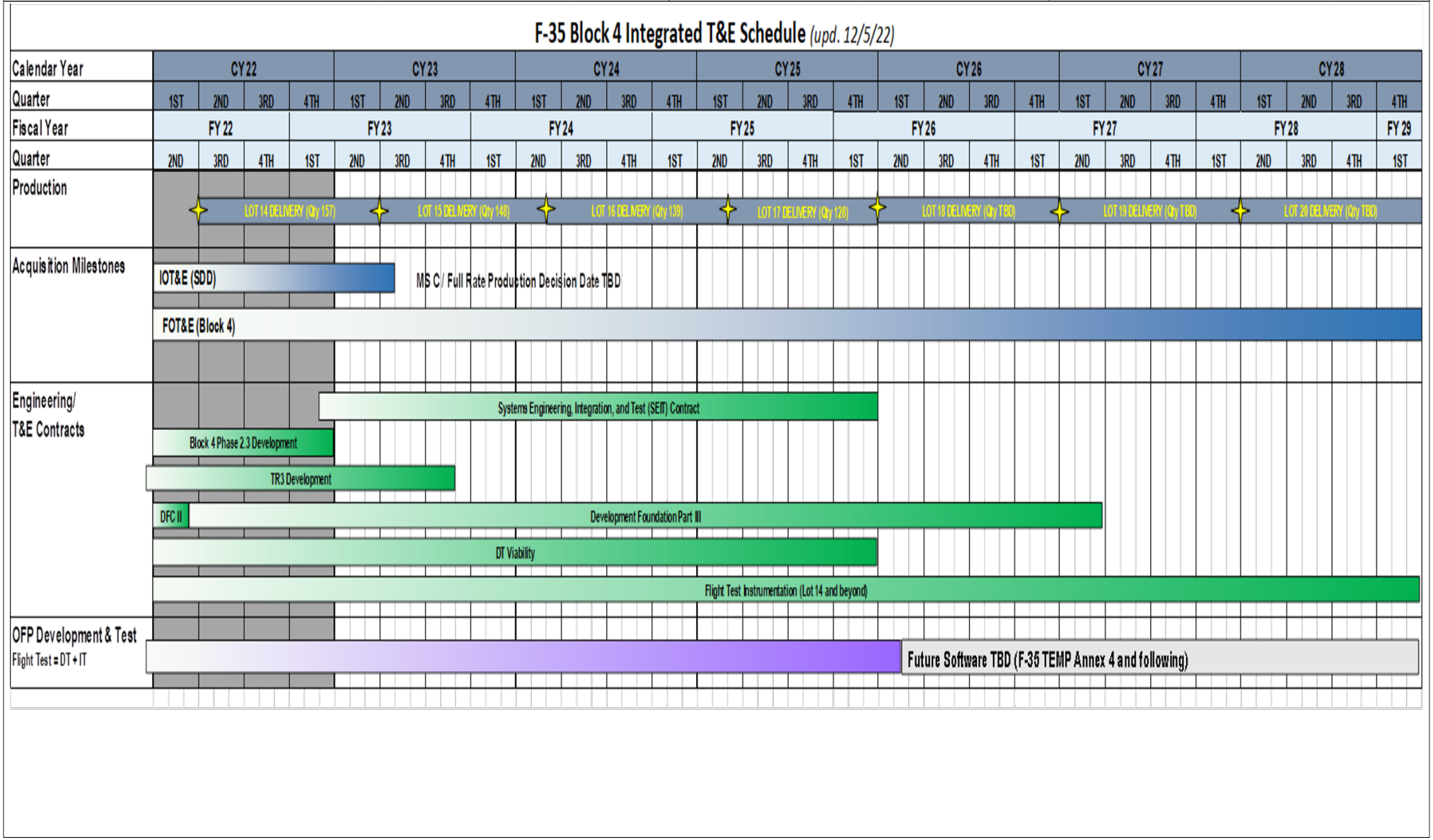

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2555 / *Test and Evaluation (T&E)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2555				
Development Foundation Contract Part III	1	2022	2	2027
DT Aircraft Viability	1	2022	1	2026
Flight Test Instrumentation	1	2022	4	2028
Systems Engineering, Integration, and Test Contract	1	2023	1	2026
OFP Development & Test	1	2022	2	2026

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0604840N / *F-35C C2D2*				Project (Number/Name) 2556 / *Propulsion (PP)*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
2556: *Propulsion (PP)*	0.000	14.547	7.415	65.769	-	65.769	62.896	45.594	74.570	29.306	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 198

Note

Beginning in FY2022, Propulsion (PP) was established as a separate, distinct project within the Continuous Capability Development & Delivery (C2D2) Program Element, per Congressional direction. This Project Unit includes continued efforts from Project Unit 3410 prior years. This Project Unit has been updated to reflect the directed project categories to provide traceability between current execution and future requests.

A. Mission Description and Budget Item Justification

Propulsion F135 projects within the Continuous Capability Development & Delivery (C2D2) are provided for developmental efforts for propulsion systems and test engine requirements such as Block 4 Integrated Flight Test Support, Engine Flight Test Mechanics, Flight Test Engineering, Engine Hardware, Test Engine Procurements, research, component and capability development, prototypes, various studies, and other associated government costs integral to support the developmental stages for F-35 engine modernization, affordability drivers for top engine availability degraders, and improvement to support the F135 Propulsion System for the F-35 Air Vehicle. Testing and development of the three F-35 aircraft variants require engine propulsion funding to enable continued flight hours. Flight hours are budgeted and planned to meet the Block 4 flight test timelines, and required Flight Test support. Flight Test Support efforts will transition to Organic support by FY2026. Transition of Flight Test Support requirements to organic capability includes efforts performed by contractor and government installations, Autonomic Logistics Information System / Operational Data Integrated Network (ALIS/ODIN) transition, and Final Flight Release (FFR) engine support efforts. Propulsion C2D2 provides funding for requirements to support the Air Vehicle modernization efforts with signature predicting improvements and a bridge program for engine modernization. Engine Modernization is part of the wider Air System Modernization effort. Starting in FY24, Engine Modernization will be funded through the standard funding process. ECU Detailed Design labor will be added to the F135 Engine Enhancement contract in December 2024, and the rest of ECU EMD will be awarded in June 2024.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**
Title: Propulsion (PP)	14.547	7.415	65.769	0.000	65.769
Articles:	-	-	-	-	-
Description: Propulsion F135 projects within the Continuous Capability Development & Delivery (C2D2) are provided for developmental efforts for propulsion systems and test engine requirements such as Block 4 Integrated Flight Test Support, Engine Flight Test Mechanics, Flight Test Engineering, Engine Hardware, Test Engine Procurements, research, component and capability development, prototypes, various studies, and other associated government costs integral to support the developmental stages for F-35 engine modernization, affordability drivers for top engine availability degraders, and improvement to support the F135 Propulsion System for the F-35 Air Vehicle. Testing and development of the three F-35 aircraft variants require engine					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2556 / *Propulsion (PP)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
propulsion funding to enable continued flight hours. Flight hours are budgeted and planned to meet the Block 4 flight test timelines, and required Flight Test support. Flight Test Support efforts will transition to Organic support by FY2026. Transition of Flight Test Support requirements to organic capability includes efforts performed by contractor and government installations, Autonomic Logistics Information System / Operational Data Integrated Network (ALIS/ODIN) transition, and Final Flight Release (FFR) engine support efforts. Propulsion C2D2 provides funding for requirements to support the Air Vehicle modernization efforts with signature predicting improvements and a bridge program for engine modernization. Engine Modernization is part of the wider Air System Modernization effort. Starting in FY24, Engine Modernization will be funded through the standard funding process. ECU Detailed Design labor will be added to the F135 Engine Enhancement contract in December 2024, and the rest of ECU EMD will be awarded in June 2024.					
FY 2023 Plans: Continued Propulsion F135 Block 4 Integrated Flight Test Support to include Engine Flight Test Mechanics, Flight Test Engineering, Engine Hardware, Test Engine Procurements, research, component and capability development, prototypes, various studies, and other associated government costs integral to support the developmental stages for engine modernization and improvement to support the F135 Air Vehicle. The Flight Test Fleet will maintain elevated aircraft inventory at twelve aircraft in FY2023. This includes seven at Edwards Air Force Base and five at Patuxent River Naval Air Base. Flights and Engine Flight Hours (EFH) are expected to maintain their FY2021 and FY2022 levels at 240 flights and 480 flight hours per quarter. Flight Test Support efforts will transition to Organic support by FY2027. Transition of Flight Test Support requirements to organic capability includes efforts performed by contractor and government installations, Autonomic Logistics Information System / Operational Data Integrated Network (ALIS/ODIN) transition, and Final Flight Release (FFR) engine support efforts. FY2023 Propulsion C2D2 provides funding for requirements to support the Air Vehicle modernization efforts, Engine signature predicting improvement efforts, and continuing F135 Engine Modernization developmental efforts.					
FY 2024 Base Plans: Continued Propulsion F135 Block 4 Integrated Flight Test Support to include Engine Flight Test Mechanics, Flight Test Engineering, Engine Hardware, Test Engine Procurements, research, component and capability development, prototypes, various studies, and other associated government costs integral to support the developmental stages for engine modernization and improvement to support the F135 Air Vehicle. Propulsion Flight Test Support enables the execution of F135 Air Vehicle Air System Playbook (ASP 16.1), and Technology Refresh 3 (TR3) Requirements. The Flight Test Fleet will maintain similar elevated aircraft inventory at twelve aircraft in FY2024. This includes seven at Edwards Air Force Base and five at Patuxent River Naval Air Base.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2556 / *Propulsion (PP)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Flights and Engine Flight Hours (EFH) are expected to maintain their prior year levels at 240 flights and 480 flight hours per quarter. Flight Test Support efforts will transition to Organic support by FY2027. Transition of Flight Test Support requirements to organic capability includes efforts performed by contractor and government installations, Autonomic Logistics Information System / Operational Data Integrated Network (ALIS/ODIN) transition, and Final Flight Release (FFR) engine support efforts. FY2024 Propulsion C2D2 provides funding for requirements to support the Air Vehicle modernization efforts, Engine signature predicting improvement efforts, and continuing F135 Engine Modernization/Propulsion System Upgrade developmental efforts. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY2023 to FY2024 due to Air Vehicle modernization efforts and continuing F135 Engine Modernization/Propulsion System Upgrade developmental efforts. FY24 Budget includes first year of EMD program for ECU, greatly increasing development funding in FY24.					
Accomplishments/Planned Programs Subtotals	14.547	7.415	65.769	0.000	65.769

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The C2D2 acquisition strategy is to employ both Cost and Fixed Price Incentive contracts for the Block 4 engineering and development efforts. A new modernization contract structure will be established for all post SDD Block 4 efforts. In addition, a separate Basic Ordering Agreement or Indefinite Quantity/Indefinite Delivery contract is planned to provide a long term approach to upgrading and maintaining laboratories and test aircraft and supporting technology maturation for future C2D2 capabilities.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2556 / *Propulsion (PP)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PP Prime PW C2D2 Propulsion DT Aircraft Procurement Engines	C/FPIF	Pratt & Whitney : East Hartford, Connecticut	0.000	5.870	Nov 2021	0.500	Nov 2022	0.000		-		0.000	0.000	6.370	6.370
PP Prime PW C2D2 Propulsion Flight Test	C/CPIF	Pratt & Whitney : East Hartford, Connecticut	0.000	6.767	Oct 2021	5.884	Oct 2022	7.340	Oct 2023	-		7.340	5.464	25.455	25.455
PP DevSecOps Emulation Lab	C/CPIF	Pratt & Whitney : East Hartford, Connecticut	0.000	1.229	Oct 2021	0.000		0.000		-		0.000	0.000	1.229	1.229
PP F135 Engine Modernization Development	Various	Various : Various	0.000	0.578	Oct 2021	0.736	Oct 2022	6.259	Jun 2024	-		6.259	0.000	7.573	7.573
PP F135 Engine Modernization Detailed Design	C/CPFF	Pratt & Whitney : East Hartford, Connecticut	0.000	0.000		0.000		50.000	Dec 2023	-		50.000	0.000	50.000	50.000
		Subtotal	0.000	14.444		7.120		63.599		-		63.599	5.464	90.627	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PP Program Management Support	Various	Various : Various	0.000	0.103	Nov 2021	0.295	Nov 2022	2.170	Jan 2024	-		2.170	Continuing	Continuing	Continuing
		Subtotal	0.000	0.103		0.295		2.170		-		2.170	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	14.547		7.415		65.769		-		65.769	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2556 / *Propulsion (PP)*

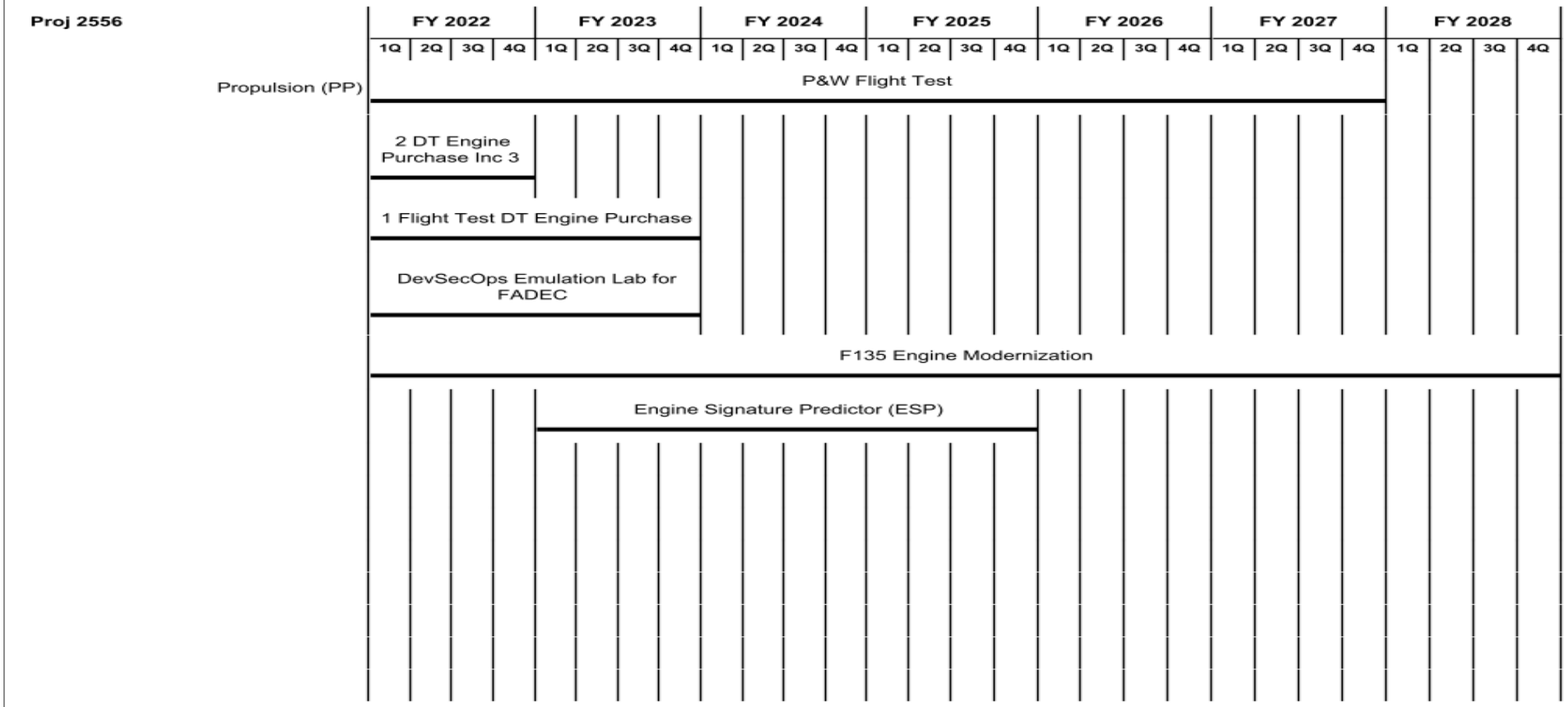

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2556 / *Propulsion (PP)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2556				
Propulsion (PP): P&W Flight Test	1	2022	4	2027
Propulsion (PP): 2 DT Engine Purchase Inc 3	1	2022	4	2022
Propulsion (PP): 1 Flight Test DT Engine Purchase	1	2022	4	2023
Propulsion (PP): DevSecOps Emulation Lab for FADEC	1	2022	4	2023
Propulsion (PP): F135 Engine Modernization	1	2022	4	2028
Propulsion (PP): Engine Signature Predictor (ESP)	1	2023	4	2025

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840N / *F-35C C2D2*	Project (Number/Name) 2557 / *Maintenance Systems (MxS)*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2557: *Maintenance Systems (MxS)*	0.000	22.267	25.090	18.061	-	18.061	19.038	15.909	14.896	14.650	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 198

Note

Beginning in FY2022, Maintenance Systems (MxS) was established as a separate, distinct project within the Continuous Capability Development & Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from Project Unit 2936, which is still included at the end of the R-2A for fiscal years FY2021. This Project Unit has also been updated to reflect the directed project categories to provide traceability between current execution and the FY2024 request.

A. Mission Description and Budget Item Justification

Autonomic Logistics Information System (ALIS) is the current F-35 program solution for delivering core maintenance and logistics information solutions to F-35 warfighters. ALIS will continue to deliver the core logistics and maintenance infrastructure requirements for the F-35 enterprise as ALIS evolves into Operational Data Integrated Network (ODIN). ALIS includes features such as aircraft scheduling, training delivery, record keeping, technical data delivery, supply chain management, maintenance management, pilot and maintenance debriefing, and mission planning. Current ALIS development efforts are focused on low cost and high return investments that provide a high confidence return on investment in the short term, significant warfighter impact, and/or offer synergy with ODIN development efforts.

ODIN will incrementally provide a modern, user-friendly integrated information system for the F-35 to deliver core maintenance and logistics information solutions. ODIN will be comprised of multiple elements to include modern hardware, architectures, software development methods, data environments, and platforms. Leveraging agile and modern software development practices, ODIN will serve as the primary logistics tool to support F-35 warfighter operations, health and diagnostics, mission planning, supply chain management, maintenance, and training. ODIN will substantially decrease F-35 administrator and maintainer workload, increase readiness rates for all F-35 variants, and allow software engineers to rapidly develop and deploy updates in response to changing warfighter requirements and improve data management, quality, and integrity. The ALIS to ODIN transition is intended to enable holistic fleet management, improve performance, enhance readiness, and reduce costs to the F-35 program. ODIN is comprised of both hardware and software which support the flow of Unclassified and Classified aircraft and maintenance-related data.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Operational Data Integrated Network (ODIN)	21.317	24.590	18.061	0.000	18.061
Articles:	-	-	-	-	-
Description: ODIN will incrementally provide a modern, user-friendly integrated information system for the F-35 to deliver core maintenance and logistics information solutions. ODIN will be comprised of multiple elements to include modern hardware, architectures, software development methods, data environments, and platforms.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2557 / *Maintenance Systems (MxS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Leveraging agile and modern software development practices, ODIN will serve as the primary logistics tool to support F-35 warfighter operations, health and diagnostics, mission planning, supply chain management, maintenance, and training. ODIN will substantially decrease F-35 administrator and maintainer workload, increase readiness rates for all F-35 variants, and allow software engineers to rapidly develop and deploy updates in response to changing warfighter requirements and improve data management, quality, and integrity. The ALIS to ODIN transition is intended to enable holistic fleet management, improve performance, enhance readiness, and reduce costs to the F-35 program. ODIN is comprised of both hardware and software which support the flow of Unclassified and Classified aircraft and maintenance-related data. ***FY 2023 Plans:*** Continue to modernize and reduce sustainment costs of the F-35 logistics information system by delivering incremental capabilities to transition aircraft, data, and operations from ALIS to ODIN. Initiate next-gen ODIN hardware refresh analysis and trade studies to support targeted five year hardware replacement. Implement the ODIN cloud-based infrastructure, migrate ALIS development into the government managed cloud environment, and begin transition to the new ODIN Enterprise Architecture. Continue modernization of the ODIN data architecture and implementation of the government managed ODIN DataOps. Efforts will continue in cybersecurity survivability and development of user-focused training. Execute efforts continuing to modernize current logistics applications where applicable. ***FY 2024 Base Plans:*** Complete ALIS to ODIN software containerization efforts and development of foundational infrastructure for software and data modernization to increase user capability. Continue development of the Linux platform and ODIN data architecture. Finalize current generation hardware update. Continue analysis of alternatives on next-generational hardware tech insertion supporting ODIN development and test plan as well as capability requirements that are not currently encompassed in the baseline equipment. Optimize the ODIN cloud-based infrastructure while continuing migration and modernization of the ODIN enterprise. Leverage the establishment of modern software architecture from Unclassified development efforts to develop and release the Classified portion of the F-35 Maintenance Systems ODIN enterprise. Develop and deploy improved capabilities to replace legacy applications. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:***					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2557 / *Maintenance Systems (MxS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
The decrease from FY2023 to FY2024 is due to a periodic ramp down in hardware development as requirements are finalized following FY2023 current generation hardware development efforts.					
Title: Prognostics and Health Management (PHM) ***Articles:*** ***Description:*** Prognostics and Health Management (PHM) encompasses the Air-System set of software, technical data and capabilities to enable optimal maintenance, and resolution of aircraft failures and impending failures. On-aircraft software identifies failures, enables reporting of status to the pilot, and records data for life cycle management and sustaining engineering. The data processed by ALIS/ODIN supports maintenance debriefs, life cycle management via Assess Material Condition (AMC), and failure resolution via Health Reporting Codes (HRCs) and Anomaly and Failure Resolution System (AFRS). Maintenance performance (inclusive of reliability and maintainability) is enhanced via the collection and reporting of the Failure Reporting and Corrective Action System (FRACAS). Applied advanced analytics on the aggregate PHM is used for airframe lifting and enterprise use, and improves responsiveness to operational needs. ***FY 2023 Plans:*** Continue development of PHM failure resolution improvements by analyzing Anomaly and Failure Resolution System (AFRS) technical data, as identified by the associated affordability war room initiatives and Performance-to-Plan metrics, and Assess Material Condition algorithm development and implementation. Continue development of government-hosted PHM data storage and analytics infrastructure. Continue Systems Engineering and architecture development of PHM Downlink capability. ***FY 2024 Base Plans:*** N/A ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The decrease from FY2023 to FY2024 is due to program development and implementation of 12 of the 15 priority AMC algorithms on non-Annualized FY22-23 SAHW Mod 89 contract vehicle in FY2022. Final 3 algorithms began development in FY2022 and were completed in FY2023.	0.950 -	0.500 -	0.000 -	0.000 -	0.000 -
Accomplishments/Planned Programs Subtotals	22.267	25.090	18.061	0.000	18.061

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2557 / *Maintenance Systems (MxS)*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2557 / *Maintenance Systems (MxS)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MxS Prime LM ODIN	C/CPFF	Lockheed Martin : FT. Worth, TX	0.000	15.209	Nov 2021	12.281	Nov 2022	8.601	Nov 2023	-		8.601	43.519	79.610	79.610
MxS Prime PW ODIN	C/CPFF	Pratt Whitney : East Hartford, Connecticut	0.000	0.985	Nov 2021	2.466	Nov 2022	1.900	Nov 2023	-		1.900	0.566	5.917	5.917
MxS Prime LM PHM	C/CPFF	Lockheed Martin : FT. Worth, TX	0.000	0.950	Nov 2021	0.500	Nov 2022	0.000		-		0.000	0.000	1.450	1.450
		Subtotal	0.000	17.144		15.247		10.501		-		10.501	44.085	86.977	N/A

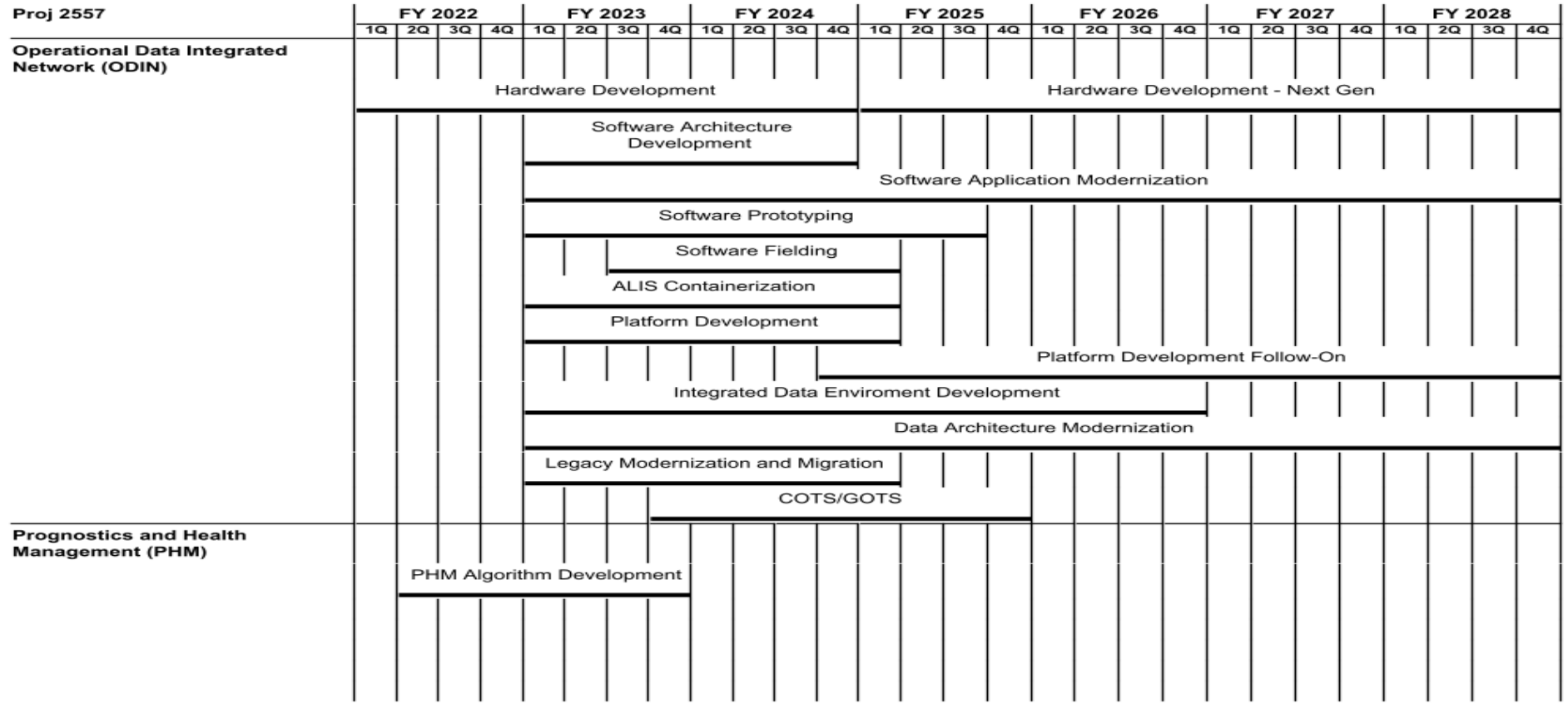
Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MxS ODIN Development Support	Various	Various : Various	0.000	5.123	Nov 2021	9.843	Nov 2022	7.560	Nov 2023	-		7.560	Continuing	Continuing	Continuing
		Subtotal	0.000	5.123		9.843		7.560		-		7.560	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	22.267		25.090		18.061		-		18.061	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2557 / *Maintenance Systems (MxS)*



2024PB - 0604840N - 2557

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2557 / *Maintenance Systems (MxS)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2557				
Operational Data Integrated Network (ODIN): Hardware Development	1	2022	4	2024
Operational Data Integrated Network (ODIN): Hardware Development - Next Gen	1	2025	4	2028
Operational Data Integrated Network (ODIN): Software Architecture Development	1	2023	4	2024
Operational Data Integrated Network (ODIN): Software Application Modernization	1	2023	4	2028
Operational Data Integrated Network (ODIN): Software Prototyping	1	2023	3	2025
Operational Data Integrated Network (ODIN): Software Fielding	3	2023	1	2025
Operational Data Integrated Network (ODIN): ALIS Containerization	1	2023	1	2025
Operational Data Integrated Network (ODIN): Platform Development	1	2023	1	2025
Operational Data Integrated Network (ODIN): Platform Development Follow-On	4	2024	4	2028
Operational Data Integrated Network (ODIN): Integrated Data Environment Development	1	2023	4	2026
Operational Data Integrated Network (ODIN): Data Architecture Modernization	1	2023	4	2028
Operational Data Integrated Network (ODIN): Legacy Modernization and Migration	1	2023	1	2025
Operational Data Integrated Network (ODIN): COTS/GOTS Application Configuration, Software Development, and Integration	4	2023	4	2025
Prognostics and Health Management (PHM): PHM Algorithm Development	2	2022	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840N / *F-35C C2D2*	Project (Number/Name) 2558 / *Combat Data Systems (CDS)*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2558: *Combat Data Systems (CDS)*	0.000	20.365	26.334	17.707	-	17.707	16.190	9.848	19.409	9.356	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 198

Note

Beginning in FY2022, Combat Data Systems (CDS) was established as a separate, distinct project within the Continuous Capability Development & Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from Project Unit 2936, which is still included at the end of the R-2A for fiscal years FY2021. This Project Unit has also been updated to reflect the directed project categories to provide traceability between current execution and the FY2024 request.

A. Mission Description and Budget Item Justification

Investment and modernization activities required for Block 4 development, integration, test and evaluation of Mission Data Tools, Verification & Validation Systems, and Mission Planning Software/Hardware. Funding related to key deliveries to Electronic Warfare Squadrons and F-35 Operational Squadrons and enables government and contractor labor for mission planning support environment and joint reprogramming enterprise. Other costs support Technology Investment for key Modernization / Innovation activities and cloud-based DevSecOps infrastructure.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Joint Reprogramming Environment (JRE)	12.060	19.606	12.712	0.000	12.712
Articles:	-	-	-	-	-
Description: Investment and modernization activities required for Block 4 development, integration, test and evaluation of Mission Data Tools, Verification & Validation Systems, and Mission Planning Software/Hardware. Funding related to key deliveries to Electronic Warfare Squadrons and F-35 Operational Squadrons and enables government and contractor labor for mission planning support environment and joint reprogramming enterprise. Other costs support Technology Investment for key Modernization/Innovation activities and Cloud based DevSecOps infrastructure.					
FY 2023 Plans: Continue efforts for the AGILE development of Common Reprogramming Tools (CRT) to provide Electronic Warfare Squadrons with essential software tools that reduce Mission Data File (MDF) development time and human error and increase combat effectiveness. The CRT effort will continue software coding and testing to support development / deployment of the software tool. Continue ongoing design and delivery efforts to upgrade Reprogramming Verification & Validation Systems (RVVS) to meet the Block 4 capability requirements					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2558 / *Combat Data Systems (CDS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
and meet next generation threats. Continue ongoing efforts to support aircraft in relation to Technology Refresh-3 (TR-3), Continuous Development Capability Delivery (C2D2), and Network Boundary Consolidation. Continue development support for defining, managing and acquiring the F-35 Reprogramming capability enhancements identified in approved requirements documents for Block 4 and modernization efforts and support efforts for joint reprogramming enterprise activities, including CRT and Software In The Loop (SITL). Begin efforts on the Systems, Engineering, Integration & Test (SEIT) contract to integrate Block 4 software data loads at reprogramming laboratories. Begin efforts to perform laboratory integration to complete of the F-35 Reprogramming Laboratory (FRL). ***FY 2024 Base Plans:*** Complete efforts for the AGILE development of Common Reprogramming Tools (CRT) to provide Electronic Warfare Squadrons with essential software tools that reduce Mission Data File (MDF) development time and human error and increase combat effectiveness. Continue software coding and testing to support development / deployment of the software tools. Continue to upgrade Reprogramming Verification & Validation Systems (RVVS) to meet the Block 4 capability requirements and meet next generation threats. Continue ongoing efforts to support aircraft in relation to Continuous Development Capability Delivery (C2D2), and Network Boundary Consolidation. Continue development support for defining, managing and acquiring the F-35 Reprogramming capability enhancements identified in approved requirements documents for Block 4 and modernization efforts and support efforts for joint reprogramming enterprise activities. Continue efforts on the Advanced Development, Integration & Test contract to integrate Block 4 software data loads at reprogramming laboratories. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease due to completion of efforts associated with Government Systems Engineering and Testing, specifically the Partner Analysis Laboratory Operations, Lab Based Security Assessment, Baseline Performance Measurement.					
Title: Mission Planning Support Environment (MPSE)	8.305	6.728	4.995	0.000	4.995
Articles:	-	-	-	-	-
Description: Investment and modernization activities required for Block 4 development, integration, test and evaluation of Mission Data Tools, Verification & Validation Systems, and Mission Planning Software/Hardware. Funding related to key deliveries to Electronic Warfare Squadrons and F-35 Operational Squadrons and enables government and contractor labor for mission planning support environment and joint reprogramming enterprise.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2558 / *Combat Data Systems (CDS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Other costs support Technology Investment for key Modernization/Innovation activities and Cloud based DevSecOps infrastructure. ***FY 2023 Plans:*** Continue development support for defining, managing and acquiring the F-35 Mission Planning capability enhancements identified in approved requirements documents for Block 4 and modernization efforts within the mission planning support hardware and software boundary. Continue development support of the Mission Planning System Environment (MPSE) software suite that is customized for each and every air vehicle Operational Flight Program (OFP) / Software Data Load (SDL) release to support the features and enhancements of that release. Continue development of the F-35 Next Generation Mission Planning in order to a) replace the Joint Mission Planning Software (JMPS) framework that is facing end-of-life, increasing cost, decreasing performance, and limited capability growth, and b) Replace the Ground Data Receptacle (GDR) cross-domain solution and encryption/decryption device that has been has been assessed by the NSA to have high cyber security risks and not able to meet NSA Raise-the-Bar requirements without a complete re-design. Continue ongoing efforts to transition F-35 mission planning software development to AGILE and DevSecOps methodologies to reduce costs and increase speed of delivering capabilities to the warfighter. Continue ongoing efforts to transition F-35 mission planning software development workload from contractor to the Government, securing organic software development capability and reducing costs. ***FY 2024 Base Plans:*** Continue development support for F-35 Mission Planning capability enhancements identified in approved requirements documents for Block 4 and modernization efforts within the mission planning support hardware and software. Continue development support of the Mission Planning System Environment (MPSE) software suite that is customized for each and every air vehicle Operational Flight Program (OFP) / Software Data Load (SDL) release to support the features and enhancements of that release. Continue development of the F-35 Next Generation Mission Planning. Continue efforts to transition F-35 mission planning software development to AGILE and DevSecOps methodologies to reduce costs and increase speed of delivering capabilities to the warfighter. Continue ongoing efforts to transition F-35 mission planning software development workload from contractor to the Government, securing organic software development capability and reducing costs. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:***					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2558 / *Combat Data Systems (CDS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Decrease due to completion of efforts associated with Government Systems Engineering and Testing, specifically the Partner Analysis Laboratory Operations, Lab Based Security Assessment, Baseline Performance Measurement.					
Accomplishments/Planned Programs Subtotals	20.365	26.334	17.707	0.000	17.707

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Combat Data Systems Program Management Office (CDS PMO) continues to develop JRE and MPSE requirements by leveraging existing F-35 Joint Program Office contracts, use of Other Government Contracts, and by developing and competing new contract actions for unique CDS PMO requirements.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2558 / *Combat Data Systems (CDS)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CDS Prime JRE Development - CRT Increment 1	C/CPFF	Lockheed Martin : FT. Worth, TX	0.000	3.450	Oct 2021	6.390	Dec 2022	3.451	Dec 2023	-		3.451	64.083	77.374	77.374
CDS Prime JRE Development - RVVS	C/CPIF	Lockheed Martin : FT. Worth, TX	0.000	0.000	Oct 2022	7.141	Dec 2022	4.092	Dec 2023	-		4.092	102.150	113.383	113.383
CDS Prime JRE Development - CURC	C/CPFF	Lockheed Martin : FT. Worth, TX	0.000	1.985	Oct 2021	0.000		0.000		-		0.000	0.000	1.985	1.985
CDS Prime JRE Development - TR-3	C/CPIF	Lockheed Martin : FT. Worth, TX	0.000	1.083	Oct 2021	0.371	Mar 2023	0.000		-		0.000	0.000	1.454	1.454
CDS Prime JRE Development - SEIT	C/CPFF	Lockheed Martin : FT. Worth, TX	0.000	0.000		1.444	Jul 2023	3.449	Jul 2024	-		3.449	48.300	53.193	53.193
CDS Prime JRE Development - FRL	MIPR	Pt. Magu, CA : Pt. Magu, CA	0.000	0.000		0.469	Jan 2023	0.000	Jan 2024	-		0.000	0.000	0.469	0.469
CDS Prime JRE Development - Capability Development	MIPR	Eglin AFB, FL : Eglin AFB, FL	0.000	1.050	Dec 2021	3.420	Dec 2022	0.890	Dec 2023	-		0.890	0.000	5.360	5.360
CDS Prime MPSE Development F-35 Next Gen Mission Planning	C/CPIF	Lockheed Martin : FT. Worth, TX	0.000	5.965	Mar 2023	1.961	Mar 2023	1.961	Mar 2024	-		1.961	17.600	27.487	27.487
CDS Prime MPSE Development - Capability Development	MIPR	Eglin AFB, FL : Eglin AFB, FL	0.000	0.000		2.954	Dec 2022	2.507	Dec 2023	-		2.507	0.000	5.461	5.461
		Subtotal	0.000	13.533		24.150		16.350		-		16.350	232.133	286.166	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CDS JRE Development Support	MIPR	Eglin AFB, FL : Eglin AFB, FL	0.000	4.492	Dec 2021	0.471	Dec 2022	0.830	Dec 2023	-		0.830	Continuing	Continuing	Continuing
CDS MPSE Development Support	MIPR	Eglin AFB, FL : Eglin AFB, FL	0.000	2.340	Dec 2021	1.713	Dec 2022	0.527	Dec 2023	-		0.527	Continuing	Continuing	Continuing
		Subtotal	0.000	6.832		2.184		1.357		-		1.357	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840N / *F-35C C2D2*	Project (Number/Name) 2558 / *Combat Data Systems (CDS)*	

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	20.365		26.334		17.707		-		17.707	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2558 / *Combat Data Systems (CDS)*

F-35 Combat Data Systems
Development Roadmap – Joint Reprogramming Environment

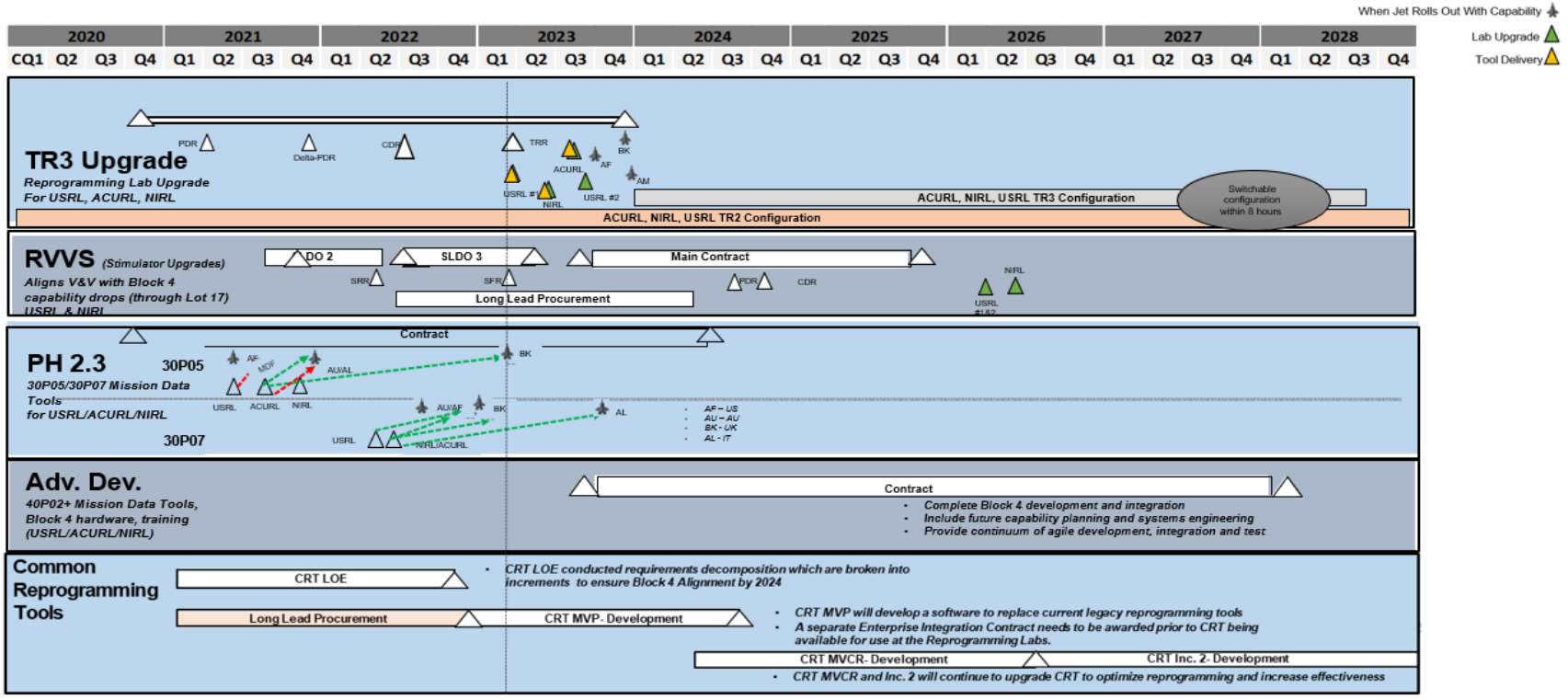


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
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F-35 Combat Data Systems
Development Roadmap – Mission Programming Enterprise (MPE)

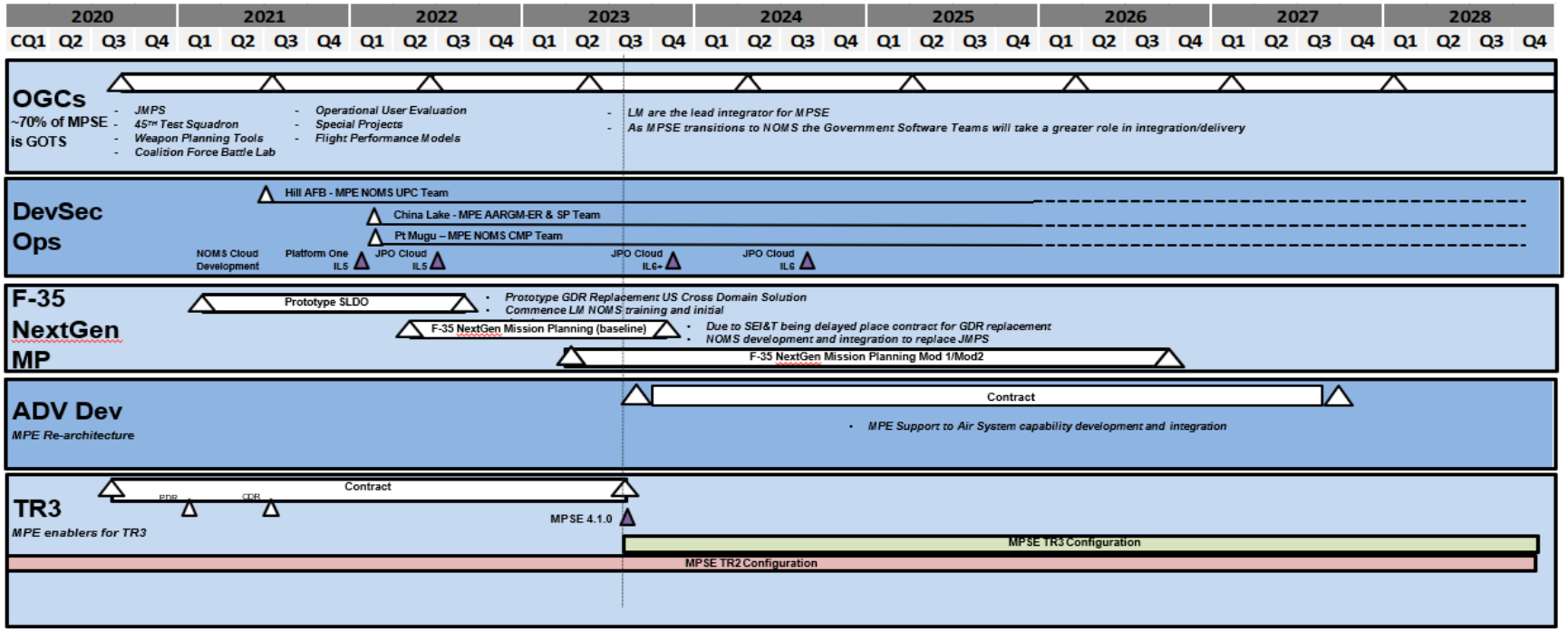

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2558 / *Combat Data Systems (CDS)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2558				
Joint Reprogramming Environment (JRE): Technology Refresh 3 (TR3) Reprogramming Lab Upgrade	1	2022	2	2023
Joint Reprogramming Environment (JRE): Reprogramming Verification & Validation Systems (RVVS): Stimulator Upgrades SLDO 3	1	2022	3	2022
Joint Reprogramming Environment (JRE): Reprogramming Verification & Validation Systems (RVVS): Stimulator Upgrades Main	4	2022	4	2024
Joint Reprogramming Environment (JRE): Reprogramming Verification & Validation Systems (RVVS): Long Lead Procurement	1	2022	3	2023
Joint Reprogramming Environment (JRE): Phase 2.3 - 30P05/30P07 Mission Data Tools - Contract	1	2022	4	2023
Joint Reprogramming Environment (JRE): 40P02+ Mission Data Tools, Block 4 Hardware, Training	3	2023	4	2028
Joint Reprogramming Environment (JRE): CRT INC 1 - CRT LOE	2	2022	2	2022
Joint Reprogramming Environment (JRE): CRT INC 1 - Long Lead Procurement	1	2022	2	2022
Joint Reprogramming Environment (JRE): CRT INC 1 - CRT INC 1 - Development	1	2022	2	2024
Mission Planning Support Environment (MPSE): TR-3/Enablers for TR-3 - Contract	1	2022	2	2023
Mission Planning Support Environment (MPSE): TR-3/Enablers for TR-3 - MPSE TR2 Configuration	1	2022	4	2028
Mission Planning Support Environment (MPSE): TR-3/Enablers for TR-3 - MPSE TR3 Configuration	1	2023	4	2028
Mission Planning Support Environment (MPSE): MPSE Re-architecture - Contract	3	2023	4	2028
Mission Planning Support Environment (MPSE): F-35 Next Gen Mission Planning - Prototype SLDO	1	2022	1	2022

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2558 / *Combat Data Systems (CDS)*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Mission Planning Support Environment (MPSE): F-35 Next Gen Mission Planning - Increment 1	1	2022	2	2023
Mission Planning Support Environment (MPSE): F-35 Next Gen Mission Planning - Increment 2	4	2022	3	2026
Mission Planning Support Environment (MPSE): DevSecOps - Hill AFB, China Lake, Pt Mugu	1	2022	4	2026
Mission Planning Support Environment (MPSE): DevSecOps - NOMS Cloud Development (Multiple)	1	2022	4	2022
Mission Planning Support Environment (MPSE): OGCs - Contracts	1	2022	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840N / *F-35C C2D2*	Project (Number/Name) 2559 / *Training Systems and Simulation (TSS)*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2559: *Training Systems and Simulation (TSS)*	0.000	38.761	36.995	30.151	-	30.151	32.221	31.529	33.479	31.382	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 198

Note

Beginning in FY2022, Training Systems and Simulation (TSS) was established as a separate, distinct project within the Continuous Capability Development & Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from Project Unit 2936, which is still included at the end of the R-2A for fiscal years FY2021. This Project Unit has also been updated to reflect the directed project categories to provide traceability between current execution and the FY2024 request.

A. Mission Description and Budget Item Justification

The F-35 Training Systems & Simulation Program Management Office (TSS PMO) development portfolio is aligned with the program's Continuous Capability Development & Delivery (C2D2) efforts and is organized in three primary lines of effort; Training System Capability Development (TSCD), Training Systems Investments (TSI) Roadmap, and Joint Simulation Environment (JSE) Development. As a function of the F-35 organizational pivot, this is the first budget cycle in which TSS PMO budget requirements have been comprehensively and discretely defined within a dedicated Project Unit.

Training System Capability Development (TSCD): Efforts will continue with a primary focus on alignment of Training System capabilities with other elements of the Air System. Specific efforts will include development of Block 4 capabilities to equivalent maturity of those in the Air Vehicle enabling release of one capability upgrade per year to the fleet, continued development of the Production Runtime Server (PRTS) - Pilot Training Device TR-3 equivalent - to enable Block 4 capabilities, continued development of Live-Virtual-Constructive (LVC) capabilities including Distributed Mission Training (DMT), and appropriate lab infrastructure to enable Training System development.

Training Systems Investments (TSI) Roadmap: Development efforts will continue to focus on modernization of activities outlined in the TSS PMO roadmaps that will target the requirement of bringing higher fidelity training to the warfighter. Specific development and testing efforts focus on software architecture modernization, hardware architecture modernization, and Synthetic Threat Enhancement.

Joint Simulation Environment (JSE) Development: Development and testing efforts will continue with a focus on remaining F-35 In-A-Box (FIAB) software integration, complex threat/sensor model integration to establish operationally representative simulation environment required for operational test trial validity, and the completion of Verification, Validation and Accreditation (VV&A) activities for F-35 Block 4 modernization. Efforts will include FIAB development, model fidelity and capability upgrades for existing threats/sensors/weapons, development of new threat/sensor/weapon models, and environment upgrades to enable effective verification of Block 4 capabilities. Efforts will continue toward expansion of JSE capability to Wright Patterson AFB, Edwards AFB and Nellis AFB.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2559 / *Training Systems and Simulation (TSS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Training Systems Capability Development (TSCD)	19.599	20.155	15.500	0.000	15.500
Articles:	-	-	-	-	-
Description: Efforts will continue with a primary focus on alignment of Training System capabilities with other elements of the Air System. Specific efforts will include development of capabilities (CI1-3) to equivalent maturity of those in the Air Vehicle enabling release of one capability upgrade per year to the fleet, continued development of the Production Runtime Server (PRTS) - Pilot Training Device TR-3 equivalent - to enable CI1-3 capabilities, continued development of Live-Virtual-Constructive (LVC) capabilities including Distributed Mission Training (DMT), and appropriate lab infrastructure to enable Training System development. ***FY 2023 Plans:*** Efforts will continue to support development, integration and test of Block 4 capabilities in the Training System with a focus on equivalent capability maturity between the Training System and other elements of the Air System and preparing a relevant capability upgrade (Pilot Training, Maintainer Training, Instructional Products) for release to the fleet in FY2022. Additionally, PRTS will continue critical development, integration and test activities required to enable Block 4 training capabilities. The DMT program will continue with development activities to ensure DMT capability remains fully integrated with CI1-3 capabilities and in-line with overall Air System capability to include certified and exportable Cross Domain Solutions (CDS) to enable fully integrated DMT across the F-35 Enterprise. Within the LVC portfolio, requirements derivation and planning activities for Enhanced Embedded Training and TCTS II integration will continue to evolve. Training System lab infrastructure assets will be configured to enable current and future Training System development activities across the portfolio. ***FY 2024 Base Plans:*** Efforts will continue to support development, integration and test of Block 4 capabilities in the Training System with a focus on equivalent capability maturity between the Training System and other elements of the Air System and preparing relevant capability upgrades (Pilot Training, Maintainer Training, Instructional Products) for release to the fleet in FY2024. Additionally, the Production RunTime Server (PRTS) will continue critical development, integration and test activities required to enable TR-3 training capabilities. The Distributed Mission Trainer (DMT) Program will continue with development activities to ensure DMT can support the CI1-3 capabilities to be leveraged via US networks and in-line with overall Air System Capability to include certified and exportable Cross Domain Solutions (CDS) to enable fully integrated DMT across the F-35 Enterprise. Within the Live-Virtual-Constructive (LVC) portfolio, requirements derivation and planning actives for Enhanced Embedded Training and TCTS II integration will continue to evolve to support the US Service's LVC integrated					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2559 / *Training Systems and Simulation (TSS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
training environment. Training System lab infrastructure assets will be configured to enable current and future Training System development activities across the portfolio. Effects Based Simulation (EBS) will continue design, development, and integration activities to support requirements analysis and pilot training tasks. EBS was formerly carried as an effort in the Joint Simulation Environment (JSE) R-2A category, but was aligned to the Training System Capability Development (TSCD) R-2A category beginning in FY23. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease from FY2023 to FY2024 is a result of the delayed Training System transition from TR-2 to TR-3. Because of delays with the Training System hardware and software architecture modernization that is required to field TR-3 OFPs, and because the initial TR-3 OFPs are rehosts of TR-2 capabilities, the Training System is not delivering a new software load to support the inital TR-3 series OFPs. The Training System will again align to the Air Vehicle in Lot 17.					
Title: Training Systems Investments (TSI) Roadmap	9.584	6.935	6.250	0.000	6.250
Articles:	-	-	-	-	-
Description: Development efforts will continue to focus on modernization of activities outlined in the TSS PMO roadmaps that will target the requirement of bringing higher fidelity training to the warfighter. Specific development and testing efforts focus on software architecture modernization, hardware architecture modernization, and Synthetic Threat Enhancement. ***FY 2023 Plans:*** Efforts will continue to support development, integration and test of Block 4 capabilities in the Training System with a focus on equivalent capability maturity between the Training System and other elements of the Air System and preparing a relevant capability upgrade (Pilot Training, Maintainer Training, Instructional Products) for release to the fleet in FY2022. Additionally, PRTS will continue critical development, integration and test activities required to enable Block 4 training capabilities. The DMT program will continue with development activities to ensure DMT capability remains fully integrated with CI1-3 capabilities and in-line with overall Air System capability to include certified and exportable Cross Domain Solutions (CDS) to enable fully integrated DMT across the F-35 Enterprise. Within the LVC portfolio, requirements derivation and planning activities for Enhanced Embedded Training and TCTS II integration will continue to evolve. Training System lab infrastructure					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2559 / *Training Systems and Simulation (TSS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
assets will be configured to enable current and future Training System development activities across the portfolio. ***FY 2024 Base Plans:*** Efforts will continue to support analysis, design, development, integration and test of Block 4 capabilities in the Training System with a focus on equivalent capability maturity between the Training System and other elements of the Air System and preparing relevant capability upgrades (Pilot Training, Maintainer Training, Instructional Products) for release to the fleet in FY24. Additionally, F-35 Lightning Integrated Training Environment (FLITE) will continue critical development, integration and test activities with the first delivery expected in FY26. The Distributed Mission Training (DMT) Program will continue with development activities to ensure DMT can support the CI1-3 capabilities to be leveraged via US networks and in-line with overall Air System Capability to include certified and exportable Cross Domain Solutions (CDS) to enable fully integrated DMT across the F-35 Enterprise. DMT will ensure the connection of F-35 Pilot Training Devices (PTDs) to customer provided and accredited Wide Area Networks (WAN) to facilitate connecting multiple sites and enabling a virtual training environment in a common synthetic environment for the US Services. Within the Live-Virtual-Constructed (LVC) portfolio, requirements derivation and planning actives for Enhanced Embedded Training and TCTS II integration will continue to evolve to support the US LVC integrated training environment. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease from FY23 to FY24 is primarily attributable to delays in the integration efforts of Joint Simulation Environment components, specifically Next Generation Threat System (NGTS), into the exportable Program of Record (PoR) Pilot Training Device (PTD).					
Title: Joint Simulation Environment (JSE) Development	9.578	9.905	8.401	0.000	8.401
Articles:	-	-	-	-	-
Description: Development and testing efforts will continue with a focus on remaining F-35 In-A-Box (FIAB) software integration, complex threat/sensor model integration to establish operationally representative simulation environment required for operational test trial validity, and the completion of Verification, Validation and Accreditation (VV&A) activities for F-35 Block 4 modernization. Efforts will include FIAB development, model fidelity and capability upgrades for existing threats/sensors/weapons, development of new threat/sensor/weapon					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2559 / *Training Systems and Simulation (TSS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
models, and environment upgrades to enable effective verification of Block 4 capabilities. Efforts will continue toward expansion of JSE capability to Wright Patterson AFB, Edwards AFB and Nellis AFB. ***FY 2023 Plans:*** Efforts will continue with a focus on the completion of sim deficiency corrections identified through VV&A and completion of IOT&E Run-for-Score test trials. Efforts will include FIAB software development and integration, threat/sensor model fidelity upgrades, new threat/sensor model development, and JSE upgrades to enable effective verification of Block 4 capabilities. Planning efforts will continue toward expansion of JSE capability to Wright Patterson AFB, Edwards AFB, and Nellis AFB. ***FY 2024 Base Plans:*** Efforts will include modernization of F-35 In-A-Box (FIAB) software development and integration, model fidelity and capability upgrades for exisitng threats/sensors/weapon models, development of new threat/sensor/weapon models, and environment upgrades to enable effective verification of Block 4 capabilities. Planning efforts will continue toward expansion of JSE capability to Wright Patterson AFB, Edwards AFB, and Nellis AFB. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease from FY23 to FY24 is primarily attributable to on-going FIAB Block 4 development, integration activities and development of new threats/ weapons models being extended due to contractor manpower constraints, the restructure of JPO contracts and the continuation of FIAB data rights litigation and licensing issues preventing documentation and software deliveries.					
Accomplishments/Planned Programs Subtotals	38.761	36.995	30.151	0.000	30.151

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The majority of Training System capability development requirements (CI1-3 development, PRTS development, Lab Infrastructure) will be executed via training specific CLINs in Enterprise-level development contracts (Block 4 - Phase 2.3, Development Foundation). Training System Investment requirements will be executed

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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via a combination of training specific CLINs in Enterprise-level contracts, TSS PMO specific contract actions and Other Transaction Authority (OTA) contracts. JSE development requirements will be executed via a combination of Enterprise-level contract actions and MIPR transactions to support OGC activities.

In concert with continued maturation of the F-35 organizational pivot, the TSS PMO acquisition strategy will transition toward TSS PMO controlled contract actions that will enable more effective oversight of PMO cost-schedule-performance execution.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
TSS Prime LM Training System Alignment (TSCD)	C/CPIF	Lockheed Martin : FT. Worth, TX	0.000	7.912	Nov 2021	7.750	Nov 2022	5.960	Nov 2023	-		5.960	65.360	86.982	86.892
TSS Prime LM PTD TR-3 Development (TSCD)	C/CPIF	Lockheed Martin : FT. Worth, TX	0.000	7.456	Nov 2021	6.225	Nov 2022	4.787	Nov 2023	-		4.787	33.680	52.148	52.148
TSS TSS Prime LM Training Lab Infrastructure (TSCD)	C/CPFF	Lockheed Martin : FT. Worth, TX	0.000	4.376	Nov 2021	4.755	Nov 2022	3.657	Nov 2023	-		3.657	28.764	41.552	41.552
TSS Live-Virtual-Constructive (LVC) - DMT (TSCD)	C/CPFF	Lockheed Martin : FT. Worth, TX	0.000	0.624	Nov 2021	0.625	Nov 2022	0.481	Nov 2023	-		0.481	16.587	18.317	18.317
TSS Effects Based Simulation Development (TSCD)	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.800	Nov 2022	0.615	Nov 2023	-		0.615	7.114	8.529	8.529
TSS Hardware Re-architecture (TSI)	MIPR	DTIC : Fort Belvoir, VA	0.000	3.619	Nov 2021	3.215	Nov 2022	2.897	Nov 2023	-		2.897	3.675	13.406	13.406
TSS Software Re-architecture (TSI)	C/CPIF	Lockheed Martin : FT. Worth, TX	0.000	2.968	Nov 2021	2.610	Nov 2022	2.353	Nov 2023	-		2.353	17.888	25.819	25.819
TSS Synthetic Threat Enhancement (TSI)	C/CPFF	Lockheed Martin : FT. Worth, TX	0.000	1.247	Nov 2021	1.110	Nov 2022	1.000	Nov 2023	-		1.000	6.107	9.464	9.464
TSS Prime LM FIAB Development (JSE)	C/CPIF	Lockheed Martin : FT. Worth, TX	0.000	5.034	Nov 2021	4.857	Nov 2022	4.120	Nov 2023	-		4.120	18.775	32.786	32.786
		Subtotal	0.000	33.236		31.947		25.870		-		25.870	197.950	289.003	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
TSS Pax Development Support (JSE)	WR	NAWCAD : Patuxent River, MD	0.000	4.349	Nov 2021	4.108	Nov 2022	3.484	Nov 2023	-		3.484	17.993	29.934	29.934
TSS Other Development Support (JSE)	Various	Various : Various	0.000	0.409	Nov 2021	0.940	Nov 2022	0.797	Nov 2023	-		0.797	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
TSS EBS Development Support (JSE)	Various	Various : Various	0.000	0.767	Nov 2021	0.000		0.000		-		0.000	0.000	0.767	Continuing
		Subtotal	0.000	5.525		5.048		4.281		-		4.281	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	38.761		36.995		30.151		-		30.151	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
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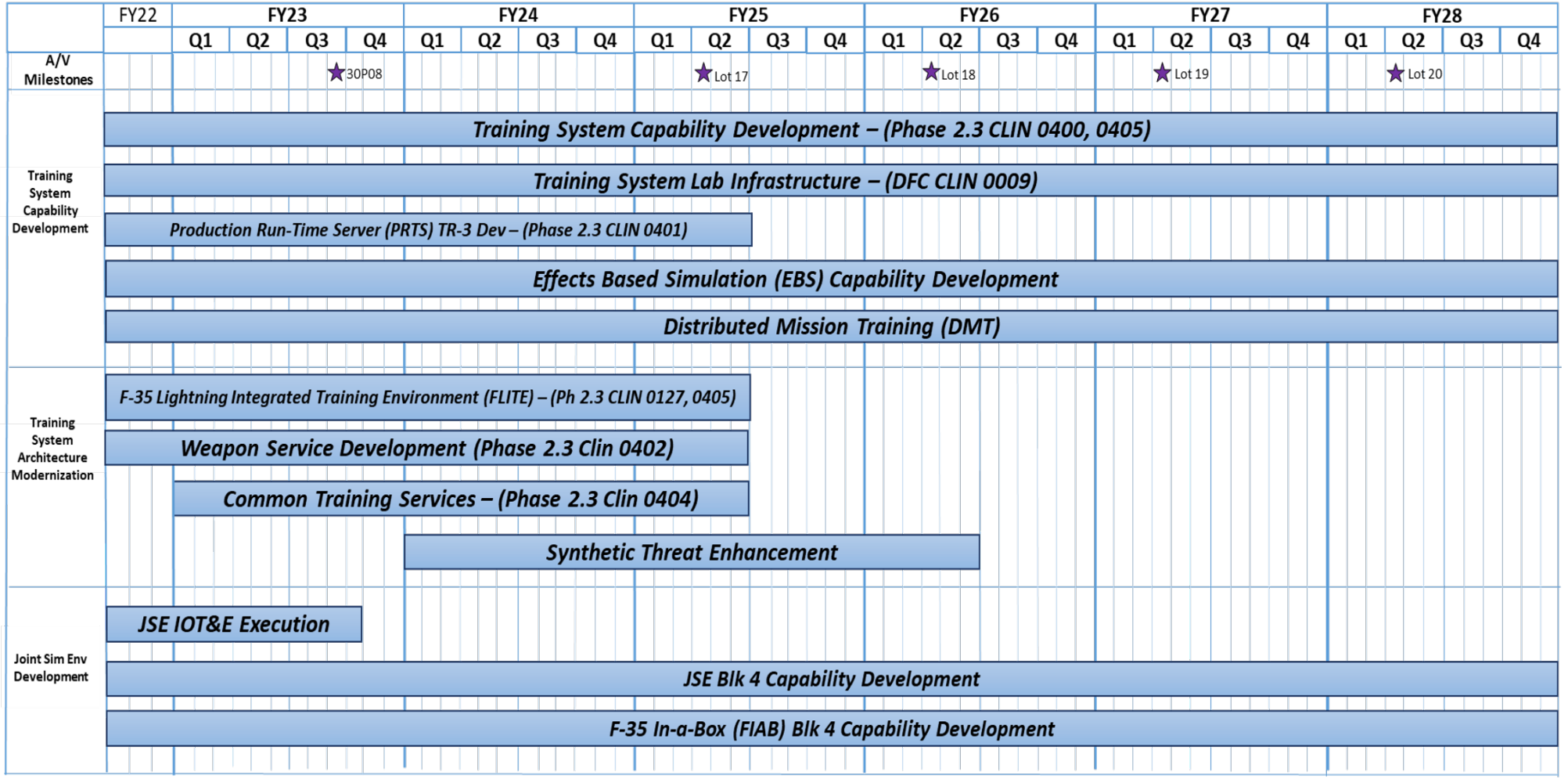


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2559 / *Training Systems and Simulation (TSS)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2559				
Training Systems and Simulation (TSS): Training System Capability Development	1	2022	4	2028
Training Systems and Simulation (TSS): Training System Lab Infrastructure	1	2022	4	2028
Training Systems and Simulation (TSS): Production Run-Time Server (PRTS) TR-3 Development	1	2022	3	2025
Training Systems and Simulation (TSS): Effects Based Simulation (EBS) Capability Development	1	2022	4	2028
Training Systems and Simulation (TSS): Distributed Mission Training (DMT)	1	2022	4	2028
Training Systems and Simulation (TSS): F-35 Lightning Integrated Training Environment (FLITE)	1	2022	3	2025
Training Systems and Simulation (TSS): Weapon Service Development	1	2022	3	2025
Training Systems and Simulation (TSS): Common Training Services	1	2023	3	2025
Training Systems and Simulation (TSS): Synthetic Threat Environment	1	2024	3	2026
Training Systems and Simulation (TSS): Joint Simulation Environment, Capability Development & Air System Alignment	1	2022	4	2028
Training Systems and Simulation (TSS): JSE IOT&E Execution	1	2022	4	2023
Training Systems and Simulation (TSS): JSE Block 4 Capability Development	1	2022	4	2028
Training Systems and Simulation (TSS): F-35 In-A-Box (FIAB) Block 4 Capability Development	4	2022	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0604840N / *F-35C C2D2*				Project (Number/Name) 2560 / *Infrastructure and Support Costs*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
2560: *Infrastructure and Support Costs*	0.000	2.425	2.616	2.675	-	2.675	2.724	3.071	3.164	2.874	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 198

Note

Beginning in FY2022, Infrastructure and Support Costs was established as a separate, distinct project within the Continuous Capability Development & Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from Project Unit 2936, which is still included at the end of the R-2A for fiscal years FY2021. This Project Unit has also been updated to reflect the directed project categories to provide traceability between current execution and the FY2024 request.

A. Mission Description and Budget Item Justification

The F-35 Joint Program Office equips U.S. and allied forces with operational F-35 weapon systems in support of military and national security operations. The acquisition and product support workforce provides cutting edge weapon systems, sustainment capabilities, and is charged with providing management, tools, and technical and business capabilities needed to oversee acquisition programs throughout their life cycle. The acquisition workforce funded in this program element will support development phases of acquisition programs to include material solution analysis, technology development, engineering and manufacturing development. This funding does not include costs for base operating support civilian personnel. This program element supports both civilian pay and non-pay support requirements. Additional infrastructure and program management support costs include travel, supplies, contractor support, off-base leases, program office IT, cybersecurity, model-based systems engineering, and risk reduction studies directly related to C2D2 development efforts.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Core Program Support/CSS Support	2.425	2.616	2.675	0.000	2.675
Articles:	-	-	-	-	-
Description: Includes off-base leases, Advisory and Assistance Services (A&AS), travel, supplies, Navy Working Capital fund subject matter expert support, program office IT, cybersecurity, model-based systems engineering, and risk reduction studies directly related to to C2D2 development efforts.					
FY 2023 Plans: Continue to support program office efforts, including Arlington, VA program unique off-base lease costs, CSS support, travel, supplies, Navy working capital technical SME labor, program office IT, cybersecurity, model-based systems engineering, and risk reduction studies directly related to Block 4 and TR3 developmental efforts.					
FY 2024 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2560 / *Infrastructure and Support Costs*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Continue to support program office efforts, including Arlington, VA program unique off-base lease costs, CSS support, travel, supplies, Navy working capital technical SME labor, program office IT, cybersecurity, model-based systems engineering, and risk reduction studies directly related to to C2D2 development efforts. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY2023 to FY2024 due to price adjustments and inflation.					
Accomplishments/Planned Programs Subtotals	2.425	2.616	2.675	0.000	2.675

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840N / *F-35C C2D2*	Project (Number/Name) 2560 / *Infrastructure and Support Costs*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Core Program Support Cyber Risk Reduction	Various	Various : Various	0.000	0.500	Dec 2021	0.500	Dec 2022	0.500	Dec 2023	-		0.500	Continuing	Continuing	Continuing
Core Program Support Model-Based Systems Engineering	Various	IBM : Arlington, VA	0.000	0.100	Dec 2021	0.100	Dec 2022	0.150	Feb 2024	-		0.150	Continuing	Continuing	Continuing
Core Program Support Air Worthiness Support and Cyber Safe Support	C/FFP	DTIC : Fort Belvoir, VA	0.000	0.000		0.674	Dec 2022	0.600	Feb 2024	-		0.600	Continuing	Continuing	Continuing
		Subtotal	0.000	0.600		1.274		1.250		-		1.250	Continuing	Continuing	N/A

Remarks

Core Program Support Air Worthiness Support and Cyber Safe Support is not a new start. Broken out to provide additional transparency into the JPO's Infrastructure & Support Cost requirements. Funds were under CSS Support/Civ Support in previous years.

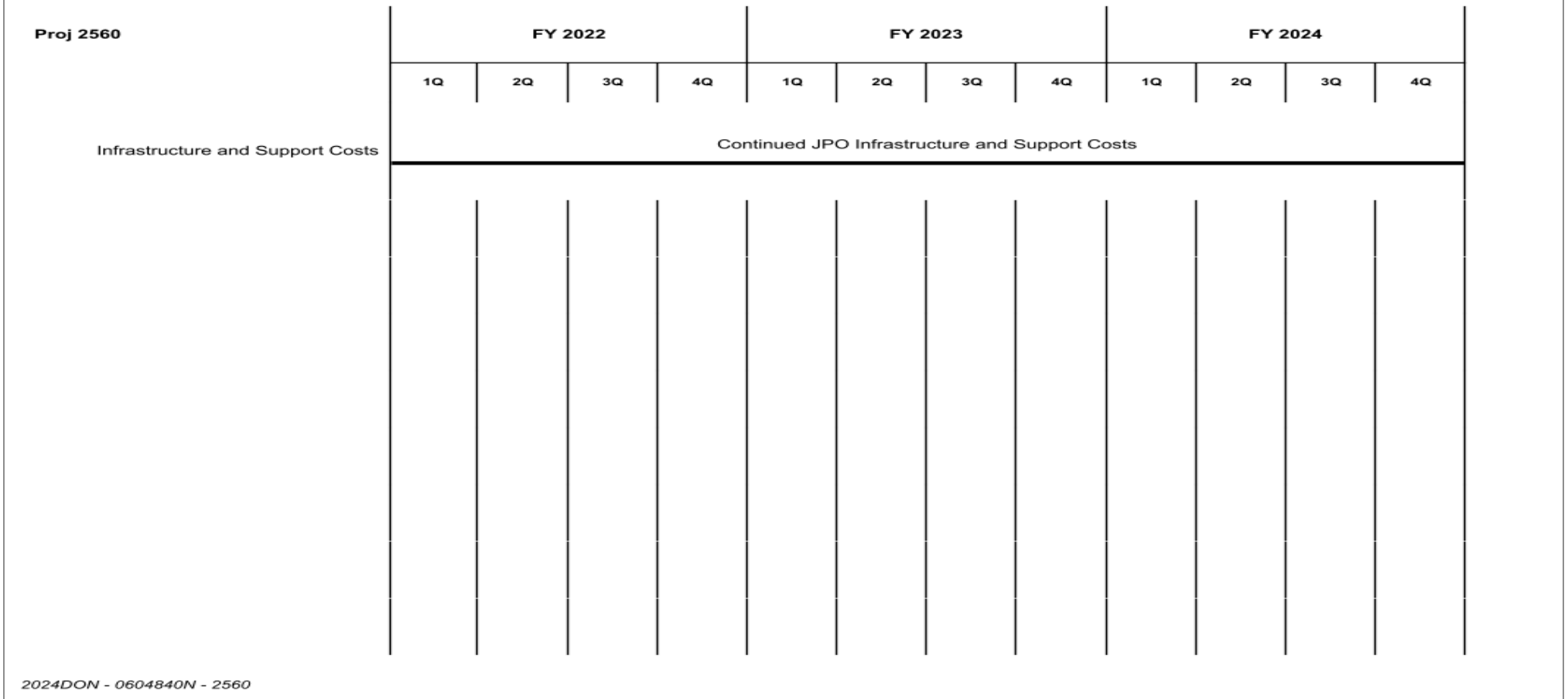
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CSS Support/Civ Support	Various	Various : Various	0.000	1.550	Dec 2021	1.000	Dec 2022	1.127	Dec 2023	-		1.127	Continuing	Continuing	Continuing
Core Program Support Off-Base Leases	MIPR	WHS : NCR	0.000	0.090	Oct 2021	0.092	Oct 2022	0.000		-		0.000	0.000	0.182	0.182
Core Program Support Travel	Various	Various : Various	0.000	0.185	Oct 2021	0.250	Oct 2022	0.298	Oct 2023	-		0.298	Continuing	Continuing	Continuing
		Subtotal	0.000	1.825		1.342		1.425		-		1.425	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	2.425		2.616		2.675		-		2.675	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2560 / *Infrastructure and Support Costs*



2024DON - 0604840N - 2560

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2560 / *Infrastructure and Support Costs*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2560				
Infrastructure and Support Costs: Continued JPO Infrastructure and Support Costs	1	2022	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0604840N / *F-35C C2D2*				Project (Number/Name) 2561 / *DevSecOps*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
2561: *DevSecOps*	0.000	13.578	10.032	8.367	-	8.367	12.272	12.369	1.487	17.612	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 198

Note

Beginning in FY2022, DevSecOps was established as a separate, distinct project within the Continuous Capability Development & Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from Project Unit 2936, which is still included at the end of the R-2A for fiscal years FY2021. This Project Unit has also been updated to reflect the directed project categories to provide traceability between current execution and the FY2023 request.

A. Mission Description and Budget Item Justification

The F-35 Software Development, Security & Operations (DevSecOps) Cloud platform environment allows for US Government and contracted software development teams to produce, test and deploy capabilities for F-35 supported Project Management Offices (PMO) and Directorates. This includes providing support to the Combat Data Systems (CDS), Air Vehicle (AV), Maintenance Systems (MxSYS), Propulsion, Training Systems and Simulation (TSS) PMOs, and Directorate of Engineering. The mission of DevSecOps is to provide a centralized F-35 Data repository, a consolidated F-35 software development environment, and support for system development lifecycle (SDLC) of the F-35 platform, allowing for rapid release cycles to keep the F-35 ahead of its adversaries. Investment in, and modernization of, DevSecOps include efforts to support F-35 Software modernization efforts, develop organic government software capabilities, support SDLC and flight testing capabilities, enhance the security posture of the software development pipeline, and support goals of reducing long-term on-premise infrastructure environments cost, ultimately resulting in reducing fleet delivery timelines.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: DevSecOps Support	13.578	10.032	8.367	0.000	8.367
Articles:	-	-	-	-	-
Description: The F-35 Software Development, Security & Operations (DevSecOps) Cloud platform environment allows for US Government and contracted software development teams to produce, test and deploy capabilities for F-35 supported Project Management Offices (PMO) and Directorates. This includes providing support to the Combat Data Systems (CDS), Air Vehicle (AV), Maintenance Systems (MxSYS), Propulsion, Training Systems and Simulation (TSS) PMOs, and Directorate of Engineering. The mission of DevSecOps is to provide a centralized F-35 Data repository, a consolidated F-35 software development environment, and support for system development lifecycle (SDLC) of the F-35 platform, allowing for rapid release cycles to keep the F-35 ahead of its adversaries. Investment in, and modernization of, DevSecOps include efforts to support F-35 Software modernization efforts, develop organic government software capabilities, support SDLC and flight testing capabilities, enhance the security posture of the software development pipeline, and support goals of					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2561 / *DevSecOps*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
reducing long-term on-premise infrastructure environments cost, ultimately resulting in reducing fleet delivery timelines. ***FY 2023 Plans:*** Mature DevSecOps environment into an operational platform for F-35 Software Development supporting US Government, contracted and partner nation applications plus Project Management Offices (PMO) software application development, model based system engineering. Continue transition of PMOs into centralized JPO-managed cloud environment. Continue obtaining appropriate software Cloud development environment, talent, licensing and tools. Maintain Cloud, talent and consumption contracts. Continue meeting cyber security requirements. Develop continuous Authority to Operate (cATO) DevSecOps pipeline and tools to meet compliance requirements and software modernization initiatives for all DevSecOps environments. ***FY 2024 Base Plans:*** Continue development and support for DevSecOps infrastructure, platform, software development pipeline, and joint F-35 organizational connections. Continue to develop a transition plan to stand-up a team consisting of Industry and Government software development in support of software modernization and DevSecOps Cloud transition. Establish initial capabilities and expand existing software development efforts with the goal of transitioning dispersed and separated software development environments into model based systems engineering and a fully collaborative requirements to development environment. Capabilities include software development environment for Maintenance Systems ODIN, ALIS to ODIN migration, Combat Data System's Mission Planning, Propulsion's Offboard Management System, and Air Vehicle Mission System domains. Additional goals of delivering flight-worthy rapid prototyping of capability, virtual test capability, and transitioning workloads to lower cost software sustainment efforts. New requirements from PMOs are expected. Prepare environment for on-boarding, as well as transitioning the PMOs from separate pillars to a centralized JPO-managed cloud environment. Includes software licensing for PMO tool sets and associated applications. Major cost drivers include requirements tool, and collaboration tools, authentication tools - supporting Single Sign On, Multi-Factor Authentication and development tools. For software tooling efforts, working towards an eventual consolidation of tools across the PMOs (i.e. application rationalization) with an end goal of a standardized compiler tool sets and Cybersecurity compliance. Accordingly, talent/consumption (hardware and software to run the environment) contracts must be renewed and expanded. Cybersecurity requirements must also be met, meaning additional resources for security processes, monitoring, scanning, vulnerability identification plus mitigation, and meeting all requirements for DoD compliance to obtain ongoing/continuous Authority to Operate (ATO) and continuous Authority to Operate (cATO). ***FY 2024 OCO Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840N / *F-35C C2D2*	Project (Number/Name) 2561 / *DevSecOps*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease from FY23 to FY24 is primarily attributable to a USN/USMC mark due to a lag in expenditure actuals.					
Accomplishments/Planned Programs Subtotals	13.578	10.032	8.367	0.000	8.367

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The DevSecOps Phase 1 demonstrates prototype designs, integration of Defense Industry Base partners and PMOs, appropriate set of technology stacks to be integrated, identifying Return on Investment (ROI) and buying down technical risk. Technology maturation; putting in place the necessary contracts for talent, licenses and Cloud consumption to support software pipeline delivery for F-35. Development; building, testing and deploying Cloud ecosystems Impact Level (IL) 2 - 6+ and software development pipeline utilizing contracted and government support. Operation and Support; maintain Cloud ecosystem utilizing industry research, resources, talent and technology modernization methodologies with the focus on reducing long-term costs for the program.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840N / *F-35C C2D2*	Project (Number/Name) 2561 / *DevSecOps*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DevSecOps Development Support - Talent	C/FFP	Various : Various	0.000	6.000	Dec 2021	5.107	Dec 2022	3.367	Jan 2024	-		3.367	Continuing	Continuing	Continuing
DevSecOps Development Support - Licenses	C/FFP	August Schell Enterprises, Inc. : Rockville, MD	0.000	4.000	Oct 2021	2.625	Dec 2022	2.200	Jun 2024	-		2.200	Continuing	Continuing	Continuing
DevSecOps Development Support - Cloud Support	C/FFP	Amazon Web Services, Inc. : Seattle, WA	0.000	3.578	Oct 2021	1.425	Dec 2022	1.400	Dec 2023	-		1.400	Continuing	Continuing	Continuing
DevSecOps Development Support - Industry Stand-up	C/FFP	Various : Various	0.000	0.000		0.875	Dec 2022	1.400	Mar 2024	-		1.400	Continuing	Continuing	Continuing
		Subtotal	0.000	13.578		10.032		8.367		-		8.367	Continuing	Continuing	N/A

Remarks

DevSecOps Ecosystem Standup used for centralized software development in JPO-managed cloud.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	13.578		10.032		8.367		-		8.367	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2561 / *DevSecOps*

F-35 JPO DevSecOps Roadmaps

Schedule Details	Start		End		FY22				FY23				FY24				FY25				FY26				FY27			
Events by Sub Project	Quarter	Year	Quarter	Year	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Production Milestones																												
Contract Award: DevSecOps Infrastructure/Platform/Tools	Q4	FY21	Q2	FY26																								
Contract Award: DevSecOps FENCES	Q4	FY21	Q2	FY26																								
Contract Award: DevSecOps Cloud	Q1	FY22	Q2	FY26																								
Contract Award: DevSecOps Industry Standup	Q4	FY23	Q4	FY28																								
System Development																												
AWS Impact Level 2 Research, Development and Test	Q4	FY20	Q3	FY23																								
AWS Impact Level 5 Buildout	Q1	FY20	Q1	FY22																								
AWS Impact Level 5 Research, Development and Test	Q4	FY21	N/A	N/A																								
AWS Impact Level 6 Buildout	Q4	FY23	Q3	FY25																								
AWS Impact Level 6 Research, Development and Test	Q3	FY24	N/A	N/A																								
AWS Impact Level 6+ (SAP) Buildout	Q4	FY22	Q2	FY24																								
AWS Impact Level 6+ (SAP) Research, Development and Test	Q3	FY23	N/A	N/A																								
Data Transfer as a Service Buildout	Q2	FY21	Q2	FY23																								
Data Transfer as a Service Research, Development and Test	Q1	FY23	N/A	N/A																								
Cloud Gateway (Collateral) LM Connection	Q1	FY25	Q3	FY25																								
Cloud Gateway (Collateral) Research, Development and Test	Q2	FY25	N/A	N/A																								
Cloud Gateway (SAP) LM Connection	Q3	FY21	Q1	FY24																								
Cloud Gateway (SAP) Research, Development and Test	Q4	FY23	N/A	N/A																								

Updated: 2/22/2024

RDT&E Development with customer requirements

RDT&E Initial Development

Key:

Contract Award and/or Option Exercised

Initial Operational Capability

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2561 / *DevSecOps*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2561				
System Development: AWS Impact Level 2 Research, Development and Test	1	2022	3	2023
System Development: AWS Impact Level 5 Buildout	1	2022	1	2022
System Development: AWS Impact Level 5 Research, Development and Test	1	2022	1	2022
System Development: AWS Impact Level 6 Buildout	4	2023	3	2025
System Development: AWS Impact Level 6 Research, Development and Test	3	2024	3	2024
System Development: AWS Impact Level 6+ (SAP) Buildout	4	2022	2	2024
System Development: AWS Impact Level 6+ (SAP) Research, Development and Test	2	2023	2	2023
System Development: Data Transfer as a Service Buildout	1	2022	2	2023
System Development: Data Transfer as a Service Research, Development and Test	1	2023	1	2023
System Development: Cloud Gateway (Collateral) LM Connection	1	2025	3	2025
System Development: Cloud Gateway (Collateral) Research, Development and Test	2	2025	2	2025
System Development: Cloud Gateway (SAP) LM Connection	1	2022	1	2024
System Development: Cloud Gateway (SAP) Research, Development and Test	4	2023	4	2023
Production Milestones: DevSecOps Infrastructure/Platform/Tools	1	2022	2	2026
Production Milestones: DevSecOps FENCES	1	2022	2	2026
Production Milestones: DevSecOps Cloud	1	2022	2	2026
Production Milestones: DevSecOps Industry Standup	4	2023	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0604840N / *F-35C C2D2*				Project (Number/Name) 2562 / *F-35 USN Unique*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
2562: *F-35 USN Unique*	0.000	8.303	16.533	14.668	-	14.668	19.788	16.655	15.726	16.042	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 198

Note

Beginning in FY2022, F-35 USN Unique was established as a separate, distinct project within the Continuous Capability Development & Delivery (C2D2) Program Element, per Congressional direction. Efforts are continued from Project Unit 2936, which is still included at the end of the R-2A for fiscal years FY2021. This Project Unit has also been updated to reflect the directed project categories to provide traceability between current execution and the FY2024 request.

A. Mission Description and Budget Item Justification

New USN Unique Project Unit being established in support of the C2D2 effort for discreet tracking of USN efforts to include USN Operational Testing and government engineering support, as well as USN systems engineering efforts and other emerging USN requirements. Efforts continued from PU 2936, not a new start. USN test infrastructure to support integrated test activities in support of OT and DT squadron events in support of Block 4 Development Capabilities to include other operational test and evaluation modernization efforts. Provides basic infrastructure to Edwards AFB as host to the VX-9 Det Edwards Test Squadron.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: USN Unique	8.303	16.533	14.668	0.000	14.668
Articles:	-	-	-	-	-
Description: USN test infrastructure to support integrated test activities in support of OT and DT squadron events in support of Block 4 Development Capabilities to include other operational test and evaluation modernization efforts, as well as USN systems engineering efforts and other emerging USN requirements.					
FY 2023 Plans: Efforts include USN Unique Operational Testing, supporting various integrated tests and investigations. Major testing event include but are not limited to TOPGUN Support, Orange Flag, JSOW LAR Investigation, Patriot Support, Hornet H16 Interoperability, Fleet Anomaly Investigations, Interoperability Large Force Exercise, and other emerging USN test priorities. The following will be funded in order to support various tests and investigations: manpower, weapons, flight hours, range time, and chase, target & tanker support assets, as well as USN systems engineering efforts and other emerging USN requirements.					
FY 2024 Base Plans: Efforts include USN Unique Operational Testing, supporting various integrated tests and investigations. Major testing event include but are not limited to TOPGUN Support, Orange Flag, JSOW LAR Investigation, Patriot					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2562 / *F-35 USN Unique*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Support, Hornet H16 Interoperability, Fleet Anomaly Investigations, Interoperability Large Force Exercise, and other emerging USN test priorities. The following will be funded in order to support various tests and investigations: manpower, weapons, flight hours, range time, and chase, target & tanker support assets, as well as USN systems engineering efforts and other emerging USN requirements. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The decrease from FY2023 to FY2024 is due to a lag in expenditure actuals.					
Accomplishments/Planned Programs Subtotals	8.303	16.533	14.668	0.000	14.668

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The C2D2 acquisition strategy is to employ various organic funding sources for the USN unique development efforts.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840N / *F-35C C2D2*	Project (Number/Name) 2562 / *F-35 USN Unique*	

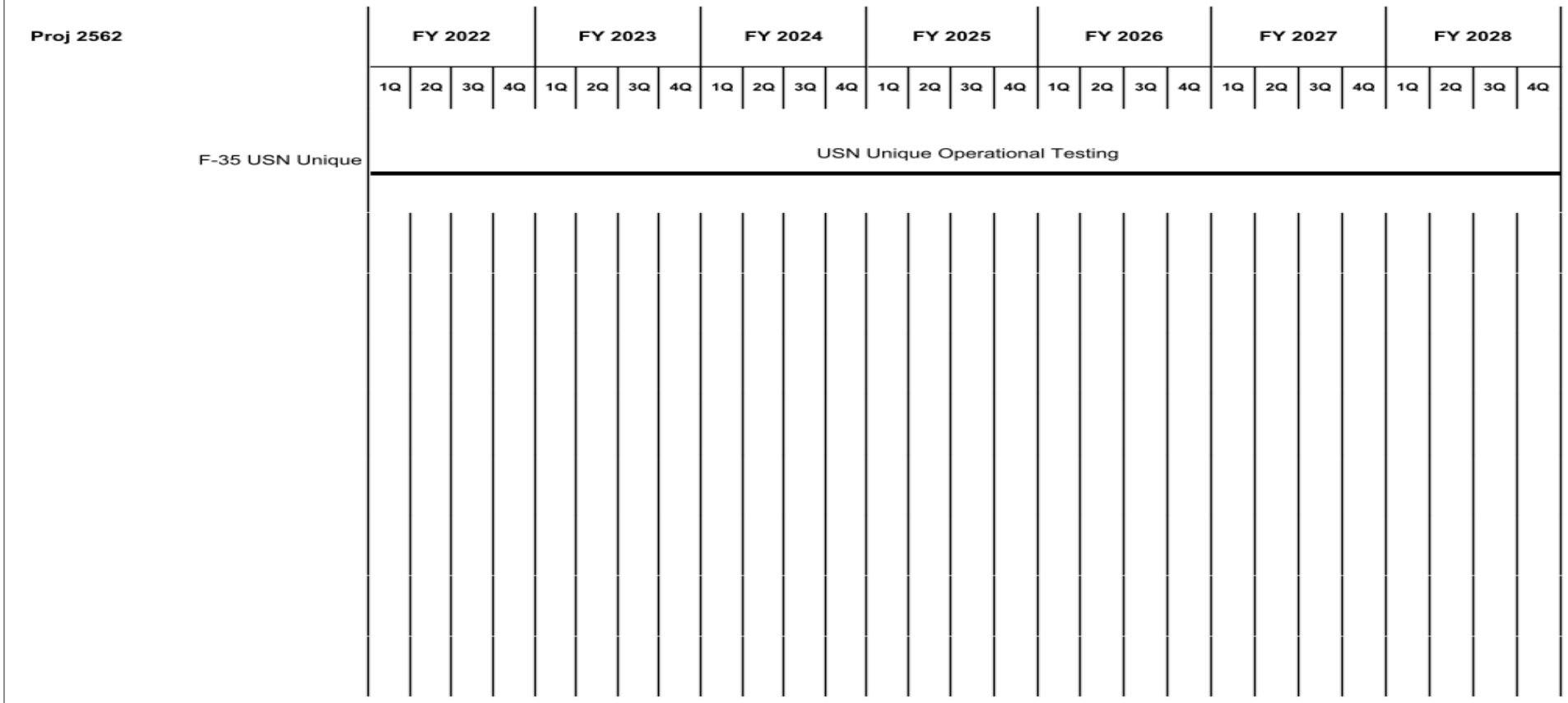
Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation (OT&E)	Various	Various : Various	0.000	8.303	Dec 2021	16.533	Dec 2022	14.668	Dec 2023	-		14.668	Continuing	Continuing	Continuing
		Subtotal	0.000	8.303		16.533		14.668		-		14.668	Continuing	Continuing	N/A

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	8.303		16.533		14.668		-		14.668	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2562 / *F-35 USN Unique*



2024DON - 0604840N - 2562

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 2562 / *F-35 USN Unique*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2562				
F-35 USN Unique: USN Unique Operational Testing	1	2022	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840N / *F-35C C2D2*	Project (Number/Name) 9999 / *Congressional Adds*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
9999: *Congressional Adds*	0.000	4.827	23.750	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	28.577
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Congressional Interest Items not included in other Projects.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023
Congressional Add: Joint Enterprise Data Interoperability for F-35 Depots ***FY 2022 Accomplishments:*** Commence development for Joint enterprise data interoperability for F-35 depots needed to support the Block 4 capability improvement. ***FY 2023 Plans:*** N/A	4.827	5.000
Congressional Add: F135 Engine Enhancement ***FY 2022 Accomplishments:*** N/A ***FY 2023 Plans:*** N/A	0.000	18.750
Congressional Adds Subtotals	4.827	23.750

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0604840N / *F-35C C2D2*	Project (Number/Name) 9999 / *Congressional Adds*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Joint enterprise data interoperability	Various	Various : Various	0.000	4.827	Jul 2022	5.000	Jul 2023	0.000		-		0.000	0.000	9.827	9.827
Prime Enhanced Engine Package (EEP)	C/CPFF	Pratt & Whitney : East Hartford, Connecticut	0.000	0.000		16.580	Aug 2023	0.000		-		0.000	0.000	16.580	16.580
		Subtotal	0.000	4.827		21.580		0.000		-		0.000	0.000	26.407	N/A

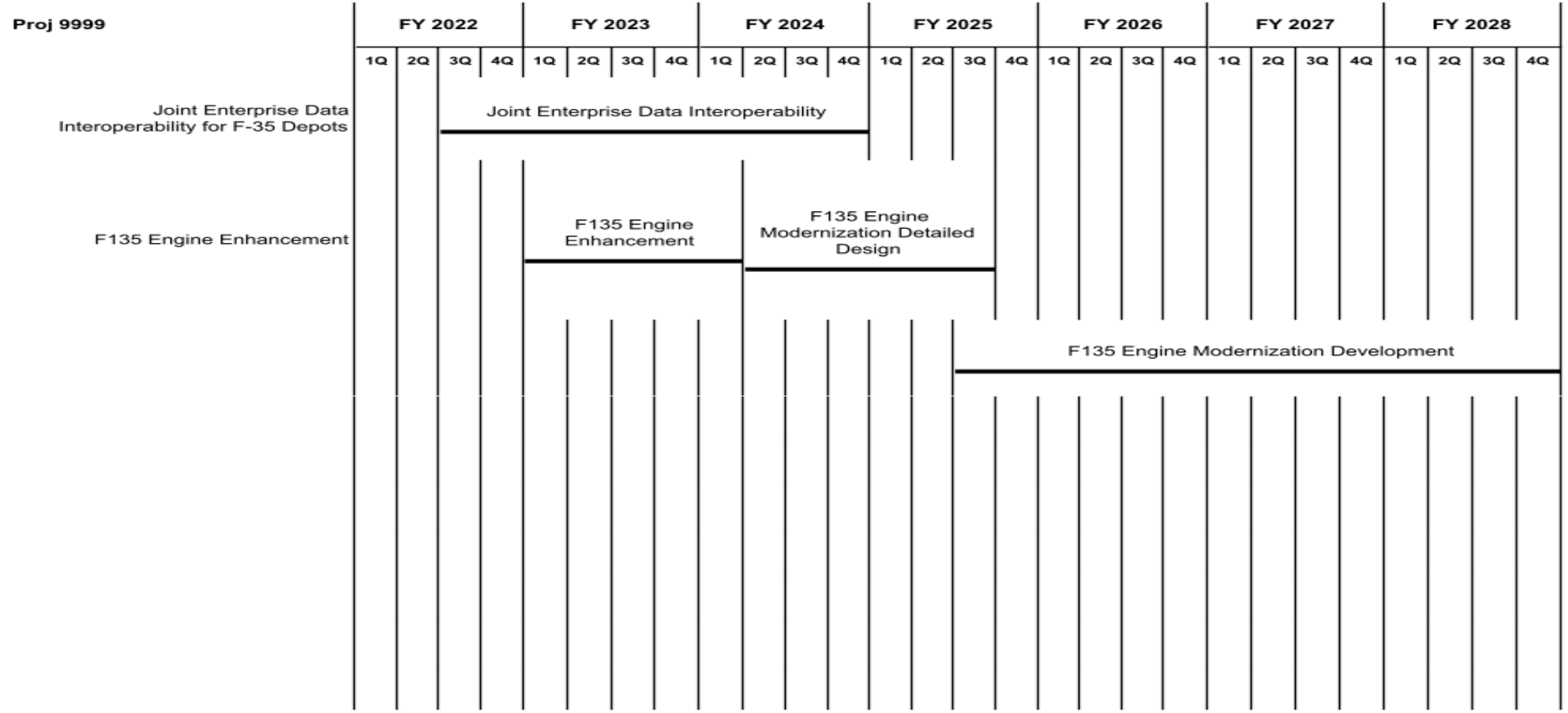
Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engine Enhancement Engineering Support	Various	Various : Various	0.000	0.000		2.170	Aug 2023	0.000		-		0.000	0.000	2.170	2.170
		Subtotal	0.000	0.000		2.170		0.000		-		0.000	0.000	2.170	N/A

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	4.827		23.750		0.000		-		0.000	0.000	28.577	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 9999 / *Congressional Adds*



2024PB - 0604840N - 9999

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0604840N / *F-35C C2D2*	**Project (Number/Name)** 9999 / *Congressional Adds*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 9999				
Joint Enterprise Data Interoperability for F-35 Depots: Joint Enterprise Data Interoperability	3	2022	4	2024
F135 Engine Enhancement: F135 Engine Enhancement (FY22 and FY23 Congressional Add Funding Only)	1	2023	1	2024
F135 Engine Enhancement: PP F135 Engine Modernization Detailed Design	2	2024	3	2025
F135 Engine Enhancement: PP F135 Engine Modernization Development	3	2025	4	2028

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0605520M *I MARINE CORPS AIR DEFENSE WEAPONS SYS*

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	69.425	59.018	69.663	99.860	-	99.860	62.320	32.333	27.730	27.226	Continuing	Continuing
2278: *Air Defense Weapons System*	69.425	51.474	40.690	77.454	-	77.454	54.489	26.382	25.731	26.246	Continuing	Continuing
2578: *GBAD: Medium Range Intercept Capability (MRIC)*	0.000	7.544	7.973	22.406	-	22.406	7.831	5.951	1.999	0.980	Continuing	Continuing
9999: *Congressional Adds*	0.000	0.000	21.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	21.000

A. Mission Description and Budget Item Justification

This program element supports the Low Altitude Air Defense (LAAD) Battalion's missions of Short Range Air Defense (SHORAD), Medium Range Air Defense and provides the Marine Air Ground Task Force (MAGTF) to include; maneuver forces, bases, posts and stations, the necessary force protection to defeat the full spectrum of threats associated with the Marine Corps Low-Altitude Air Defense mission, to include hostile aerial threats from Unmanned Aerial Systems (UAS). With the proliferation of both military and commercial UAS platforms, the program is pursuing and acquiring more lethal and survivable air defense weapon systems platforms; such as JLTV's with armored protection and better maneuverability than a HMMWV, providing increased Counter-UAS capabilities now and continually spiraling out increasing capability for the foreseeable future. The Medium Range Intercept Capability (MRIC) will provide a capability to defend fixed and operationally fixed sites primarily against threat subsonic/supersonic cruise missiles; secondarily against UAS and other aerial threats that enter into the MRIC's Weapons Engagement Zone (WEZ). The system will be integrated into the Integrated Air Missile Defense (IAMD) Family of Systems (FoS) to facilitate a layered defense against aerial threats

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	61.381	48.663	81.235	-	81.235
Current President's Budget	59.018	69.663	99.860	-	99.860
Total Adjustments	-2.363	21.000	18.625	-	18.625
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	21.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-2.363	0.000			
• Program Adjustments	0.000	0.000	21.977	-	21.977
• Rate/Misc Adjustments	0.000	0.000	-3.352	-	-3.352

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0605520M *I MARINE CORPS AIR DEFENSE WEAPONS SYS*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2022	FY 2023
Project: 9999: *Congressional Adds*		
Congressional Add: *COTS expeditionary radar augmentation*	0.000	4.000
Congressional Add: *Medium-Range Intercept Capability (MRIC)*	0.000	7.000
Congressional Add: *Next generation counter-UAS hard kill*	0.000	10.000
Congressional Add Subtotals for Project: 9999	0.000	21.000
Congressional Add Totals for all Projects	0.000	21.000

Change Summary Explanation

Total increase of $30.197M is comprised of:

Marine Corps Air Defense Weapons Systems increases $36.764M from FY 2023 to FY 2024 is due to the ramp up of development and testing of the MADIS Inc 1 Block 2 required to support increased lethality. As adversaries advance their capabilities, the MADIS Inc 1 must continue to identify increased capabilities to meet and defeat these advanced capabilities. The increase also supports initiation of System Integration Test (SIT) #2, System Verification Test (SVT) #2 as well as initiation of Initial Operational Test & Evaluation (IOT&E) of the L-MADIS. FY 2024 also initiates the RDT&E to support the I-CsUAS program of record and demonstration of the capability.

Medium Range Intercept Capability (MRIC) increase of $14.433M from FY 2023 to FY 2024 is required to support the initiation of multiple testing events (to include environmental, interoperability, transportability), as well as the initiation of the Quick Reaction Assessment (QRA) required prior to deployment.

Congressional Add decrease of $21.000M from FY 2023 to FY 2024 due to the completion of demonstration efforts associated to the Extended Multi-Mission Hemispheric Radar (exMHR), continuation of MRIC deployment efforts within PE 0605520M Project 2578.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0605520M / *MARINE CORPS AIR DEFENSE WEAPONS SYS*	Project (Number/Name) 2278 / *Air Defense Weapons System*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2278: *Air Defense Weapons System*	69.425	51.474	40.690	77.454	-	77.454	54.489	26.382	25.731	26.246	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Marine Corps Air Defense Weapons Systems includes multiple Commandant of the Marine Corps (CMC) Force Design priority items. It supports the Low Altitude Air Defense (LAAD) Battalion's mission of Short Range Air Defense (SHORAD) and provides the Marine Air Ground Task Force (MAGTF) to include; maneuver forces, bases, posts and stations, the necessary force protection to defeat the full spectrum of threats associated with the Marine Corps Low Altitude Air Defense mission, to include hostile aerial threats from Unmanned Aircraft Systems (UAS) and manned fixed wing/rotary wing aircraft. With the proliferation of both military and commercial UAS and platforms, the program is pursuing and acquiring more lethal and survivable air defense weapons systems platforms; such as JLTV's with armored protection and better maneuverability than a HMMWV, providing increased Counter-UAS (C-UAS) and FW/RW capabilities now and continually spiraling out increasing capability for the foreseeable future.

Based on an Urgent Universal Need Statement (UUNS), a Joint Urgent Operational Need (JUON), and a Joint Emergent Operational Need (JEON) the Marine Corps has aggressively pursued CUAS solutions in support of deployed Marines and critical facilities. The development of these solutions has been leveraged heavily by the Marine Air Defense Integrated System (MADIS) Increment 1 (Inc 1) on a Joint Light Tactical Vehicle (JLTV), the ACAT II Program of Record that initiated at MS B in 3Q FY 2021.

Marine Air Defense Integrated System Family of Systems (MADIS FoS): The MADIS FoS provides the Marine Corps with an organic, upgradable, and state of the art capability to protect MAGTF maneuver forces, installations and other designated defended assets from Fixed/Rotary Wing (FW/RW) aircraft and Unmanned Aircraft Systems. The MAGTF is at increased risk of lethal air attack and fires coordination from next generation aircraft as well as significant advances from small UAS (sUAS) threats due to their rapid development and proliferation by the commercial sector, which has increased their nefarious use by both state and non-state actors. To address these threats, the MADIS FoS consists of mission tailored variants designed for sustained operations ashore, afloat, and aboard installations.

The MADIS FoS includes the fielded Advanced Man Portable Air Defense System (A-MANPADS) which provides close-in, low altitude, surface-to-air fires and command and control in defense of the MAGTF. It also includes the MADIS Inc 1 which is accomplished with the development, test, and installation of Government Furnished C-UAS and air defense equipment on a Joint Light Tactical Vehicle (JLTV). The MADIS Inc 1 Block 1 system is comprised of two vehicles; a MK 1 (stinger variant), and a MK 2 (CUAS variant). MADIS Increment 1 Block 2 will focus on the development of kinetic and non-kinetic capability supporting increased lethality. This includes the development of a high powered microwave capability to counter swarms and enhancements for a direct fire CUAS capability, and other identified technologies that can be integrated with the MADIS FoS. The MADIS Inc 1 will replace the A-MANPADS fielded systems. The MADIS FoS also includes the Light Marine Air Defense Integrated System (L-MADIS), which will be accomplished with the development, test, and installation of Government Furnished C-UAS equipment on a Ultra-Light Tactical Vehicle (ULTV). The L-MADIS Program of Record (PoR) system is comprised of two vehicles; a MK 1 (Command and Control vehicle), and a MK 2 (Early Warning / Electronic Warfare vehicle). The L-MADIS PoR will replace the systems fielded under a Joint Urgent and Emergent Operational Need Statement. The L-

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0605520M / *MARINE CORPS AIR DEFENSE WEAPONS SYS*	**Project (Number/Name)** 2278 / *Air Defense Weapons System*

MADIS will provide the Marine Corps a capability different than that of the MADIS Increment 1. The L-MADIS is transportable within organic Marine Corps R/W aircraft, allowing Marines to face challenging operational scenarios during Marine Expeditionary Unit (MEU) operations. The L-MADIS will protect the maneuver force from threat of Unmanned Aircraft Systems (UAS), Fixed Wing and Rotary Wing (FW/RW), and other airborne threats throughout the operating environment while maintaining Marine Corps expeditionary requirements. The MADIS FoS also includes the Installations-Counter small Unmanned Aircraft System (I-CsUAS). I-CsUAS will provide protection of USMC critical assets on installations from sUAS threats; primarily Group 1 and 2 commercial-off-the-shelf sUAS. This system will enhance force protection of critical defended assets on USMC installations in both CONUS and OCONUS locations. The system will detect, track, identify and defeat sUAS. I-CsUAS is currently operating under an Urgent Statement of Need (USON) and the capability is being provided as a service. This effort will inform a future Program of Record (PoR)

Medium Range Intercept Capability (MRIC): The MRIC provides the Marine Corps Expeditionary Force Commander a capability to defend fixed and operationally fixed sites primarily against threat subsonic/supersonic cruise missiles; secondarily against UAS and other aerial threats that enter into the MRIC's Weapons Engagement Zone (WEZ). MRIC is designed as a system-of-systems and will be integrated with Marine Corps organic Command and Control (C2) and Joint Integrated Air and Missile Defense (IAMD) architecture. The program will enhance the expeditionary force ground based air defense (GBAD) capability to rapidly prosecute aerial threats and expand layered defense of the Expeditionary and Naval Forces. The MRIC Prototype Development was completed 4Q FY 2022 and is comprised of expeditionary missile launchers, intercept missiles, and a C2 system that are able to utilize available AN/TPS-80 G/ATOR radar for surveillance and fire control. FY 2023 focuses on integration testing leading to certification for deployment. This effort informs the investment to meet the Force Design requirements to field an MRIC Battery to each of the three LAAD Battalions in FY 2026, FY 2027, and FY 2028 to support operations including Expeditionary Advanced Based Operations (EABO).

Overall, Marine Corps Air Defense Weapons Systems increases $36.764M from FY 2023 to FY 2024 is due to the ramp up of product development and testing of the MADIS Inc 1 Block 2 required to support increased lethality. As adversaries advance their capabilities, the MADIS Inc 1 must continue to identify increased capabilities to meet and defeat these advanced capabilities. The increase also supports initiation of System Integration Test (SIT) #2, System Verification Test (SVT) #2 as well as initiation of Initial Operational Test & Evaluation (IOT&E) of the L-MADIS. FY 2024 also initiates the RDT&E to support the I-CsUAS program of record and demonstration of the capability.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: MADIS INC 1: Hardware/Software ECPs	0.000	0.000	7.569	0.000	7.569
Articles:	-	-	-	-	-
FY 2023 Plans: N/A					
FY 2024 Base Plans: -Initiates purchase of components to increase system performance as technology improves. Components include the optic, Inertial Navigation Unit (INU), Global Positioning System (GPS), launcher, and launcher					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0605520M / *MARINE CORPS AIR DEFENSE WEAPONS SYS*	**Project (Number/Name)** 2278 / *Air Defense Weapons System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
munitions. These components increase the fidelity of target data and accuracy for the integrated weapons. These components do not increase lethality and are distinct from MADIS Inc 1 Block 2. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase of $7.569M from FY 2023 to FY 2024 due to the change in focus from completion of testing events (FY 2023) to the the initial purchase of components that increase system performance and ensures the system is positioned to counter the constantly evolving threat. As adversaries advance their capabilities, the MADIS Inc 1 must continue to identify increased capabilities to meet and defeat these advanced capabilities.					
Title: MADIS INC 1: Product Development ***Articles:*** ***FY 2023 Plans:*** N/A ***FY 2024 Base Plans:*** -Initiates MADIS Inc 1 Gunnery Training System development -Initiates MADIS Inc 1 Virtual Training System development ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase of $3.524M from FY 2023 to FY 2024 supports the initiation of development of the MADIS Inc 1 Gunnery and Virtual Trainers.	4.278 -	0.000 -	3.524 -	0.000 -	3.524 -
Title: MADIS INC 1: Support Costs ***Articles:*** ***Description:*** The Government Technical Support Team provides functions such as technical planning, execution and analysis across multi-disciplinary competencies to include; Systems Architecture, Radar/Jamming Software Engineering, Radar/Jamming Systems Engineering, Cyber Security/Information Assurance, Human Systems Integration, Safety,	10.815 -	10.092 -	4.836 -	0.000 -	4.836 -

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0605520M / *MARINE CORPS AIR DEFENSE WEAPONS SYS*	**Project (Number/Name)** 2278 / *Air Defense Weapons System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Configuration Management and the coordination necessary to enable a System of Systems interface with other programs in the slew to cue kill chain to ensure platform/software compatibility. ***FY 2023 Plans:*** -Continues full logistics supportability to include Independent Logistics Assessment (ILA), provisioning conferences, updates of manpower and training plan and manpower task lists for MADIS Inc 1 -Initiates engineering, cyber security, information assurance, and safety support required in preparation of the system verification tests and Initial Operational Test & Evaluation ***FY 2024 Base Plans:*** -Initiates engineering and logistics support for the engineering changes required post Initial Operational Test & Evaluation (IOT&E) -Initiates engineering and logistics support for components purchased to improve system performance and counter the evolving threat. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease of $5.256 is due to the completion IOT&E as well as movement into Full Rate Production (FRP) in Q3 FY 2024.					
Title: MADIS INC 1: Test and Evaluation	30.721	18.199	1.288	0.000	1.288
Articles:	-	-	-	-	-
FY 2023 Plans: -Initiates and completes the System Integration Test #3 of MADIS Inc 1 -Initiates and completes the System Verification Test #1 & #2 of MADIS Inc 1 -Initiates and completes the transportability and environmental testing of MADIS Inc 1 -Initiates the planning, preparation, and range operations efforts for Initial Operational Test & Evaluation (IOT&E) of the MADIS Inc 1 -Initiates and completes the refurbishment of the MADIS Inc 1 Engineering Development Models (EDM) in order to ensure the systems are prepared for IOT&E ***FY 2024 Base Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0605520M / *MARINE CORPS AIR DEFENSE WEAPONS SYS*	**Project (Number/Name)** 2278 / *Air Defense Weapons System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
-Initiates testing of the MADIS Inc 1 Gunnery and Virtual Training System ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease of $16.911M from FY 2023 to FY 2024 due to the completion of System Integration Tests (SITs), System Verification Tests (SVTs) as well as completion of IOT&E.					
Title: MADIS INC 1: Management Services ***Articles:*** ***FY 2023 Plans:*** -Funds travel in support of the System Integration & Verification Tests (SIT, SVT) as well as the Initial Operational Test & Evaluation of the MADIS Increment 1 ***FY 2024 Base Plans:*** -Funds travel in support of the development, integration, and testing of the MADIS Increment 1 Block 2. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease of $0.026M from FY 2023 to FY 2024 is due to the completion of the travel in support of SITs, SVTs, as well as IOT&E	0.495 -	0.447 -	0.421 -	0.000 -	0.421 -
Title: MADIS INC 1 (BLOCK 2) - INCREASED LETHALITY: Product Development ***Articles:*** ***FY 2023 Plans:*** -Continue development and integration efforts associated with increased lethality to support constantly evolving threats to include a high powered microwave (HPM). (MADIS Inc 1 BLOCK 2) ***FY 2024 Base Plans:*** -Initiates the procurement of hardware to support integration and testing of the MADIS Inc 1 Block 2 capability -Initiates the integration of Block 2 hardware onto the MADIS Inc 1 Engineering Development Models (EDMs) required prior to developmental testing ***FY 2024 OCO Plans:***	0.000 -	4.000 -	24.349 -	0.000 -	24.349 -

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0605520M / *MARINE CORPS AIR DEFENSE WEAPONS SYS*	**Project (Number/Name)** 2278 / *Air Defense Weapons System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase of $20.349M from FY 2023 and FY 2024 is due to the initiation of the development of MADIS Inc 1 Block 2 increased lethality hardware as well as integration onto the MADIS Inc 1 Engineering Development Models. These efforts are required as part of the Capabilities Development Document (CDD) to support increased lethality					
Title: MADIS INC 1 (BLOCK 2)-INCREASED LETHALITY: Test and Evaluation ***Articles:*** ***FY 2023 Plans:*** N/A ***FY 2024 Base Plans:*** -Initiates source selection fly-off testing -Initiates MADIS Inc 1 Block 2 developmental testing ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase of $15.031M from FY 2023 to FY 2024 is due to the initiation of the source selection fly-off testing and developmental testing in support of the MADIS Inc 1 Block 2. This effort supports the Capabilities Development Document (CDD) requirement of increased lethality	0.000 -	0.000 -	15.031 -	0.000 -	15.031 -
Title: MADIS INC 1 (BLOCK 2)- INCREASED LETHALITY: Support ***Articles:*** ***FY 2023 Plans:*** N/A ***FY 2024 Base Plans:*** -Initiates engineering and logistics support to update documentation, such as the performance specifications, technical data package, and other logistics documents for the MADIS Inc 1 Block 2 -Initiates full logistics supportability to include MADIS Inc 1 Block 2 Level of Repair Analysis (LoRA), provisioning conferences, updates of manpower and training plan and manpower task lists	0.000 -	0.000 -	5.502 -	0.000 -	5.502 -

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0605520M / *MARINE CORPS AIR DEFENSE WEAPONS SYS*	**Project (Number/Name)** 2278 / *Air Defense Weapons System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
-Initiates engineering, cyber security, information assurance, and safety required in support of MADIS Inc 1 Block 2 developmental test ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase of $5.502M from FY 2023 to FY 2024 is due to the initiation of engineering and logistics efforts associated to the development and testing of the MADIS Inc 1 Block 2. This effort is included as a requirement of the Capabilities Development Document (CDD) for increased lethality					
Title: L-MADIS: Support Costs ***Articles:*** ***FY 2023 Plans:*** -Initiate engineering, cyber security, information assurance, and safety support required in preparation of the system integration and verification tests. ***FY 2024 Base Plans:*** -Continues engineering, cyber security, information assurance, and safety support required for integration and verification tests as well as Operational Test & Evaluation (IOT&E). -Initiates engineering and logistics efforts to support the purchase and testing of components to enhance the L-MADIS and continue to counter the evolving threat. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase of $0.701M from FY 2023 to FY 2024 is due to the support required for the initiation of IOT&E as well as the initiation of efforts supporting the purchase of components to system performance of the L-MADIS.	0.000 -	2.867 -	3.568 -	0.000 -	3.568 -
Title: L-MADIS: Product Development ***Articles:*** ***FY 2023 Plans:*** -Continue the technical manual development in order to provide the Marines the procedures required to operate, maintain, and sustain the system	5.165 -	0.365 -	2.710 -	0.000 -	2.710 -

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0605520M / *MARINE CORPS AIR DEFENSE WEAPONS SYS*	**Project (Number/Name)** 2278 / *Air Defense Weapons System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
-Continue curriculum development in order to train Marines on the inherent skill set required to operate and maintain the system. ***FY 2024 Base Plans:*** -Initiates the purchase of components that increase system performance and support countering the evolving threat. Components include the optic, Global Positioning System (GPS), and an Inertial Navigation System. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase of $2.345M from FY 2023 and FY 2024 due to the purchase of components to increase system performance and support countering the evolving threat.					
Title: L-MADIS: Test and Evaluation	0.000	4.700	6.032	0.000	6.032
Articles:	-	-	-	-	-
FY 2023 Plans: -Initiates and completes System Integration Test #1 of the Light-Marine Air Defense Integrated System (L-MADIS) -Initiates and completes System Verification Test #1 of the Light-Marine Air Defense Integrated System (L-MADIS) -Initiates and completes transportability and environmental testing of the L-MADIS ***FY 2024 Base Plans:*** -Initiates and completes training to support the System Verification Test #2 and Initial Operational Test & Evaluation (IOT&E) -Initiates and completes System Integration Test #2 -Initiates and completes System Verification Test #2 -Initiates and completes Initial Operational Test & Evaluation (IOT&E) -Initiates testing of components purchased to improve system performance and support countering the evolving threat ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:***					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0605520M / *MARINE CORPS AIR DEFENSE WEAPONS SYS*	**Project (Number/Name)** 2278 / *Air Defense Weapons System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Increase of $1.332M is due to the initiation of IOT&E as well as testing of component enhancements to the L-MADIS.					
Title: L-MADIS: Management Services	0.000	0.020	0.150	0.000	0.150
Articles:	-	-	-	-	-
FY 2023 Plans: -Initiates travel required to support the System Integration Tests (SITs) of the Light Marine Air Defense Integrated System (L-MADIS)					
FY 2024 Base Plans: -Continues travel in support of System Integration Tests (SITs), System Verification Tests (SVTs) and Initial Operational Test & Evaluation (IOT&E)					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: Increase of $0.130M due to the increase in travel required for the start of IOT&E.					
Title: I-CsUAS: Test & Evaluation	0.000	0.000	1.948	0.000	1.948
Articles:	-	-	-	-	-
FY 2023 Plans: N/A					
FY 2024 Base Plans: -Initiates threat assessments -Initiates demonstration of vendor Installation-Counter small Unmanned Aircraft System (I-CsUAS) capabilities -Initiates evaluation in order to maintain pace with evolving threats and new technologies					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Increase of $1.948M from FY 2023 to FY 2024 support the initiation of efforts supporting the I-CsUAS program of record to include a demonstration of capabilities as well as threat assessments and evaluation of new technologies.					
Title: I-CsUAS: Support	0.000	0.000	0.526	0.000	0.526
Articles:	-	-	-	-	-
FY 2023 Plans: N/A					
FY 2024 Base Plans: -Initiates Manpower and Training (MPT) analysis to determine the manpower footprint required at the using units to properly operate and maintain the equipment.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: Increase of $0.526M from FY 2023 to FY 2024 is due to the initiation of the Manpower and Training analysis to support the determination of the manpower required to operate and maintain the equipment.					
Accomplishments/Planned Programs Subtotals	51.474	40.690	77.454	0.000	77.454

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• PMC/3006: *Ground Based Air Defense (GBAD)*	514.403	169.927	249.103	-	249.103	368.310	436.905	585.147	401.137	0.000	3,020.801
• RDTEN/0605520M/2578: *GBAD: Medium Range Intercept Capability (MRIC)*	7.544	7.973	22.406	-	22.406	7.831	5.951	1.999	0.275	Continuing	Continuing

Remarks

D. Acquisition Strategy

Marine Corps Air Defense Weapons Systems: The Marine Corps Air Defense Weapons Systems capability will be developed in increments per the Capabilities Development Document (CDD). Increment 1 modernizes the existing air defense legacy systems (A-MANPADS) by mounting a mix of legacy and technologically

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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mature capabilities (leveraging UUNS related efforts) onto the Joint Light Tactical Vehicle (JLTV), mitigating the risk of attacks from UAS and FW/RW aircraft, while maintaining pace with maneuver forces. The MADIS full Increment 1 capability will be achieved via a 2 block approach. The first block will include a remote weapon station (RWS) with a direct fire 30MM gun, non-kinetic (via electronic attack) UAS defeat capability, and a dual launch stinger. The second block introduces additional kinetic and non-kinetic C-UAS capability. Each MADIS Inc 1 system built to the block 1 configuration, to include Low Rate Initial Production (LRIP), will be retrofitted to include block 2 capabilities. The Marine Air Defense Integrated System (MADIS Inc 1) has been designated an ACAT II program. The MADIS Inc 1 development leverages JUON and JEON development efforts and initiated at Milestone B in 3Q FY 2021.

Medium Range Intercept Capability (MRIC) is an additional component of the layered defense approach to aerial threats. (MRIC) is designed to defend fixed/ operationally fixed assets against Cruise Missiles (CM), group 3+ UAS, Rockets, Artillery, and Mortars (RAM), and Fixed Wing / Rotary Wing threats that enter the MRIC's Weapons Engagement Zone (WEZ). To support an MRIC Material Support Decision, a concept demonstration of a proposed counter cruise missile (CM) defense system occurred in 4Q FY 2019. The MRIC received an approved Middle Tier Acquisition decision in 3Q FY 2020 placing the system into Rapid Prototyping. A single prototype cruise missile defense capability was tested and evaluated during live fire exercises. A decision to certify for deployment was approved in 1Q FY 2023.

L-MADIS is fully leveraging JUON efforts and has an approved CDD annex as of 1Q FY 2022. The L-MADIS will develop a C-sUAS capability on the new Ultra-Light Tactical Vehicle (ULTV) and produce Low Rate Initial Production (LRIP) vehicles for testing in FY 2024. The L-MADIS is designated as an ACAT IVT program with MS C scheduled for 1Q FY 2024.

I-CsUAS is fully leveraging USON efforts and is pending an approved CDD planned for 3Q FY 2023. A Business Case Analysis (BCA) was developed for economic analysis to inform the PoR acquisition strategy which includes evaluating traditional acquisition, hardware procurement with Performance Based Logistics vendor services, or Customer acquisition as a Service (CAAS). It was determined that the best approach was hardware procurement with Performance Based Logistics vendor services.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MADIS Inc 1 SW Development	C/IDIQ	MCSC : Quantico, VA	8.494	3.178	Jun 2022	0.000		0.000		-		0.000	0.000	11.672	-
MADIS Inc 1 Desktop Trainer Development	Various	NSWC : Dahlgren, VA	1.658	1.100	Mar 2022	0.000		0.000		-		0.000	0.000	2.758	-
MADIS Inc 1 Gunnery Training Sys Develop	TBD	TBD : TBD	0.000	0.000		0.000		1.541	Jan 2024	-		1.541	0.000	1.541	-
MADIS Inc 1 Enhanced Hardware (ECPs)	MIPR	DLA : Philadelphia	0.000	0.000		0.000		7.569	Dec 2023	-		7.569	0.000	7.569	-
MADIS Inc 1 Virtual Training Sys Develop	TBD	TBD : TBD	0.000	0.000		0.000		1.983	Jan 2024	-		1.983	0.000	1.983	-
MADIS Inc 1 Blk 2 Kinetic Kill Develop (HPM)	MIPR	ARL : Adelphi, MD	1.919	0.000		4.000	Jul 2023	2.000	May 2024	-		2.000	0.000	7.919	-
MADIS Inc 1 Blk 2 HW	Various	Various : Various	0.000	0.000		0.000		14.080	Nov 2023	-		14.080	0.000	14.080	-
MADIS Inc 1 Blk 2 EDM Integration	MIPR	NIWC : Charleston, SC	0.000	0.000		0.000		8.269	Apr 2024	-		8.269	0.000	8.269	-
L-MADIS Design and Architecture	Various	NSWC : Crane, IN	0.000	5.165	Mar 2022	0.365	Dec 2022	0.000		-		0.000	0.000	5.530	-
L-MADIS Enhanced HW	Various	DLA : Philadelphia, PA	0.000	0.000		0.000		2.710	Dec 2023	-		2.710	0.000	2.710	-
MRIC PY Consolidated	Various	Various : Various	2.743	0.000		0.000		0.000		-		0.000	0.000	2.743	-
MADIS Inc 1 PY Consolidated	Various	Various : Various	23.291	0.000		0.000		0.000		-		0.000	0.000	23.291	-
MADIS Inc 1 Blk 2 PY Consolidated	Various	Various : Various	8.400	0.000		0.000		0.000		-		0.000	0.000	8.400	-
		Subtotal	46.505	9.443		4.365		38.152		-		38.152	0.000	98.465	N/A

Remarks

Increase from FY 2023 to FY 2024 is due to the following efforts:
MADIS Inc 1:
-Initiation of the purchase of MADIS Inc 1 upgraded components to increase the fidelity of target data and accuracy for the integrated weapons. These components do not increase lethality and are distinct from MADIS Inc 1 Block 2.
-The increase supports the initiation of the development of the gunnery and virtual trainer for the MADIS Inc 1.
MADIS Inc 1 Block 2:

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
-Increase supports the initiation of the purchase and integration of weapons and munitions that support the Capabilities Development Document (CDD) requirement of increased lethality -Increase required to initiate the New Equipment Training Development in support of MADIS Inc 1 Block 2 L-MADIS: -Increase due to the initiation of the purchase of components to increase the performance of the current system															

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MADIS Inc 1 HSI	Various	NSWC : Dahlgren	1.000	0.599	Nov 2021	0.576	Nov 2022	0.000		-		0.000	0.000	2.175	-
MADIS Inc 1 NET Development	C/FFP	Lumbee Tribe Enterprises : Pembroke, NC	2.646	2.240	Feb 2022	2.167	Feb 2023	0.000		-		0.000	0.000	7.053	-
MADIS Inc 1 Test Support	C/FFP	MCSC : Quantico, VA	0.000	0.611	Jan 2022	0.622	Jan 2023	0.000		-		0.000	0.000	1.233	-
MADIS Inc 1 Integrated Logistics Spt	Various	Various : Various	1.113	1.730	Nov 2021	1.947	Nov 2022	1.950	Nov 2023	-		1.950	Continuing	Continuing	Continuing
MADIS Inc 1 Eng/Cyber Support	Various	NSWC : Dahlgren, VA	2.030	2.619	Nov 2021	2.201	Nov 2022	0.910	Dec 2023	-		0.910	0.000	7.760	-
MADIS Inc 1 Engineering Spt	C/FFP	MCSC : Quantico, VA	4.171	2.138	May 2022	1.938	May 2023	1.976	May 2024	-		1.976	0.000	10.223	-
MADIS Inc 1 Eng/Cyber Support	Various	NSWC : Crane, IN	0.000	0.878	Nov 2021	0.641	Nov 2022	0.000		-		0.000	0.000	1.519	-
MADIS Inc 1 Blk 2 IA/ Safety/Eng Spt	MIPR	NSWC : Dahlgren, VA	0.000	0.000		0.000		1.988	Dec 2023	-		1.988	0.000	1.988	-
MADIS Inc 1 Blk 2 Integrated Logistics Spt	C/FFP	MCSC : Quantico, VA	0.000	0.000		0.000		2.007	May 2024	-		2.007	0.000	2.007	-
MADIS Inc 1 Blk 2 Eng/ Cyber Support	MIPR	NSWC : Dahlgren, VA	0.000	0.000		0.000		1.507	Dec 2023	-		1.507	0.000	1.507	-
LMADIS IA/Safety/Eng Spt	Various	NSWC : Dahlgren, VA	0.000	0.000		1.236	Dec 2022	1.883	Dec 2023	-		1.883	0.000	3.119	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
LMADIS Eng/Cyber Support	TBD	TBD : TBD	0.000	0.000		1.148	Mar 2023	1.185	Mar 2024	-		1.185	0.000	2.333	-
LMADIS Technical Support	C/FFP	MCSC : Quantico, VA	0.000	0.000		0.483	Feb 2023	0.500	Feb 2024	-		0.500	0.000	0.983	-
ICsUAS Manpower Training Analysis	TBD	TBD : TBD	0.000	0.000		0.000		0.526	Nov 2023	-		0.526	0.000	0.526	-
Prior Year Consolidated	Various	Various : Various	4.284	0.000		0.000		0.000		-		0.000	0.000	4.284	-
		Subtotal	15.244	10.815		12.959		14.432		-		14.432	Continuing	Continuing	N/A

Remarks

Total increase is due to the following:
MADIS Inc 1:
-Increase due to the initiation of engineering and logistics efforts associated to the development and testing of the MADIS Inc 1 Block 2.
L-MADIS:
-Increase due to the initiation of IOT&E as well as the initiation of efforts supporting the purchase of components to system performance of the L-MADIS
ICsUAS:
-Increase due to the initiation of the Manpower and Training analysis to support the determination of the manpower required to operate and maintain the equipment

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	MIPR	NSWC : Corona, CA	0.676	0.545	Mar 2022	0.456	Mar 2023	0.000		-		0.000	0.000	1.677	-
Developmental Test & Evaluation (DT&E)	MIPR	NSWC : Crane, IN	0.250	0.650	Nov 2021	3.164	Nov 2022	2.354	Mar 2024	-		2.354	0.000	6.418	-
Developmental Test & Evaluation (DT&E)	MIPR	ATC : Aberdeen, MD	0.523	0.150	Nov 2021	0.000		0.000		-		0.000	0.000	0.673	-
Developmental Test & Evaluation (DT&E)	MIPR	NAWCWD : China Lake, CA	0.505	1.169	Jan 2022	0.172	Jan 2023	0.000		-		0.000	0.000	1.846	-
Developmental Test & Evaluation (DT&E)	MIPR	MCOTEA : Quantico, VA	0.000	0.631	Mar 2022	0.500	Jan 2023	0.000		-		0.000	0.000	1.131	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	Various	NSWC : Dahlgren, VA	5.420	3.100	Nov 2021	3.110	Dec 2022	1.976	Apr 2024	-		1.976	0.000	13.606	-
Developmental Test & Evaluation (DT&E)	Various	YPG : Yuma, AZ	0.000	1.057	Mar 2022	4.301	Dec 2022	3.286	Dec 2023	-		3.286	0.000	8.644	-
Developmental Test & Evaluation (DT&E)	C/FFP	Lumbee Tribe : Pembroke, NC	0.000	3.864	May 2022	2.408	Nov 2022	0.000		-		0.000	0.000	6.272	-
Operational Test & Evaluation (OT&E)	Various	NIWC : Charleston, SC	0.000	19.555	Apr 2022	8.402	Jan 2023	1.224	Dec 2023	-		1.224	0.000	29.181	-
Developmental Test & Evaluation (DT&E)	MIPR	NSWC : China Lake, CA	0.000	0.000		0.386	Dec 2022	0.568	Dec 2023	-		0.568	0.000	0.954	-
Developmental Test & Evaluation (DT&E)	TBD	MCIA : Quantico, VA	0.000	0.000		0.000		0.324	Feb 2024	-		0.324	0.000	0.324	-
Developmental Test & Evaluation (DT&E)	C/FFP	MCSC : Quantico,VA	0.000	0.000		0.000		9.009	Jun 2024	-		9.009	0.000	9.009	-
Developmental Test & Evaluation (DT&E)	Various	Various : Various	0.000	0.000		0.000		2.558	Jun 2024	-		2.558	0.000	2.558	-
Developmental Test & Evaluation (DT&E)	C/FFP	TBD : TBD	0.000	0.000		0.000		3.000	Dec 2023	-		3.000	0.000	3.000	-
		Subtotal	7.374	30.721		22.899		24.299		-		24.299	0.000	85.293	N/A

Remarks

Decrease from FY 2023 to FY 2024 is comprised of the following:
MADIS Inc 1:
-Decrease due to the completion of System Integration Tests (SITs), System Verification Tests (SVTs) as well as completion of IOT&E.
MADIS Inc 1 Blk 2:
-Increase due to the initiation of the developmental, environmental, and transportability testing as well as training prior to DT.
L-MADIS:
-Increase due to the initiation of IOT&E as well as testing of component enhancements to the L-MADIS.
I-CsUAS:
-Increase due to efforts supporting the I-CsUAS program of record to include a demonstration of capabilities as well as threat assessments and evaluation of new technologies

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
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Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MADIS FoS Travel	Various	Various : Various	0.302	0.495	Sep 2022	0.447	Sep 2023	0.421	Sep 2024	-		0.421	Continuing	Continuing	Continuing
LMADIS Travel	Various	Various : Various	0.000	0.000		0.020	Sep 2023	0.150	Sep 2024	-		0.150	0.000	0.170	-
		Subtotal	0.302	0.495		0.467		0.571		-		0.571	Continuing	Continuing	N/A

Remarks

Funding increase due to the increase of travel required to support the Initial Operational Test & Evaluation of the Light-Marine Air Defense Integrated System (L-MADIS)

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	69.425	51.474		40.690		77.454		-		77.454	Continuing	Continuing	N/A

Remarks

Marine Corps Air Defense Weapons Systems increase from FY 2023 to FY 2024 is due to the ramp up of development and testing of the MADIS Inc 1 Block 2 required to support increased lethality. As adversaries advance their capabilities, the MADIS Inc 1 must continue to identify increased capabilities to meet and defeat these advanced capabilities. The increase also supports initiation of System Integration Test (SIT) #2, System Verification Test (SVT) #2 as well as initiation of Initial Operational Test & Evaluation (IOT&E) of the L-MADIS. FY 2024 also initiates the RDT&E to support the I-CsUAS program of record and demonstration of the capability.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
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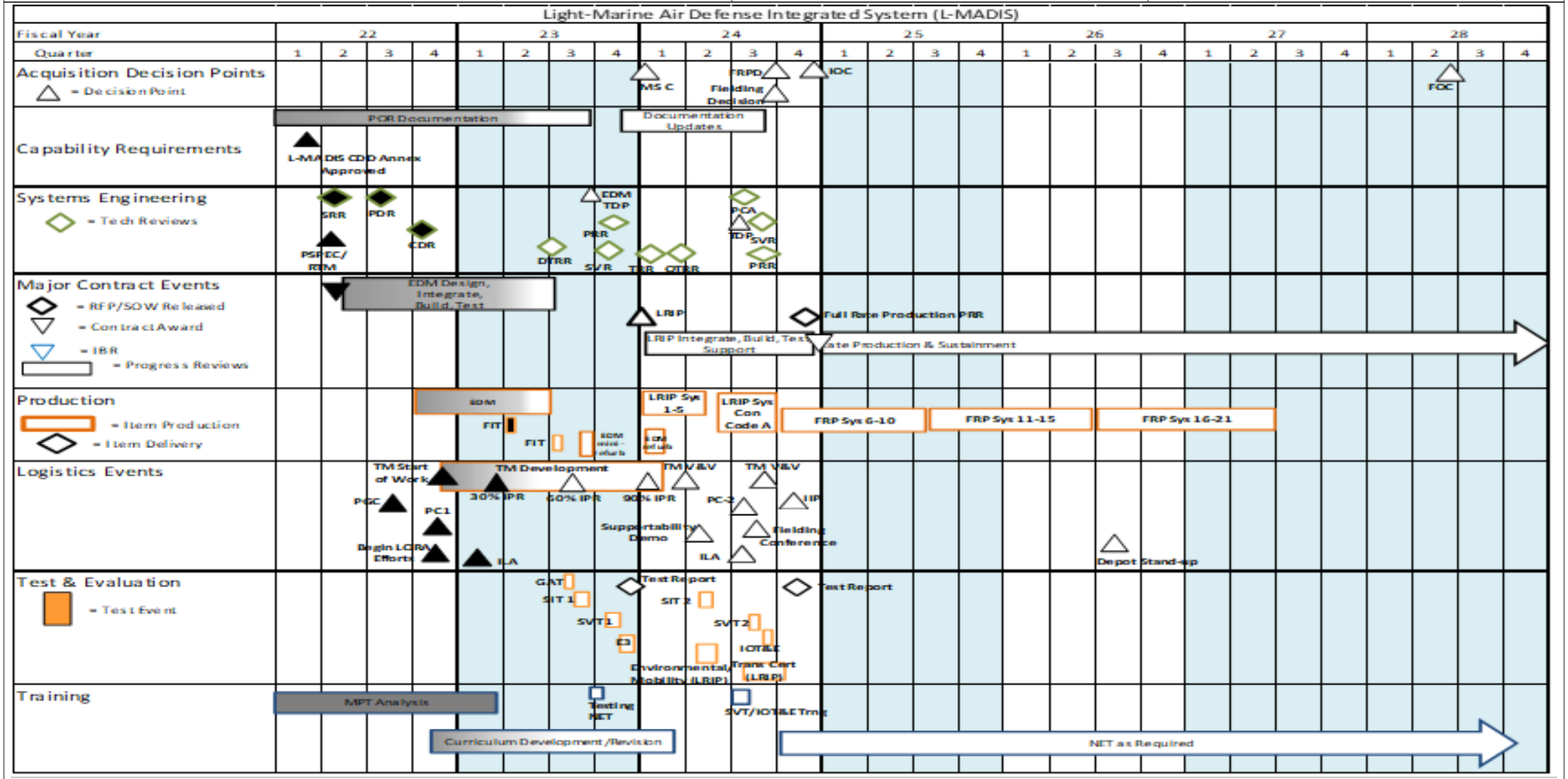

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
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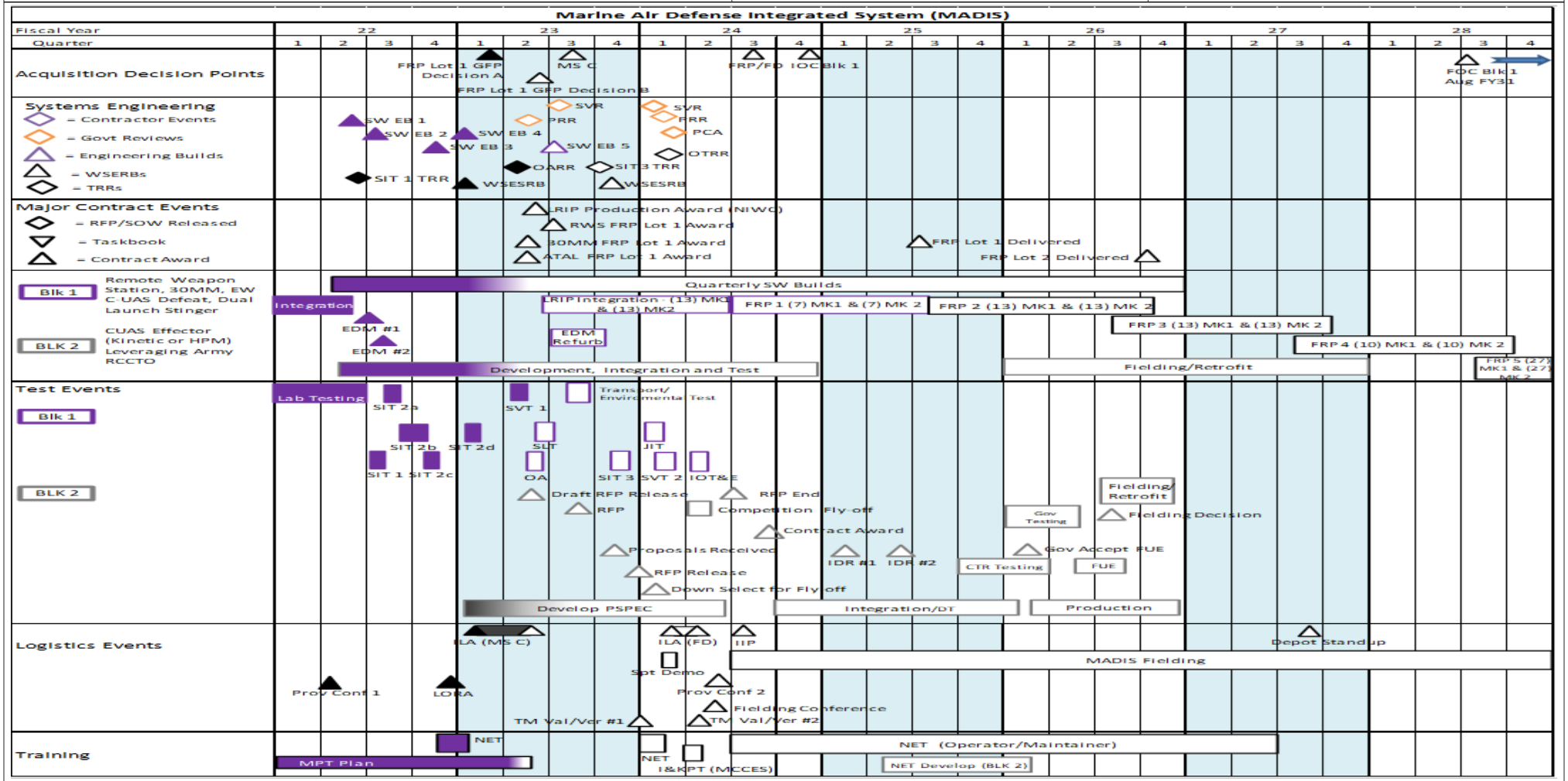


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0605520M / *MARINE CORPS AIR DEFENSE WEAPONS SYS*	**Project (Number/Name)** 2278 / *Air Defense Weapons System*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2278				
MADIS INCREMENT 1: MS "C"/LRIP DECISION	3	2023	3	2023
MADIS INCREMENT 1: FRP GFP CONTRACT AWARD	2	2023	2	2023
MADIS INCREMENT 1: LRIP COMPONENT PRODUCTION INTEGRATION	2	2023	2	2024
MADIS INCREMENT 1: OPERATIONAL ASSESSMENT	2	2023	2	2023
MADIS INCREMENT 1: INITIAL OPERATIONAL TEST & EVALUATION	2	2024	2	2024
MADIS INCREMENT 1: FULL RATE PRODUCTION DECISION	3	2024	3	2024
MADIS INCREMENT 1: MADIS INC 1 BLOCK 2 CONTRACT AWARD	4	2024	4	2024
MADIS INCREMENT 1: MADIS INC 1 BLOCK 2 DESIGN INTEGRATION	4	2024	1	2026
MADIS INCREMENT 1: INITIAL OPERATIONAL CAPABILITY	4	2024	4	2024
MADIS INCREMENT 1: MADIS INC 1 BLOCK 2 FLY OFF	2	2024	2	2024
MADIS INCREMENT 1: MADIS INC 1 BLOCK 2 DT/FIELD USER EVALUATION	2	2026	3	2026
L-MADIS: CRITICAL DESIGN REVIEW	4	2022	4	2022
L-MADIS: MILESTONE C	1	2024	1	2024
L-MADIS: LRIP Build	1	2024	4	2024
L-MADIS: FULL RATE PRODUCTION DECISION	3	2024	3	2024
L-MADIS: INITIAL OPERATIONAL CAPABILITY (IOC)	4	2024	4	2024
I-CsUAS: BUSINESS CASE ANALYSIS	4	2022	4	2022
I-CsUAS: CAPABILITIES DEVELOPMENT DOCUMENT	1	2023	1	2023
I-CsUAS: THREAT ASSESSMENT	2	2024	2	2024
I-CsUAS: SOURCE SELECTION DEMONSTRATION	2	2024	2	2024
I-CsUAS: EVALUATION OF EVOLVING THREAT AND NEW TECHNOLOGIES	2	2024	4	2028

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0605520M / *MARINE CORPS AIR DEFENSE WEAPONS SYS*	**Project (Number/Name)** 2278 / *Air Defense Weapons System*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
I-CsUAS: AWARD CONTRACT	2	2025	2	2025

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0605520M / *MARINE CORPS AIR DEFENSE WEAPONS SYS*	Project (Number/Name) 2578 / *GBAD: Medium Range Intercept Capability (MRIC)*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2578: *GBAD: Medium Range Intercept Capability (MRIC)*	0.000	7.544	7.973	22.406	-	22.406	7.831	5.951	1.999	0.980	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Medium Range Intercept Capability (MRIC) is a CMC Force Design program providing the Marine Corps Expeditionary Force Commander a capability to defend forward deployed forces primarily against threat subsonic/supersonic cruise missiles; secondarily against UAS and other aerial threats that enter into the MRIC's Weapons Engagement Zone (WEZ). MRIC is designed as a system-of-systems and will be integrated with Marine Corps organic Command and Control (C2) and Joint Integrated Air and Missile Defense (IAMD) architecture. The program will enhance the expeditionary force ground-based air defense (GBAD) capability to rapidly prosecute aerial threats and expand layered defense of the Expeditionary and Naval Forces. The MRIC prototype firing exercises were completed 4Q FY 2022 and informed the decision point in 1Q FY2023 to certify for deployment. The certification efforts will occur FY 2023 through FY 2024. This effort informs the investment to meet the Force Design requirements to field an MRIC Battery to each of the three LAAD Battalions in FY 2026, FY 2027, and FY 2028 to support operations including Expeditionary Advanced Based Operations (EABO).

Increase from FY 2023 to FY 2024 is required to support the initiation of multiple testing events (to include environmental, interoperability, transportability), as well as the initiation of the Quick Reaction Assessment (QRA) required prior to deployment.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Medium Range Intercept Capability (MRIC) Test and Evaluation	2.881	3.427	17.993	0.000	17.993
Articles:	-	-	-	-	-
FY 2023 Plans: -Initiate integration testing required prior to certification for deployment of the prototype capability. This includes software and cybersecurity testing -Initiate safety testing and evaluation					
FY 2024 Base Plans: -Continues integration testing required prior to Developmental Testing (DT) and Quick Reaction Assessment (QRA). This includes software and cybersecurity testing -Initiates and completes developmental test, transportability testing, environmental testing, and joint interoperability testing (JIT). -Initiates and completes training prior to DT and QRA and travel associated with testing events -Continues safety testing and evaluation					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0605520M / *MARINE CORPS AIR DEFENSE WEAPONS SYS*	**Project (Number/Name)** 2578 / *GBAD: Medium Range Intercept Capability (MRIC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
-Initiates the QRA and QRA findings required prior to Middle Tier Acquisition (MTA) rapid fielding decision point -Initiates required engineering changes to the system based on testing ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY 2023 to FY 2024 supports the ramp up of testing to include Developmental Testing (DT) and the Quick Reaction Assessment (QRA) required prior to deployment.					
Title: Medium Range Intercept Capability (MRIC) Support	4.663	4.546	4.413	0.000	4.413
Articles:	-	-	-	-	-
FY 2023 Plans: -Continues modeling and simulation verification through testing -Initiates the engineering and logistics support required for training development, assembly of the deployable prototype, and integration testing ***FY 2024 Base Plans:*** -Initiates the engineering and logistics support required for system review, as well as, updates to documentation required post test and prior to prototype deployment -Continues modeling and simulation verification through testing ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease of $0.133M from FY 2023 to FY 2024 based on completion of integration testing prior to the Quick Reaction Assessment (QRA).					
Accomplishments/Planned Programs Subtotals	7.544	7.973	22.406	0.000	22.406

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• PMC/3006: *Ground Based Air Defense (GBAD)*	514.403	169.927	249.103	-	249.103	368.310	436.905	585.147	510.784	0.000	3,130.448

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0605520M / *MARINE CORPS AIR DEFENSE WEAPONS SYS*	**Project (Number/Name)** 2578 / *GBAD: Medium Range Intercept Capability (MRIC)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost

Remarks

MRIC PMC begins in FY 2023 and is only a portion of the GBAD PMC funding line under BLI 3006.

D. Acquisition Strategy

To support an MRIC Material Support Decision, a concept demonstration of a proposed counter cruise missile (CM) defense system occurred in 4Q FY 2019. The MRIC received an approved Middle Tier Acquisition decision in 3Q FY 2020 placing the system into Rapid Prototyping. A single prototype cruise missile defense capability was successfully demonstrated during live fire testing events and a Certification Decision occurred in 1Q FY 2023. Prototype efforts support the anticipated development of a capability that meets Force Design requirements providing an MRIC Battery to each of the three USMC LAAD Battalions in FY 2026, FY 2027, and FY 2028, and to support Expeditionary Advanced Base Operations (EABO) planning.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0605520M / *MARINE CORPS AIR DEFENSE WEAPONS SYS*	**Project (Number/Name)** 2578 / *GBAD: Medium Range Intercept Capability (MRIC)*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Modeling & Simulation	MIPR	NSWC : Dahlgren, VA	0.000	2.603	Nov 2021	2.417	Apr 2023	2.612	Nov 2023	-		2.612	0.000	7.632	-
MRIC IA/Safety/Eng/Log Spt	MIPR	NSWC : Dahlgren, VA	0.000	2.060	Nov 2021	2.129	Mar 2023	1.801	Nov 2023	-		1.801	0.000	5.990	-
		Subtotal	0.000	4.663		4.546		4.413		-		4.413	0.000	13.622	N/A

Remarks

Decrease from FY 2023 to FY 2024 based on completion of engineering and logistics support required for integration testing.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Live Fire Test & Evaluation (LFT&E)	MIPR	WSMR : White Sands, NM	0.000	2.611	Dec 2021	0.000		0.000		-		0.000	0.000	2.611	-
Live Fire Test & Evaluation (LFT&E)	Various	NSWC : Corona, CA	0.000	0.270	Dec 2021	0.000		0.000		-		0.000	0.000	0.270	-
Developmental Test & Evaluation (DT&E)	MIPR	WSMR : White Sands, NM	0.000	0.000		0.000		5.642	Feb 2024	-		5.642	0.000	5.642	-
Developmental Test & Evaluation (DT&E)	TBD	TBD : TBD	0.000	0.000		0.000		2.253	Nov 2023	-		2.253	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	MIPR	Rafael/Raytheon : Tucson, AZ	0.000	0.000		3.427	Mar 2023	4.550	Dec 2023	-		4.550	0.000	7.977	-
Operational Test & Evaluation (OT&E)	C/FFP	DMEA : McClellan, CA	0.000	0.000		0.000		3.658	Jun 2024	-		3.658	0.000	3.658	-
Operational Test & Evaluation (OT&E)	Various	Various : Various	0.000	0.000		0.000		1.890	Jan 2024	-		1.890	0.000	1.890	-
		Subtotal	0.000	2.881		3.427		17.993		-		17.993	Continuing	Continuing	N/A

Remarks

Increase from FY 2023 to FY 2024 supports the ramp up of cyber security scans and testing, to include: developmental, environmental, interoperability, transportability and the Quick Reaction Assessment (QRA) required prior to deployment.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0605520M / *MARINE CORPS AIR DEFENSE WEAPONS SYS*	Project (Number/Name) 2578 / *GBAD: Medium Range Intercept Capability (MRIC)*	

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	7.544		7.973		22.406		-		22.406	Continuing	Continuing	N/A

Remarks

Increase from FY 2023 to FY 2024 is required to support the initiation of multiple testing events (to include developmental, environmental, interoperability, transportability), as well as the initiation of the Quick Reaction Assessment (QRA) required prior to deployment.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0605520M / *MARINE CORPS AIR DEFENSE WEAPONS SYS*	**Project (Number/Name)** 2578 / *GBAD: Medium Range Intercept Capability (MRIC)*

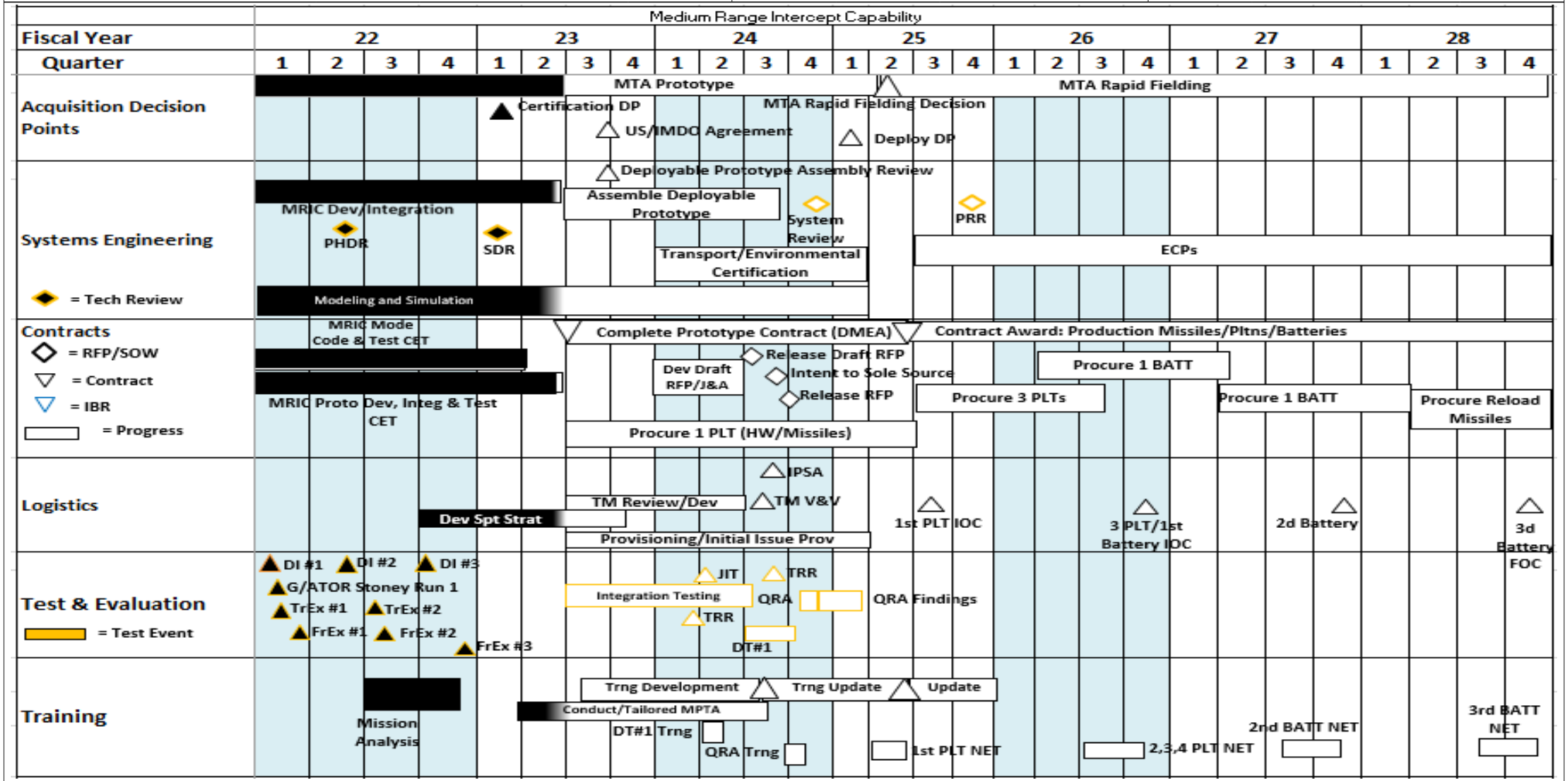


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0605520M / *MARINE CORPS AIR DEFENSE WEAPONS SYS*	**Project (Number/Name)** 2578 / *GBAD: Medium Range Intercept Capability (MRIC)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2578				
Acquisition Decisions: Certification Decision	1	2023	1	2023
Systems Engineering: Modeling and Simulation	1	2022	1	2025
Systems Engineering: MRIC Development/Integration	1	2022	2	2023
Contracting: MRIC/PSR Mode Development and Test	1	2022	2	2023
Contracting: MRIC Prototype Develop, Integ, Test	1	2022	2	2023
Training: DT #1 Training	2	2024	2	2024
Training: QRA Training	3	2024	4	2024
Test and Evaluation: Digital Integration #1	1	2022	1	2022
Test and Evaluation: Target Tracking Exercise #1	1	2022	1	2022
Test and Evaluation: Live Firing Exercise #1	1	2022	1	2022
Test and Evaluation: Digital Integration #2	2	2022	2	2022
Test and Evaluation: Target Tracking Exercise #2	3	2022	3	2022
Test and Evaluation: Live Firing Exercise #2	3	2022	3	2022
Test and Evaluation: Live Firing Exercise #3	4	2022	4	2022
Test and Evaluation: Integration Testing	3	2023	3	2024
Test and Evaluation: Developmental Test (DT #1)	3	2024	3	2024
Test and Evaluation: Quick Reaction Assessment (QRA)	4	2024	4	2024

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0605520M / *MARINE CORPS AIR DEFENSE WEAPONS SYS*	Project (Number/Name) 9999 / *Congressional Adds*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
9999: *Congressional Adds*	0.000	0.000	21.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	21.000
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

C906: COTS expeditionary radar augmentation
Development of a radar mode file to support the counter cruise missile mission with the use of the Extended Multi-Mission Hemispheric Radar (exMHR) in order to demonstrate a more expeditionary subset of Medium Range Intercept Capabilities (MRIC).

C907: Medium Range Intercept Capability (MRIC)
The Medium Range Intercept Capability (MRIC) is a CMC Force Design program providing the Marine Corps Expeditionary Force Commander a capability to defend forward deployed forces primarily against threat subsonic/supersonic cruise missiles; secondarily against UAS and other aerial threats that enter into the MRIC's Weapons Engagement Zone (WEZ). MRIC is designed as a system-of-systems and will be integrated with Marine Corps organic Command and Control (C2) and Joint Integrated Air and Missile Defense (IAMD) architecture. The program will enhance the expeditionary force ground based air defense (GBAD) capability to rapidly prosecute aerial threats and expand layered defense of the Expeditionary and Naval Forces. The MRIC prototype firing exercises were completed 4Q FY 2022 and informed the decision point in 1Q FY 2023 to certify for deployment. The certification efforts will occur FY 2023 through FY 2024. This effort informs the investment to meet the Force Design requirements to field an MRIC Battery to each of the three LAAD Battalions in FY 2026, FY 2027, and FY 2028 to support operations including Expeditionary Advanced Based Operations (EABO)

C908: Next generation counter-Unmanned Aerial Systems (UAS) hard kill
Funding supports the development of the Expeditionary-Mobile Air Defense Integrated System (X-MADIS) that is currently executed within the Department of the Navy (DON).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023
Congressional Add: COTS expeditionary radar augmentation ***FY 2022 Accomplishments:*** N/A ***FY 2023 Plans:*** -Initiated and completed an analysis, integration, and development of radar mode files for the exMHR to integrate with selected government Command and Control (C2) hardware/software -Initiated and completed a demonstration event at a government test range -Initiated and completed a trade study identifying a recommended technical approach	0.000	4.000
Congressional Add: Medium-Range Intercept Capability (MRIC)	0.000	7.000

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0605520M / *MARINE CORPS AIR DEFENSE WEAPONS SYS*	**Project (Number/Name)** 9999 / *Congressional Adds*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023
FY 2022 Accomplishments: N/A ***FY 2023 Plans:*** -Initiate purchase of hardware for safety testing (HERO missile, Electro Static Discharge (ESD) missile) -Initiate labor and hardware in support of containerized transport of the mini-Battle Management & Control (mini-BMC) -Initiate labor in support of safety, cyber, and uplink information that can only be provided Government to Government		
Congressional Add: Next generation counter-UAS hard kill ***FY 2022 Accomplishments:*** N/A ***FY 2023 Plans:*** -Develop X-MADIS (to be executed by the Department of Navy)	0.000	10.000
Congressional Adds Subtotals	0.000	21.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• RDTEN/0605520M/2578: *GBAD: Medium Range Intercept Capability (MRIC)*	7.544	7.973	22.406	-	22.406	7.831	5.951	1.999	0.980	Continuing	Continuing

Remarks

D. Acquisition Strategy

C906: COTS expeditionary radar augmentation
A demonstration will be held in order to provide data to support a trade study that will identify a recommended technical approach to meet detection and track rate update requirements.

C907: Medium Range Intercept Capability (MRIC)
To support an MRIC Material Support Decision, a concept demonstration of a proposed counter cruise missile (CM) defense system occurred in 4Q FY 2019. The MRIC received an approved Middle Tier Acquisition decision in 3Q FY 2020 placing the system into Rapid Prototyping. A single prototype cruise missile defense capability was successfully demonstrated during live fire testing events and a Certification Decision occurred in 1Q FY 2023. Prototype efforts support the anticipated development of a capability that meets Force Design requirements providing an MRIC Battery to each of the three USMC LAAD Battalions in FY 2026, FY 2027, and FY 2028, and to support Expeditionary Advanced Base Operations (EABO) planning.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0605520M / *MARINE CORPS AIR DEFENSE WEAPONS SYS*	**Project (Number/Name)** 9999 / *Congressional Adds*

C908: Next generation counter-UAS hard kill
The acquisition strategy for X-MADIS will be determined by the DON
Funding will be executed by the Department of the Navy

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0605520M / *MARINE CORPS AIR DEFENSE WEAPONS SYS*	**Project (Number/Name)** 9999 / *Congressional Adds*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
C908: X-MADIS	Various	DON : DON	0.000	0.000		10.000	Sep 2023	0.000		-		0.000	0.000	10.000	-
C907: Labor/HW for mini-BMC/Safety/Cyber/Uplink	C/FFP	Rafael/Raytheon : Tucson, AZ	0.000	0.000		5.643	Apr 2023	0.000		-		0.000	0.000	5.643	-
		Subtotal	0.000	0.000		15.643		0.000		-		0.000	0.000	15.643	N/A

Remarks

Decrease of $15.643M from FY 2023 to FY 2024 is due to DON decisions on path forward on exMHR as well as the continuation of MRIC deployment efforts under PE 0605520M; Project 2578

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	C/CPFF	Rada : Germantown, MD	0.000	0.000		4.000	Apr 2023	0.000		-		0.000	0.000	4.000	-
Developmental Test & Evaluation (DT&E)	C/FFP	Rafael/Raytheon : Tucson, AZ	0.000	0.000		1.357	Jun 2023	0.000		-		0.000	0.000	1.357	-
		Subtotal	0.000	0.000		5.357		0.000		-		0.000	0.000	5.357	N/A

Remarks

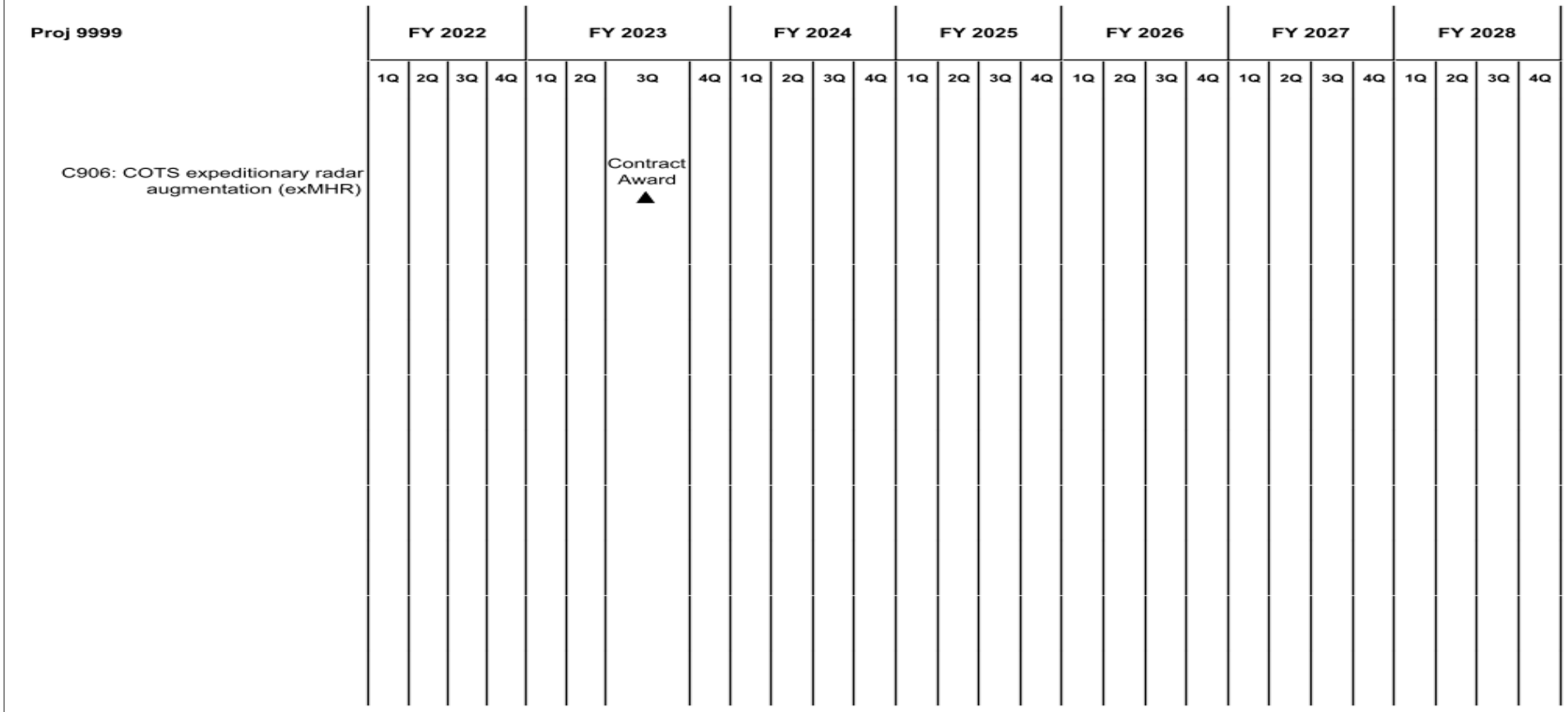
Decrease of $5.357M from FY 2023 to FY 2024 is due to the completion of the demonstration of the xMHR capability as well as the continuation of MRIC efforts within PE 0605520M; Proj 2578.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		21.000		0.000		-		0.000	0.000	21.000	N/A

Remarks

Total decrease of $21.000M from FY 2023 to FY 2024 is due to the completion of the exMHR demonstration as well as continuation of efforts for MRIC deployment within PE 0605520M; Proj 2578. X-MADIS is a program executed within the DON.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0605520M / *MARINE CORPS AIR DEFENSE WEAPONS SYS*	**Project (Number/Name)** 9999 / *Congressional Adds*



2024PB - 0605520M - 9999

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0605520M / *MARINE CORPS AIR DEFENSE WEAPONS SYS*	**Project (Number/Name)** 9999 / *Congressional Adds*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 9999				
C906: COTS expeditionary radar augmentation (exMHR): Contract Award	3	2023	3	2023

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy												Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0607658N *I Cooperative Engagement Capability*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	1,130.629	148.628	156.121	153.440	-	153.440	154.438	153.516	154.274	156.467	Continuing	Continuing
2039: *COOP Engagement*	1,075.181	80.047	84.368	92.802	-	92.802	91.329	70.090	69.887	70.321	Continuing	Continuing
3240: *CEC Increment II*	55.448	68.581	71.753	60.638	-	60.638	63.109	83.426	84.387	86.146	Continuing	Continuing
Program MDAP/MAIS Code: **Project MDAP/MAIS Code(s):** 582												

A. Mission Description and Budget Item Justification

Cooperative Engagement Capability (CEC) significantly improves Battle Force Anti-Air Warfare (AAW) capability by coordinating all Battle Force AAW sensors into a single, real-time, composite track picture to support integrated fire control.

CEC distributes sensor data from each USMC Command Control Unit, US Navy Ship, and US Navy Aircraft, or Cooperating Unit (CU), to all other CUs in the battle force through a real-time, line of sight, high data-rate sensor and engagement data distribution network. CEC is highly resistant to jamming and provides accurate gridlocking between CUs. Each CU independently employs high capacity, parallel processing and advanced algorithms to combine all distributed sensor data into a fire control quality track picture which is the same for all CUs. CEC data is presented as a superset of the best AAW sensor capabilities from each CU, all of which are integrated into a single input to each CU's combat weapons system.

CEC significantly improves our Battle Force defense in depth, including both local area and ship defense capabilities against current and future AAW threats. Moreover, CEC provides critical connectivity and integration of over-land air defense systems capable of countering emerging air threats, including land attack cruise missiles, in a complex littoral environment.

The CEC Program Office oversees CEC development for all services with funding provided for their respective combat systems. CEC consists of the Data Distribution System (DDS), the Cooperative Engagement Processor (CEP), and interface with Combat Systems and sensors. The DDS encodes and distributes own-ship sensor and engagement data and is a high capacity, jam resistant, directional system providing high data throughput as well common time and common positional frame of reference. The CEP is a high capacity distributed processor that processes data from all integrated radars. The data is passed to the ship's combat system as a high quality, common, continuous, engageable track.

The Navy implemented a Signal Data Processor (SDP) approach to modify the current equipment to meet reduced size, weight, cost, power and cooling objectives. This SDP approach also supports continuity for interoperability improvements and program protection, as well as supporting open architecture initiatives, and comms independence. The SDP hardware complies with Category 3 Open Architecture Computing Environment (OACE) standards. The SDP-S is being fielded fleet-wide to all US Navy, USMC, and FMS CEC units.

Network Enabled Electronic Defense System (NEEDS) modifies CEC software to add significant Electronic Warfare capability.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0607658N *I Cooperative Engagement Capability*

CEC operates in increasingly contentious cyber-space. Measures are being taken to robustly mitigate, and where possible completely remediate cyber vulnerabilities.

CEC Capability Development Document (CDD) Increment II evolves Increment I capabilities by enhancing the current naval air defense and sensor network system capabilities through the expansion of network capacity as well as extension into other warfare mission domains. CEC CDD Increment II shall integrate new sensor types and track data sources into the
network, such as surface search radars and passive detection sensors, as well as relevant data from other networks. CEC CDD Increment II shall accommodate more CUs and provide a more complete, robust, and resilient situational awareness picture, composite identification, and Integrated Fire Control (IFC), with assured communications for Integrated Air and
Missile Defense (IAMD), surface warfare, and electronic mission warfare domains.

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	162.676	156.121	175.794	-	175.794
Current President's Budget	148.628	156.121	153.440	-	153.440
Total Adjustments	-14.048	0.000	-22.354	-	-22.354
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-9.000	0.000			
• SBIR/STTR Transfer	-5.048	0.000			
• Program Adjustments	0.000	0.000	-23.641	-	-23.641
• Rate/Misc Adjustments	0.000	0.000	1.287	-	1.287

Change Summary Explanation

FY 2024 decrease of $20.447M is due to Program Adjustments and $1.907M is due to Rate/Misc Adjustments.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319 / 7				R-1 Program Element (Number/Name) PE 0607658N / *Cooperative Engagement Capability*			Project (Number/Name) 2039 / *COOP Engagement*					
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
2039: *COOP Engagement*	1,075.181	80.047	84.368	92.802	-	92.802	91.329	70.090	69.887	70.321	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
Project MDAP/MAIS Code: 582												

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0607658N / *Cooperative Engagement Capability*	**Project (Number/Name)** 2039 / *COOP Engagement*

CEC Capability Development Document (CDD) Increment II evolves Increment I capabilities by enhancing the current naval air defense and sensor network system capabilities through the expansion of network capacity as well as extension into other warfare mission domains. CEC CDD Increment II shall integrate new sensor types and track data sources into the network, such as surface search radars and passive detection sensors, as well as relevant data from other networks. CEC CDD Increment II shall accommodate more CUs and provide a more complete, robust, and resilient situational awareness picture, composite identification, and Integrated Fire Control (IFC), with assured communications for Integrated Air and Missile Defense (IAMD), surface warfare, and electronic mission warfare domains.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: E-2D	3.975	5.818	5.754	0.000	5.754
Articles:	-	-	-	-	-
FY 2023 Plans: Support OT of E-2D DSSC 4 and DSSC 4 Fleet Release. Continue software development and test for E-2D DSSC 5 CEC software, including interface development and integration of CEC capabilities, and of E-2D CEC networking, sensor, and tracker capability and performance improvements included in DSSC 5 software and associated hardware. Begin detailed design efforts for E-2D DSSC 6 CEC software including interface development and integration of CEC capabilities, and of E-2D CEC networking, sensor, and tracker capability and performance improvements included in DSSC 6 software and associated hardware.					
FY 2024 Base Plans: Continue software development and test for E-2D DSSC 5 CEC software, including interface development and integration of CEC capabilities, and of E-2D CEC networking, sensor, and tracker capability and performance improvements included in DSSC 5 software and associated hardware. Integrate CEC Block II Capability Group 3 with E-2D Sensors and Interfaces. Conduct Laboratory and Developmental Flight Test for CEC with E-2D DSSC 5. Prepare for E-2D DSSC 5 OT. Continue detailed design efforts for E-2D DSSC 6 CEC software including interface development and integration of CEC capabilities, and of E-2D CEC networking, sensor, and tracker capability and performance improvements included in DSSC 6 software and associated hardware.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: Decrease is due to minor pricing differences.					
Title: B/L 2.1 INTEGRATION AND FOT&E TESTING	11.213	12.751	15.309	0.000	15.309
Articles:	-	-	-	-	-
FY 2023 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0607658N / *Cooperative Engagement Capability*	**Project (Number/Name)** 2039 / *COOP Engagement*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Support multiple Combat System Shipboard Qualification Tests (CSSQT) for Aegis and SSDS platforms. Complete CEC TEMP Rev 6 Ch 1 approval. Conduct CEC Operational Test (OT) IIIF Supersonic Tracking Exercise (TRACKEX). Begin OT-D2 of AN/USG-2B with CVN 78. Begin OT-D4 of AN/USG-2B with Aegis Weapon System (AWS) 9.2.1/9.2.2. Begin OT-D3 of CEC AN/USG-2B on DDG 1000. Continue planning for FFG(X) DT events. Conduct planning for LUSV DT events. Continue planning for CEC Block II testing beginning with BlkII DT/OT-B1 for Capability Group (CG) 3. Complete development of CEC Block II TEMP. ***FY 2024 Base Plans:*** Support multiple Combat System Shipboard Qualification Tests (CSSQT) for Aegis and SSDS platforms. Commence DT/OT of CEC Increment II Block 2 Capability Group 3. Continue OT-D2 of AN/USG-2B with CVN 78. Continue OT-D4 of AN/USG-2B with Aegis Weapon System (AWS) 9.2.1/9.2.2/9.2.3. Continue OT-D3 of CEC AN/USG-2B on DDG 1000. Continue planning for FFG(X) DT events. Continue planning for LUSV DT events. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase is due to DT/OT requirements for CEC Increment II/Block II capabilities transitioning to the main ACAT IC program.					
Title: SYSTEM IMPROVEMENTS	22.606	32.132	7.561	0.000	7.561
Articles:	-	-	-	-	-
FY 2023 Plans: Complete CEC Software Baseline Review (SBR) Systems Engineering Technical Review (SETR) events. Complete software development for CEC SW Versions 10.56, 11.06, 11.10, and 11.14. Complete multiple CEC software Final Qualification Testing (FQT)/Independent Verification & Validation (IV&V) events for CEC Aegis, SSDS, DDG-1000, and E-2D configurations. Complete multiple Software Releases in support of Aegis, SSDS, DDG-1000, and E-2D platform events. Complete multiple CEC Product Release Panels (PRP) and Product Certification Panels (PCP) in support of CEC deliveries to Aegis, SSDS, DDG-1000, and E-2D platforms. Complete multiple CEC S/W safety assessments for Aegis, SSDS, DDG-1000, and E-2D configurations. Continue PDMC model development, Technical Data Package (TDP), and qualification. Complete CEC Signal Data Processor-Next (SDP-Next) prototype demonstration. Continue development of CEC Signal Data Processor (SDP)-Next Engineering Development Model (EDM). Develop SDP-Next TDP. Support NSA Certification process for SDP-Next. Continue CEC S/W development for LUSV. Continue CEC S/W					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0607658N / *Cooperative Engagement Capability*	**Project (Number/Name)** 2039 / *COOP Engagement*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
development and coordination with AEGIS B/L 10.1 development for the Frigate Weapon System onboard the FFG-62 class. Conduct SBR 22.3/4 and SBR 23.1/2 SETR events for CEC FFG software development. Support FFG CIG2 and CIG3 Integration and Test events. Support CEC Blk II S/W integration and test for Capability Group 3. Continue robust systems engineering in conjunction with shipboard, airborne, and land-based combat systems to integrate Communications as a Service (CaaS) in CEC. Continue development and modifications to CEC Special Test Equipment (STE) in support of testing the CaaS capability. Continue robust systems engineering in conjunction with navigation systems and shipboard, airborne, and land-based combat systems to integrate Non-GPS Aided Positioning, Navigation, and Timing [PNT] for Surface Ships (NoGAPSS) technology in CEC in support of Assured PNT capability deployment in FY24. ***FY 2024 Base Plans:*** Complete CEC Software Baseline Review (SBR) Systems Engineering Technical Review (SETR) events. Complete software development for CEC SW Versions 2.1.11.16 and 2.1.11.20. Complete multiple CEC software Final Qualification Testing (FQT)/Independent Verification & Validation (IV&V) events for CEC Aegis, SSDS, DDG-1000, and E-2D configurations. Complete multiple Software Releases in support of Aegis, SSDS, DDG-1000, and E-2D platform events. Complete multiple CEC Product Release Panels (PRP) and Product Certification Panels (PCP) in support of CEC deliveries to Aegis, SSDS, DDG-1000, and E-2D platforms. Complete multiple CEC S/W safety assessments for Aegis, SSDS, DDG-1000, and E-2D configurations. Complete SDP-Next demonstration, qualification testing and TDP. Support NSA Certification process for SDP-Next. Continue CEC S/W development for LUSV. Continue CEC S/W development and coordination with AEGIS B/L 10.1 development for the Frigate Weapon System onboard the FFG-62 class. Support CEC Blk II S/W development and test for Capability Groups 3 & 4. Continue robust systems engineering in conjunction with shipboard, airborne, and land-based combat systems to integrate Communications as a Service (CaaS) in CEC. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease is due to realignment of Systems Improvement RDT&E to OM&N for software maintenance efforts and to CEC Increment II Project 3240.					
Title: NETWORK ENABLED ELECTRONIC DEFENSE SYSTEM (NEEDS)	0.453	0.534	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2023 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0607658N / *Cooperative Engagement Capability*	**Project (Number/Name)** 2039 / *COOP Engagement*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Perform fixes for residual software problems. ***FY 2024 Base Plans:*** N/A ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease from FY23 to FY24 due to completion of NEEDS effort.					
Title: FIELD ACTIVITIES	9.275	10.943	10.822	0.000	10.822
Articles:	-	-	-	-	-
FY 2023 Plans: Continue field activity support of CEC development and fielding efforts (including Software Engineering / Integration Agent (SE/IA), Technical Direction Agent, In-Service Engineering Agent, Integrated Logistics Support planning) and program management support. Facilitate fielding of systems improvements and maintenance efforts. ***FY 2024 Base Plans:*** Continue field activity support of CEC development and fielding efforts (including Software Engineering / Integration Agent (SE/IA), Technical Direction Agent, In-Service Engineering Agent, Integrated Logistics Support planning) and program management support. Facilitate fielding of systems improvements and maintenance efforts. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease from FY23 to FY24 due to minor pricing differences.					
Title: NAVAL INTEGRATED FIRE CONTROL-COUNTER AIR (NIFC-CA)	6.799	8.022	7.934	0.000	7.934
Articles:	-	-	-	-	-
FY 2023 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0607658N / *Cooperative Engagement Capability*	**Project (Number/Name)** 2039 / *COOP Engagement*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Support NIFC At-Sea and Live Fire test events. Continue robust systems engineering for NIFC Increment 3 in close coordination with other NIFC pillars. Support NIFC Increment 3 interface and integration design document development and test support and testing. Continue requirement discussions with USMC. ***FY 2024 Base Plans:*** Support NIFC At-Sea and Live Fire test events. Continue robust systems engineering for NIFC Increment 3 in close coordination with other NIFC pillars. Support NIFC Increment 3 interface and integration design document development and test support and testing. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease from FY23 to FY24 due to minor pricing differences.					
Title: PROGRAM PROTECTION	10.595	12.500	12.361	0.000	12.361
Articles:	-	-	-	-	-
FY 2023 Plans: Provide CEC Program Protection support to manage risks from foreign intelligence collection threats to CEC hardware, software, or supply chain exploitation. CEC critical program information (CPI) is required to be protected with anti-tamper. The effort will further the use of anti-tamper protection within the program. CEC will work closely with the Cyber Assessment Agency and Defense Assessment Management Office to access impacts to the program from exploitation. The effort will further maintain the Program Protection Plan (PPP) and updates to the program Security Classification Guide (SCG). ***FY 2024 Base Plans:*** Provide CEC Program Protection support to manage risks from foreign intelligence collection threats to CEC hardware, software, or supply chain exploitation. CEC critical program information (CPI) is required to be protected with anti-tamper. The effort will further the use of anti-tamper protection within the program. CEC will work closely with the Cyber Assessment Agency and Defense Assessment Management Office to access impacts to the program from exploitation. The effort will further maintain the Program Protection Plan (PPP) and updates to the program Security Classification Guide (SCG). ***FY 2024 OCO Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0607658N / *Cooperative Engagement Capability*	**Project (Number/Name)** 2039 / *COOP Engagement*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease from FY23 to FY24 due to minor pricing differences.					
Title: CEC INCREMENT 2 ***Articles:*** ***Description:*** CEC Increment 2 refers to initial efforts to expand CEC tracking capabilities to include surface tracking and other experimental / proof of concept efforts. CEC Increment 2 does not cover efforts associated with CEC Increment II. CEC Increment II is covered under PE 0607658N / (U)Cooperative Engagement Capability Project 3240 / CEC Increment II starting in FY20. ***FY 2023 Plans:*** N/A ***FY 2024 Base Plans:*** N/A ***FY 2024 OCO Plans:*** N/A	0.815 -	0.000 -	0.000 -	0.000 -	0.000 -
Title: ENTERPRISE AIR SURVEILLANCE RADAR (EASR) ***Articles:*** ***FY 2023 Plans:*** Majority of EASR integration and test efforts deferred to FY24 - FY25. Continue CEC Baseline 11/SSDS Baseline 12 Integration and Test in support of CVN 79 and LHA 8 CSLO. ***FY 2024 Base Plans:*** Continue CEC Baseline 11 Integration and Test with SSDS Baseline 12 and EASR. Support integration of CEC Increment II Blk 2 Capability Group 3 with SSDS Baseline 12 and EASR baselines. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase is due to rephasing of FY23 efforts to FY24 and beyond.	6.430 -	0.809 -	6.598 -	0.000 -	6.598 -
Title: CEC CYBER RESILIENCY	7.064	0.859	7.354	0.000	7.354

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Articles:	-	-	-	-	-
FY 2023 Plans: Majority of CEC Cyber Resiliency efforts deferred to FY24 - FY25. Ensure cybersecurity requirements are fully considered and implemented in SDP Next development efforts. Define and support conduct of IA testing of CEC software baselines, Gold Disk releases, and hardware upgrades underway in FY23. Participate in CEC Block II development efforts to ensure cybersecurity requirements are defined, considered, and implemented. Ensure ATO and other cybersecurity compliance requirements are met, and support PEO IWS, SEA 03, and platform combat system cybersecurity data calls.					
FY 2024 Base Plans: Continue implementation of CEC CTT findings, cross domain interface solutions, and various other CEC cybersecurity enhancement capabilities (most classified) in CEC 11.x software baselines, Gold disk releases, and hardware upgrades. Ensure cybersecurity requirements are fully considered and implemented in SDP Next development efforts. Define and support conduct of IA testing of CEC software baselines, Gold Disk releases, and hardware upgrades underway in FY24. Participate in CEC Increment II Block 2 development efforts to ensure cybersecurity requirements are defined, considered, and implemented. Ensure ATO and other cybersecurity compliance requirements are met, and support PEO IWS, SEA 03, and platform combat system cybersecurity data calls. Support combat system and CEC cybersecurity interface and hardware/software design requirement definition, development, and implementation.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: Increase is due to rephasing of FY23 efforts to FY24 and beyond.					
Title: ANTENNA DEVELOPMENT	0.822	0.000	19.109	0.000	19.109
Articles:	-	-	-	-	-
FY 2023 Plans: N/A					
FY 2024 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0607658N / *Cooperative Engagement Capability*	**Project (Number/Name)** 2039 / *COOP Engagement*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Support development of prototype antenna waveform and communications technologies and architectures to be incorporated into a future replacement for the Planar Array Antenna Assembly (PAAA) antenna. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase is due to internal realignment of System Improvements RDT&E to support future antenna technology maturation and risk reduction efforts.					
Accomplishments/Planned Programs Subtotals	80.047	84.368	92.802	0.000	92.802

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• SCN: *Navy, SCN*	18.507	39.000	26.700	-	26.700	34.000	27.700	14.200	43.500	232.834	941.087
• APN/0204152N: *Navy, APN*	18.341	18.708	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• OPN/2606: *CEC*	24.641	33.200	37.677	-	37.677	27.410	33.075	33.731	34.448	Continuing	Continuing
• RDT&E/0206313M: *USMC*	1.651	1.701	1.752	-	1.752	1.804	1.858	0.000	0.000	Continuing	Continuing
• O&M,N/0206626M: *USMC*	2.278	2.347	2.417	-	2.417	2.490	2.564	2.600	2.700	Continuing	Continuing
• OPN/0960: *CG MOD*	1.400	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	3,461.635

Remarks

D. Acquisition Strategy

Full Rate Production for CEC AN/USG-3B variant approved April 2014. Current version of CEC Acquisition Strategy (AS) approved by ASN (RDA) on 29 June 2020. Current version of CEC Acquisition Plan (AP) approved Q2 FY 2021. Revisions to the CEC AS and AP are in currently in process. The next revision of the CEC AS is expected to be approved in Q2 FY2023. The next revision of the CEC AP is expected to be approved in Q3 FY2023.

Contracts:
CEC Design Agent/Engineering Services (DA/ES) follow-on sole source contract awarded Q4 FY 2013. A sole source 15 month CEC DA/ES contract extension awarded Q4 FY 2018.
CEC DA/ES contract competitively awarded Q3 FY 2019. For DA, the contractor will maintain the CEC hardware and software development environment and testing infrastructure including; Systems and Software Laboratories, the external RF Range, the Compact Antenna Range, and the CEC Classified Development LAN.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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For ES, the contractor will develop software implementing CEC capability improvements; support advance studies and integration; and perform CEC software sustainment and support.
CEC Production - Contract competitively awarded in Q2 FY 2015.
CEC SDP-S Production - Contract competitively awarded in Q4 FY 2017.
CEC PAAA Competitive - Contract competitively awarded in Q3 FY 2020.
CEC Production - Contract competitively awarded in Q4 FY 2022
CEC PAAA-A Development - Contract competitively awarded in Q3 FY 2022
CEC PAAA-D Development - Contract competitively awarded in Q1 FY 2023

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
AN/USG-2/3 Design Agent/Engineering Services	C/CPFF	Raytheon : St. Petersburg, FL	181.692	12.737	Oct 2021	17.264	Oct 2022	5.799	Oct 2023	-		5.799	Continuing	Continuing	Continuing
TDA	C/CPFF	JHU/APL : Laurel, MD	131.564	12.209	Oct 2021	15.549	Oct 2022	5.810	Oct 2023	-		5.810	Continuing	Continuing	Continuing
SI/DA	C/CPAF	General Dynamics : Fairfax, VA	23.979	0.000		0.000		0.000		-		0.000	0.000	23.979	-
SI/DA	C/CPAF	Award Fees : Not Specified	2.903	0.000		0.000		0.000		-		0.000	0.000	2.903	-
DDG 1000	C/CPAF	Raytheon : Massachusetts	10.983	0.000		0.000		0.000		-		0.000	0.000	10.983	-
DDG 1000	C/CPAF	Award Fees : Not Specified	0.447	0.000		0.000		0.000		-		0.000	0.000	0.447	-
NIFC-CA Integration	Various	Various : Various	64.492	6.799	Oct 2021	8.022	Oct 2022	7.934	Oct 2023	-		7.934	Continuing	Continuing	Continuing
In-Service Engineering Activity	WR	NSWC : Port Hueneme, CA	16.086	2.478	Oct 2021	3.607	Oct 2022	2.247	Oct 2023	-		2.247	Continuing	Continuing	Continuing
Software Support Activity/ SEIA	WR	NSWC : Dahlgren, VA	29.271	2.545	Oct 2021	3.267	Oct 2022	2.189	Oct 2023	-		2.189	Continuing	Continuing	Continuing
Production Engineering Activity	WR	NSWC : Crane, IN	8.038	0.712	Oct 2021	1.238	Oct 2022	0.838	Oct 2023	-		0.838	Continuing	Continuing	Continuing
JTRS	Various	Various : Various	8.500	0.000		0.000		0.000		-		0.000	0.000	8.500	-
Various	WR	Various : Various	31.873	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
NAVSSI	WR	NIWC : San Diego, CA	0.368	0.000		0.000		0.000		-		0.000	0.000	0.368	-
Certification	MIPR	NSA : Fort Meade, MD	1.200	0.000		0.000		0.000		-		0.000	0.000	1.200	-
Certification	WR	NIWC : Charleston, SC	0.930	0.000		0.000		0.000		-		0.000	0.000	0.930	-
Joint Exercises	WR	Various : Various	3.744	0.000		0.000		0.000		-		0.000	0.000	3.744	-
LBTS Testing	WR	CDSA Dam Neck : Virginia Beach, VA	10.095	0.600	Oct 2021	1.250	Oct 2022	0.700	Oct 2023	-		0.700	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0607658N / *Cooperative Engagement Capability*	**Project (Number/Name)** 2039 / *COOP Engagement*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
LBTS Testing	WR	SCSC : Wallops Island, VA	9.683	0.600	Oct 2021	0.900	Oct 2022	0.800	Oct 2023	-		0.800	Continuing	Continuing	Continuing
E-2D Integration	Various	Various : Various	65.648	3.975	Oct 2021	5.818	Oct 2022	5.754	Oct 2023	-		5.754	Continuing	Continuing	Continuing
MSI/NCCT	MIPR	Wright Patterson AFB : Dayton, OH	1.228	0.000		0.000		0.000		-		0.000	0.000	1.228	-
Common Array Block Development	C/CPFF	Raytheon : St. Petersburg, FL	82.856	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
NEEDS	Various	Various : Various	49.619	0.453	Oct 2021	0.534	Oct 2022	0.000		-		0.000	Continuing	Continuing	Continuing
AMDR	Various	Various : Various	17.308	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
JTMC	C/CPFF	Raytheon : St. Petersburg, FL	1.000	0.000		0.000		0.000		-		0.000	0.000	1.000	-
FCLIP	Various	Various : Various	37.777	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
CEC Increment 2	Various	Various : Various	7.772	0.815	Oct 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Program Protection	C/BA	NSMA : Washington, DC	40.624	10.595	Oct 2021	12.500	Oct 2022	12.361	Oct 2023	-		12.361	Continuing	Continuing	Continuing
EASR	Various	Various : Various	21.292	6.430	Oct 2021	0.809	Oct 2022	6.598	Oct 2023	-		6.598	Continuing	Continuing	Continuing
Crypto Modernization	Various	Various : Various	4.552	0.000		0.000		0.000		-		0.000	0.000	4.552	-
Digital Warfare Tactical Networking Initiative Implementation	Various	Various : Various	50.506	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
FTIIP	Various	Various : Various	6.500	0.000		0.000		0.000		-		0.000	0.000	6.500	-
Cyber Resiliency	Various	Various : Various	11.524	7.064	Oct 2021	0.859	Oct 2022	7.354	Oct 2023	-		7.354	Continuing	Continuing	Continuing
ELEKTRA	Various	Various : Various	1.520	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
ANTENNA DEVELOPMENT	Various	Various : Various	6.811	0.822	Oct 2021	0.000		19.109	Oct 2023	-		19.109	Continuing	Continuing	Continuing
		Subtotal	942.385	68.834		71.617		77.493		-		77.493	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0607658N / *Cooperative Engagement Capability*	Project (Number/Name) 2039 / *COOP Engagement*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	C/CPFF	Raytheon : St. Petersburg, FL	11.400	1.570	Oct 2021	1.931	Oct 2022	2.312	Oct 2023	-		2.312	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	C/CPFF	JHU/APL : Laurel, MD	10.940	1.823	Oct 2021	2.022	Oct 2022	2.444	Oct 2023	-		2.444	Continuing	Continuing	Continuing
Prior Year Operational Test & Evaluation Not Funded FYDP (PYOT&E)	WR	NRL : Washington, DC	0.313	0.000		0.000		0.000		-		0.000	0.000	0.313	-
Developmental Test & Evaluation (DT&E)	WR	NSWC : Port Hueneme, CA	34.221	0.747	Oct 2021	1.029	Oct 2022	1.214	Oct 2023	-		1.214	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	NAVAIR (PMA207) : Patuxent River, MD	16.033	0.908	Oct 2021	0.992	Oct 2022	1.173	Oct 2023	-		1.173	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	NSWC : Corona, CA	25.457	0.500	Oct 2021	0.807	Oct 2022	0.988	Oct 2023	-		0.988	Continuing	Continuing	Continuing
Operational Test & Evaluation (OT&E)	WR	COMOPTEVFOR : Norfolk, VA	19.232	1.574	Oct 2021	1.699	Oct 2022	1.994	Oct 2023	-		1.994	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	NSWC : Dahlgren, VA	9.770	0.800	Oct 2021	0.997	Oct 2022	1.178	Oct 2023	-		1.178	Continuing	Continuing	Continuing
Operational Test & Evaluation (OT&E)	WR	NSWC : Port Hueneme, CA	0.000	1.231	Oct 2021	1.231	Oct 2022	1.414	Oct 2023	-		1.414	0.000	3.876	-
Operational Test & Evaluation (OT&E)	WR	NAVAIR (PMA207) : Patuxent River, MD	0.000	0.400	Oct 2021	0.493	Oct 2022	0.676	Oct 2023	-		0.676	0.000	1.569	-
Operational Test & Evaluation (OT&E)	WR	NSWC : Corona, CA	0.000	1.195	Oct 2021	1.109	Oct 2022	1.292	Oct 2023	-		1.292	0.000	3.596	-
Operational Test & Evaluation (OT&E)	WR	NSWC : Dahlgren, VA	0.000	0.465	Oct 2021	0.441	Oct 2022	0.624	Oct 2023	-		0.624	0.000	1.530	-
		Subtotal	127.366	11.213		12.751		15.309		-		15.309	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0607658N / *Cooperative Engagement Capability*	Project (Number/Name) 2039 / *COOP Engagement*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/FFP	Booz Allen & Hamilton : Washington, DC	5.070	0.000		0.000		0.000		-		0.000	0.000	5.070	-
Program Management Support	C/FFP	Tech Marine : Washington, DC	0.360	0.000		0.000		0.000		-		0.000	0.000	0.360	-
		Subtotal	5.430	0.000		0.000		0.000		-		0.000	0.000	5.430	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	1,075.181	80.047		84.368		92.802		-		92.802	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0607658N / *Cooperative Engagement Capability*	**Project (Number/Name)** 2039 / *COOP Engagement*

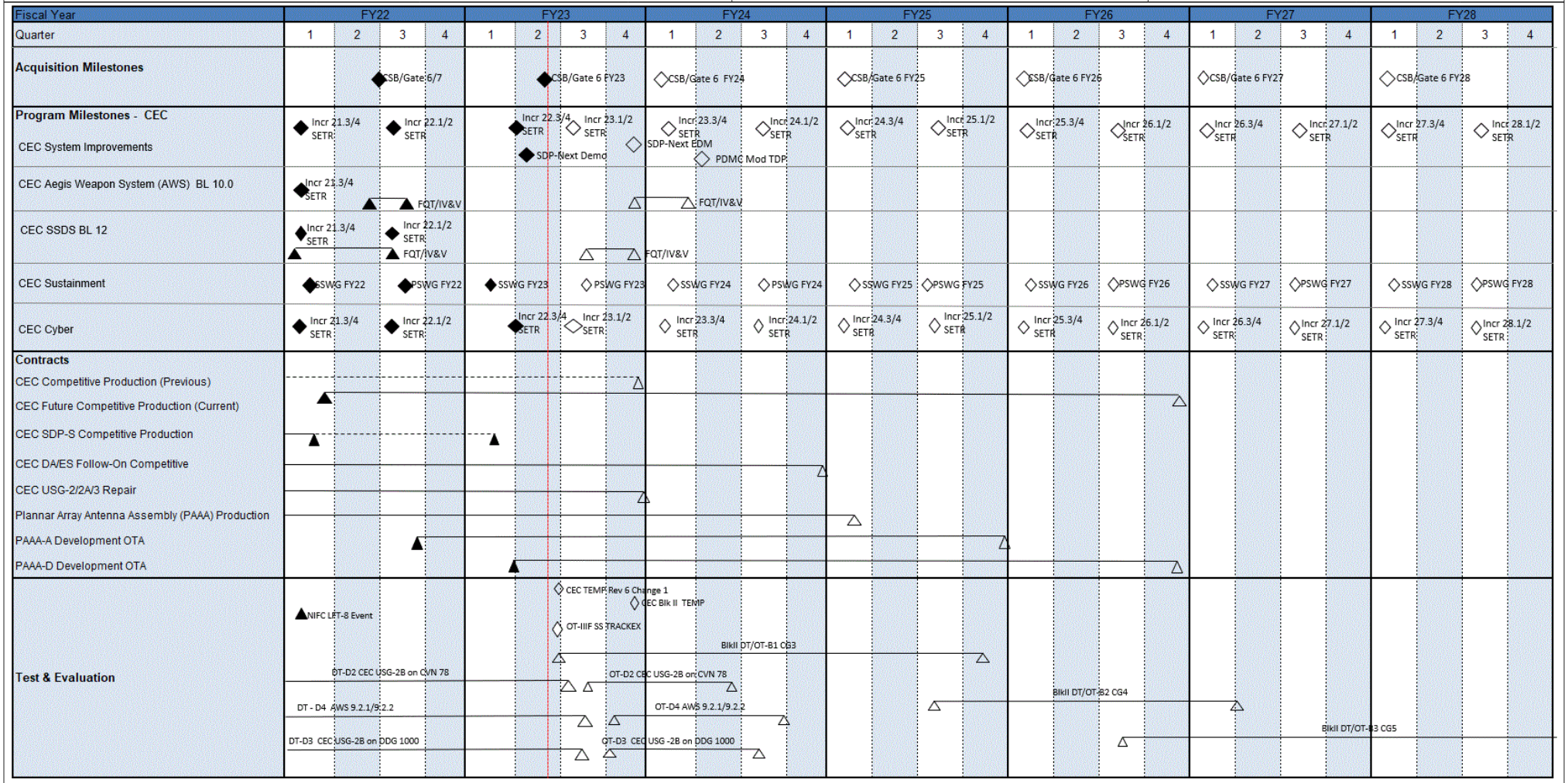

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0607658N / *Cooperative Engagement Capability*	**Project (Number/Name)** 2039 / *COOP Engagement*

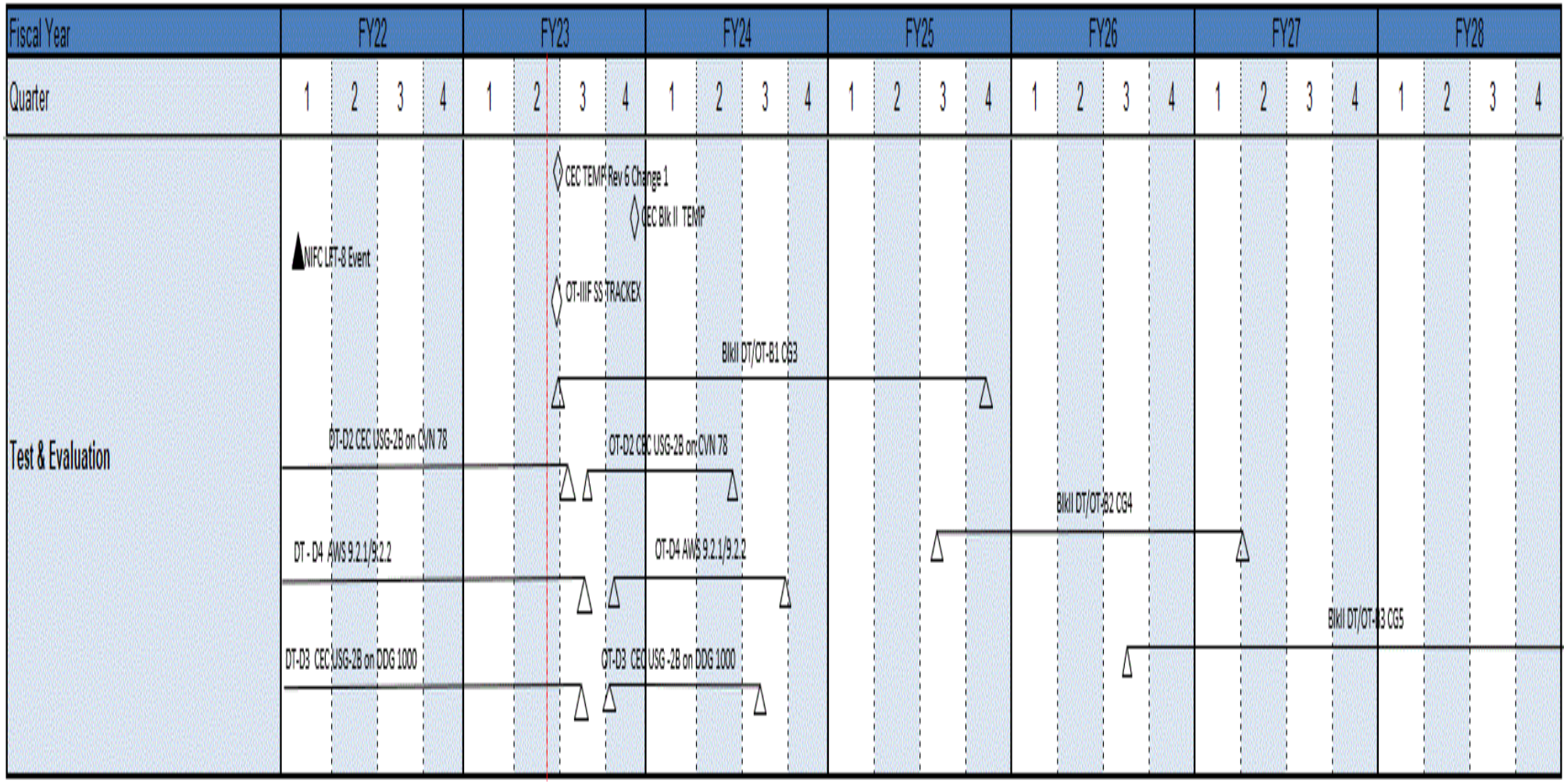

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0607658N / *Cooperative Engagement Capability*	**Project (Number/Name)** 2039 / *COOP Engagement*

2/10/2023

Legend

Acronym List

ACB: Advance Capability Build
AWS: Aegis Weapon System
AP: Acquisition Plan
AS: Acquisition Strategy
APB: Acquisition Program Baseline
CAB: Common Array Block
Common Array Block - Shipboard
CDD: Capability Development Document
CEC: Cooperative Engagement Capability
CEN: CEC Enhanced Network
CSSQT: Combat System Shipboard Qualification Trials
CTT: CEC Technical Training
DA/ES: Design Agent/Engineering Services
DT: Developmental Test
DWO: Digital Warfare Office
ERS - Enterprise Radar Suite
FCLIP: Fire Control Loop Improvement Project
FNC: Future Naval Capability
FOC: Full Operational Capability
FQT/IV&V: Full Qualification Testing/Independent Verification And Validation
FSBR: Final Software Build Review
FTIIP: Far Term Interoperability Improvement Project
FY: Fiscal Year
HS: Hypersonic
ILA: Independent Logistics Assessment
IPR: Internal Program Review
LFT: Live Fire Test
NIFC: Naval Integrated Fire Control
NIFC P: Naval Integrated Fire Control Passive
NIFC-CA: Naval Integrated Fire Control - Counter Air
NoGAPSS: Non-GPS Aided PNT [Position, Navigation and Timing] for Surface and Subsurface
OT: Operational Test
OY: Option Year
PAAA: Plannar Array Antenna Assembly
PDR: Preliminary Design Review
PH: Phase
PSWG: Product Support Working Group
RFP: Request For Proposal
SBR: Software Build Review
SBT: Sea Based Terminal
SDP-S: Signal Data Processor - Sierra
SFR: System Functional Review
SRR: System Requirements Review
SSDS: Ship Self Defense System
SS TRACKEX: Supersonic Tracking Exercise
SSWG: Supply Support Working Group
SWBLR: Software Baseline Review
TEMP: Test and Evaluation Master Plan
TIM: Technical Interchange Meeting
TRR: Technical Readiness Review

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0607658N / *Cooperative Engagement Capability*	**Project (Number/Name)** 2039 / *COOP Engagement*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2039				
CSB/Gate 6/7 FY22	2	2022	2	2022
CSB/Gate 6 FY23	2	2023	2	2023
CSB/Gate 6 FY24	1	2024	1	2024
CSB/Gate 6 FY25	1	2025	1	2025
CSB/Gate 6 FY26	1	2026	1	2026
CSB/Gate 6 FY27	1	2027	1	2027
CSB/Gate 6 FY28	1	2028	1	2028
SI Inc 21.3/4 SETR	1	2022	1	2022
SI Inc 22.1/2 SETR	3	2022	3	2022
SI Inc 22.3/4 SETR	2	2023	2	2023
SI Inc 23.1/2 SETR	3	2023	3	2023
SI Inc 23.3/4 SETR	1	2024	1	2024
SI Inc 24.1/2 SETR	3	2024	3	2024
SI Inc 24.3/4 SETR	1	2025	1	2025
SI Inc 25.1/2 SETR	3	2025	3	2025
SI Inc 25.3/4 SETR	1	2026	1	2026
SI Inc 26.1/2 SETR	3	2026	3	2026
SI Inc 26.3/4 SETR	1	2027	1	2027
SI Inc 27.1/2 SETR	3	2027	3	2027
SI Inc 27.3/4 SETR	1	2028	1	2028
SI Inc 28.1/2 SETR	3	2028	3	2028

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0607658N / *Cooperative Engagement Capability*	**Project (Number/Name)** 2039 / *COOP Engagement*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
SDP-Next Demo	2	2023	2	2023
SDP-Next EDM	4	2023	4	2023
PDMC Mod TDP	2	2024	2	2024
CEC Aegis BL10 Inc 21.3/4 SETR	1	2022	1	2022
CEC Aegis BL10 FQT/IV&V 1	2	2022	3	2022
CEC Aegis BL10 FQT/IV&V 2	4	2023	1	2024
CEC SSDS BL12 Incr 21.3/4 SETR	1	2022	1	2022
CEC SSDS BL12 Incr 22.1/2 SETR	3	2022	3	2022
CEC SSDS BL12 FQT/IV&V 1	1	2022	3	2022
CEC SSDS BL12 FQT/IV&V 2	3	2023	4	2023
SSWG FY 22	1	2022	1	2022
PSWG FY22	3	2022	3	2022
SSWG FY 23	1	2023	1	2023
PSWG FY 23	3	2023	3	2023
SSWG FY 24	1	2024	1	2024
PSWG FY 24	3	2024	3	2024
SSWG FY 25	1	2025	1	2025
PSWG FY 25	3	2025	3	2025
SSWG FY26	1	2026	1	2026
PSWG FY26	3	2026	3	2026
SSWG FY27	1	2027	1	2027
PSWG FY27	3	2027	3	2027
SSWG FY28	1	2028	1	2028
PSWG FY28	3	2028	3	2028
CEC Cyber Inc 21.3/4	1	2022	1	2022

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0607658N / *Cooperative Engagement Capability*	**Project (Number/Name)** 2039 / *COOP Engagement*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
CEC Cyber Inc 22.1/2	3	2022	3	2022
CEC Cyber Inc 22.3/4	2	2023	2	2023
CEC Cyber Inc 23.1/2	3	2023	3	2023
CEC Cyber Inc 23.3/4	1	2024	1	2024
CEC Cyber Inc 24.1/2	3	2024	3	2024
CEC Cyber Inc 24.3/4	1	2025	1	2025
CEC Cyber Inc 25.1/2	3	2025	3	2025
CEC Cyber Inc 25.3/4	1	2026	1	2026
CEC Cyber Inc 26.1/2	3	2026	3	2026
CEC Cyber Inc 26.3/4	1	2027	1	2027
CEC Cyber Inc 27.1/2	3	2027	3	2027
CEC Competitive Production (Previous)	1	2022	4	2023
CEC Future Competitive Production (Current)	1	2022	4	2026
CEC SDP-S Competitive Production	1	2022	1	2023
CEC DA/ES Follow-On Competitive	1	2022	4	2024
CEC USG-2/2A/3 Repair	1	2022	4	2023
Plannar Antenna Arrary Assembly (PAAA) Production	1	2022	1	2025
PAAA-A Development OTA	3	2022	4	2025
PAAA-D Development OTA	1	2023	4	2026
NIFC-CA LFT-8 Event	1	2022	1	2022
OT-IIF Supersonic Trackex (SS TRX)	2	2023	2	2023
DT-D2 CEC USG-2B on CVN 78	1	2022	2	2022
OT-D2 CEC USG-2B on CVN 78	3	2022	2	2023
DT-D3-CEC USG-2B on DDG 1000	1	2022	3	2023
OT-D3 USG-2B on DDG 1000	4	2023	3	2024

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0607658N / *Cooperative Engagement Capability*	**Project (Number/Name)** 2039 / *COOP Engagement*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
CEC TEMP Rev 6 Change 1	2	2023	2	2023
CEC BLK II TEMP	4	2023	4	2023
DT-D4 AWS 9.2.1/9.2.2	1	2022	3	2023
OT-D4 AWS 9.2.1/9.2.2	4	2023	3	2024
BLKII DT/OT-B1 CG3	3	2022	4	2025
BLKII DT/OT-B2 CG4	3	2025	1	2027
BLKII DT/OT-B3 CG5	2	2026	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0607658N / *Cooperative Engagement Capability*	Project (Number/Name) 3240 / *CEC Increment II*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
3240: *CEC Increment II*	55.448	68.581	71.753	60.638	-	60.638	63.109	83.426	84.387	86.146	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 582

A. Mission Description and Budget Item Justification

CEC Capability Development Document (CDD) Increment II evolves Increment I capabilities by enhancing the current naval air defense and sensor network system capabilities through the expansion of network capacity as well as extension into other warfare mission domains. CEC CDD Increment II shall integrate new sensor types and track data sources into the network, such as surface search radars and passive detection sensors, as well as relevant data from other networks. CEC CDD Increment II shall accommodate more CUs and provide a more complete, robust, and resilient situational awareness picture, composite identification, and Integrated Fire Control (IFC), with assured communications for Integrated Air and Missile Defense (IAMD), surface warfare, and electronic mission warfare domains.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: CEC FAR-TERM INTEROPERABILITY IMPROVEMENT PROJECT (FTIIP)	5.636	0.409	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2023 Plans: Complete CG 3 development and System Integration Testing (SIT). Begin CG 4 development. Begin land based testing for Mode-S, AIS and EW Sensors.					
FY 2024 Base Plans: N/A					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: Decrease is due to transition from FTIIP specific efforts to testing of integrated CEC Block II capabilities in FY24.					
Title: NIFC HYPERSONIC	6.189	5.308	4.969	0.000	4.969
Articles:	-	-	-	-	-
FY 2023 Plans: Complete CG 3 development and System Integration Testing (SIT). Begin CG 4 development. Continue software development efforts to expand CEC speed, acceleration and altitude attributes for inclusion in the CEC					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0607658N / *Cooperative Engagement Capability*	**Project (Number/Name)** 3240 / *CEC Increment II*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Composite Tracking environment to address advanced and more stressing threats (Hypersonics). Validate NIFC Hypersonics system network performance requirements to support system hardware improvements. ***FY 2024 Base Plans:*** Continue CG 4 development. Continue software development efforts to expand CEC speed, acceleration and altitude attributes for inclusion in the CEC Composite Tracking environment to address advanced and more stressing threats (Hypersonics). Validate NIFC Hypersonics system network performance requirements to support system hardware improvements. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease is due to minor pricing differences.					
Title: CRYPTO MODERNIZATION ***Articles:*** ***FY 2023 Plans:*** Complete CG 3 development and System Integration Testing (SIT). Begin CG 4 development. Continue a cryptographic modernization effort for Signal Data Processor (SDP), to include the continued development of a new Programmable Cryptographic Module (PCM), in support of the significant increase in cryptographic performance that is required to enable more resilient networks and add additional protections to the CEC network. ***FY 2024 Base Plans:*** Continue CG 4 development. Continue a cryptographic modernization effort for Signal Data Processor (SDP), to include the continued development of a new Programmable Cryptographic Module (PCM), in support of the significant increase in cryptographic performance that is required to enable more resilient networks and add additional protections to the CEC network. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease from FY23 to FY24 due to minor pricing differences.	9.570 -	10.429 -	9.496 -	0.000 -	9.496 -
Title: NIFC Passive	11.992	9.290	8.183	0.000	8.183

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0607658N / *Cooperative Engagement Capability*	**Project (Number/Name)** 3240 / *CEC Increment II*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Articles:	-	-	-	-	-
FY 2023 Plans: Complete CG 3 development and System Integration Testing (SIT). Begin CG 4 development. In Close Coordination with PEO IWS 2.0 and PMA-231, continue integration of Electronic Warfare [EW] capabilities in CEC support of developing a SLQ-32(V)6 adaptive layer interface. Continue robust systems engineering efforts for CEP and DDS software development to route EW data via the CEC DDS network, ingest EW data into the CEP track picture, and use EW data to enhance Composite ID recommendations to Combat Systems. ***FY 2024 Base Plans:*** Continue CG 4 development. In Close Coordination with PEO IWS 2.0 and PMA-231, continue integration of Electronic Warfare [EW] capabilities in CEC support of developing a SLQ-32(V)6 adaptive layer interface. Continue robust systems engineering efforts for CEP and DDS software development to route EW data via the CEC DDS network, ingest EW data into the CEP track picture, and use EW data to enhance Composite ID recommendations to Combat Systems. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease is due to transition from NIFC Passive specific efforts to testing of integrated CEC Block II capabilities in FY24.					
Title: FIRECAPE	1.764	4.422	11.381	0.000	11.381
Articles:	-	-	-	-	-
FY 2023 Plans: Complete CG 3 development and System Integration Testing (SIT). Begin CG 4 development. Begin early integration and development of 'Patterns of Life' algorithms for inclusion in the CEC track picture to assist with identification of anomalies and events of interest. Continue FY22 efforts for inclusion in CEC tactical code, integrating and fielding algorithms in CEC to provide common threat evaluation and arbitration across the Force, and augmenting CEC Cooperative Engagement Decision Function with algorithms to calculate assignments and recommend actions to the combat system. ***FY 2024 Base Plans:*** Continue CG 4 development. Continue integration and development of 'Patterns of Life' algorithms for inclusion in the CEC track picture to assist with identification of anomalies and events of interest. Continue FY23					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0607658N / *Cooperative Engagement Capability*	**Project (Number/Name)** 3240 / *CEC Increment II*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
efforts for inclusion in CEC tactical code, integrating and fielding algorithms in CEC to provide common threat evaluation and arbitration across the Force, and augmenting CEC Cooperative Engagement Decision Function with algorithms to calculate assignments and recommend actions to the combat system. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase is due to rephasing of FY22 and FY23 efforts to FY24-FY25.					
Title: Communications-as-a-Service (CaaS) ***Articles:*** ***FY 2023 Plans:*** Complete CG 3 development and System Integration Testing (SIT). Begin CG 4 development. Continue integration of CEC with CaaS 2.0. Integrate CEC Increment II Block 2 functionality including Distributed Scheduler with CaaS 2.0. Integrate CEC with CaaS DLEP interface. ***FY 2024 Base Plans:*** Continue CG 4 development. Continue integration of CEC with CaaS 2.0. Continue integration of CEC Increment II Block 2 functionality including Distributed Scheduler with CaaS 2.0. Continue integration of CEC with CaaS DLEP interface. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decease from FY23 to FY24 due to transition from primarily software development to integration and test.	6.199 -	9.494 -	3.702 -	0.000 -	3.702 -
Title: DIGITAL WARFARE TACTICAL NETWORKING INITIATIVE IMPLEMENTATION ***Articles:*** ***FY 2023 Plans:*** Continue leading a Cross Functional Team (CFT) with participation from key naval tactical network organizations and fleet representation to conduct systems engineering and experimentation for improving tactical data dissemination to support further development of Integrated Fires Control concepts. ***FY 2024 Base Plans:***	6.181 -	3.339 -	0.000 -	0.000 -	0.000 -

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0607658N / *Cooperative Engagement Capability*	**Project (Number/Name)** 3240 / *CEC Increment II*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease from FY23 to FY24 due to completion of effort and transition to NAVWAR PMW 101.					
Title: ELEKTRA	8.457	18.132	22.907	0.000	22.907
Articles:	-	-	-	-	-
FY 2023 Plans: Continue to optimize algorithms across multiple platforms with graceful degradation. Synchronize tactical data from heterogeneous distributed assets that allows for rapid iteration. Continue development of sensor-effect-target assignment recommendations for all kill chains. Leverage S&T algorithm designs to develop human-machine supervisory control interfaces for conducting integrated air and missile defense (IAMD) in an integrated fires environment. ***FY 2024 Base Plans:*** Continue to optimize algorithms across multiple platforms with graceful degradation. Synchronize tactical data from heterogeneous distributed assets that allows for rapid iteration. Continue development of sensor-effect-target assignment recommendations for all kill chains. Leverage S&T algorithm designs to develop human-machine supervisory control interfaces for conducting integrated air and missile defense (IAMD) in an integrated fires environment. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY23 to FY24 due to deferral of FY22 and FY23 plans to FY23 and beyond.					
Title: Communications-as-a-Service (CaaS) Cert & Production	12.593	10.930	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2023 Plans: Continue robust systems engineering in conjunction with shipboard, airborne, and landbased combat systems, as well as Tactical Data Link (TDL) owners for CaaS 2.0. Continue maturation of Model Based System Engineering (MBSE) SysML model and implementation of CaaS 2.0. Continue Communications-as-a-Service					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0607658N / *Cooperative Engagement Capability*	**Project (Number/Name)** 3240 / *CEC Increment II*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
(CaaS) Agile SW development and maturation. Continue C2P, Common Data Link (CDL), and Tactical Targeting Networking Technology (TTNT) integration testing. ***FY 2024 Base Plans:*** FY24 and FY25 CaaS Certification and Production Transition efforts transferred to NAVWAR PMW160. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decease from FY23 to FY24 due to transition of effort to NAVWAR PMW160.					
Accomplishments/Planned Programs Subtotals	68.581	71.753	60.638	0.000	60.638

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The CEC Increment II Acquisition Strategy (AS) is covered under the Cooperative Engagement Capability / COOP Engagement Project 2039 Acquisition Strategy (AS). The next revision of the CEC AS is expected to be approved in Q2 FY2023. CEC Increment II Capability Development Document (CDD) approved 18 March 2020.

Contracts:
Signal Data Processor (SDP) Next - Contract competitively awarded via Other Transaction Authority (OTA) on 5 May 2021.
Communications-as-a-Service Maturation - Contract sole source awarded on 4 June 2021
SDP Next Phase II - Contract competitively awarded via OTA on 30 September 2022

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0607658N / *Cooperative Engagement Capability*	Project (Number/Name) 3240 / *CEC Increment II*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CRYPTO Modernization	Various	Various : Not Specified	12.635	9.570	Oct 2021	10.429	Oct 2022	9.496	Oct 2023	-		9.496	Continuing	Continuing	Continuing
FTIIP	Various	Various : Not Specified	12.749	5.636	Oct 2021	0.409	Oct 2022	0.000		-		0.000	6.400	25.194	-
NIFC Hypersonic	Various	Various : Not Specified	7.190	6.189	Oct 2021	5.308	Oct 2022	4.969	Oct 2023	-		4.969	Continuing	Continuing	Continuing
NIFC Passive	Various	Various : Not Specified	18.092	11.992	Oct 2021	9.290	Oct 2022	8.183	Oct 2023	-		8.183	Continuing	Continuing	Continuing
FIRECAPE	Various	Various : Not Specified	0.000	1.764	Oct 2021	4.422	Oct 2022	11.381	Oct 2023	-		11.381	Continuing	Continuing	Continuing
CaaS	Various	Various : Not Specified	4.782	6.199	Oct 2021	9.494	Oct 2022	3.702	Oct 2023	-		3.702	19.700	43.877	-
DWO	Various	Various : Not Specified	0.000	6.181	Oct 2021	3.339	Oct 2022	0.000		-		0.000	0.000	9.520	-
ELEKTRA	Various	Various : Not Specified	0.000	8.457	Oct 2021	18.132	Oct 2022	22.907	Oct 2023	-		22.907	0.000	49.496	-
CaaS & CERT & PRODUCTION	Various	Various : Not Specified	0.000	12.593	Oct 2021	10.930	Oct 2022	0.000		-		0.000	0.000	23.523	-
		Subtotal	55.448	68.581		71.753		60.638		-		60.638	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	55.448	68.581		71.753		60.638		-		60.638	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0607658N / *Cooperative Engagement Capability*	**Project (Number/Name)** 3240 / *CEC Increment II*

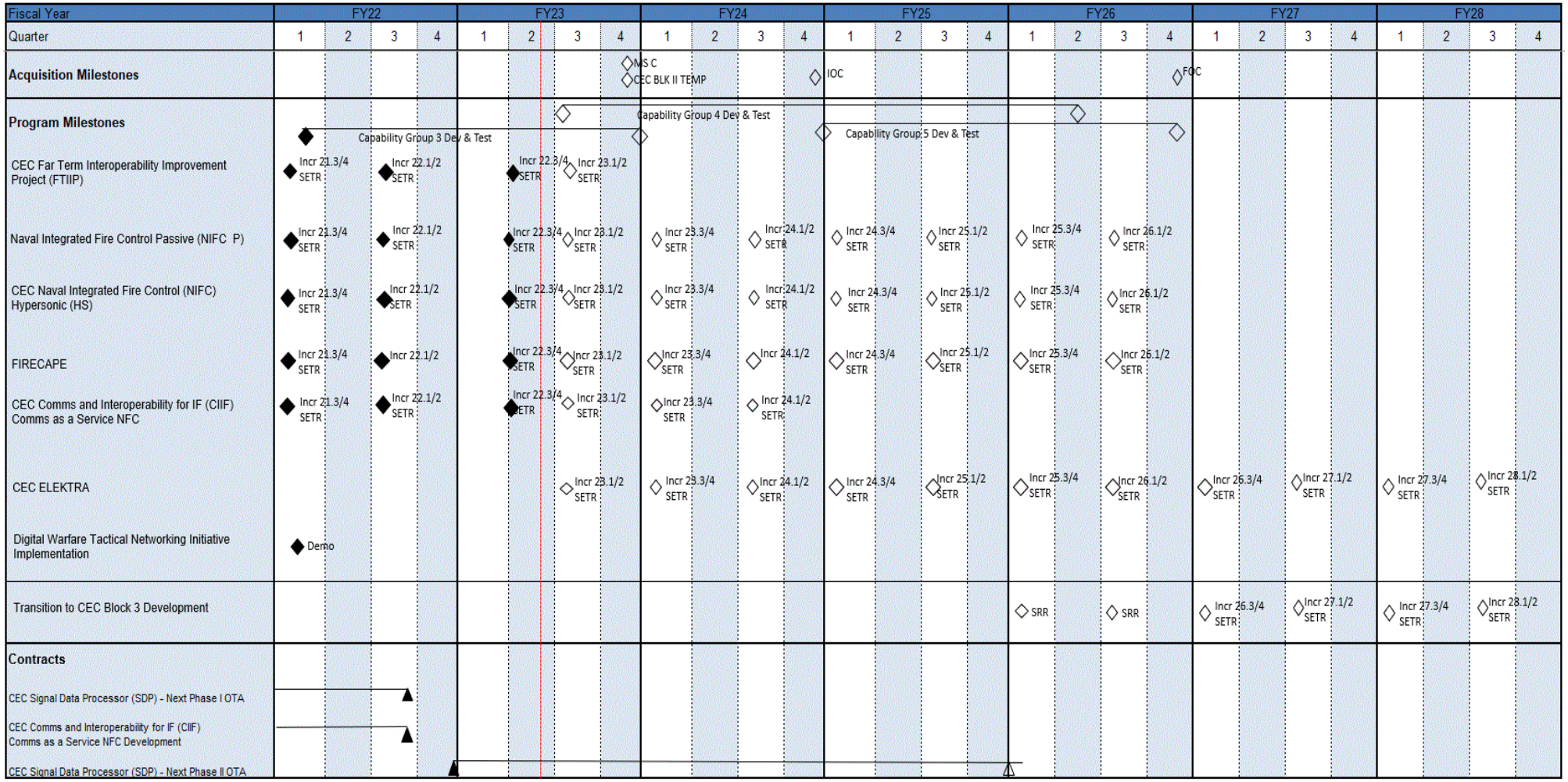

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0607658N / *Cooperative Engagement Capability*	**Project (Number/Name)** 3240 / *CEC Increment II*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3240				
MS C	4	2023	4	2023
IOC	4	2024	4	2024
FOC	4	2026	4	2026
CAPABILITY GROUP 3 DEV & TEST	1	2022	4	2023
CAPABILITY GROUP 4 DEV & TEST	3	2023	2	2026
CAPABILITY GROUP 5 DEV & TEST	1	2025	4	2026
CEC FTIIP Incr 21.3/4 SETR	1	2022	1	2022
CEC FTIIP Incr 22.1/2 SETR	3	2022	3	2022
CEC FTIIP Incr 22.3/4 SETR	2	2023	2	2023
CEC FTIIP Incr 23.1/2 SETR	3	2023	3	2023
NIFC Passive Incr 21.3/4 SETR	1	2022	1	2022
NIFC Passive Incr 22.1/2 SETR	3	2022	3	2022
NIFC Passive Incr 22.3/4 SETR	2	2023	2	2023
NIFC Passive Incr 23.1/2 SETR	3	2023	3	2023
NIFC Passive Incr 23.3/4 SETR	1	2024	1	2024
NIFC Passive Incr 24.1/2 SETR	3	2024	3	2024
NIFC Passive Incr 24.3/4 SETR	1	2025	1	2025
NIFC Passive Incr 25.1/2 SETR	3	2025	3	2025
NIFC Passive Incr 25.3/4 SETR	1	2026	1	2026
NIFC Passive Incr 26.1/2 SETR	3	2026	3	2026
CEC NIFC Hypersonic Incr 21.3/4 SETR	1	2022	1	2022

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0607658N / *Cooperative Engagement Capability*	**Project (Number/Name)** 3240 / *CEC Increment II*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
CEC NIFC Hypersonic Incr 22.1/2 SETR	3	2022	3	2022
CEC NIFC Hypersonic Incr 22.3/4 SETR	2	2023	2	2023
CEC NIFC Hypersonic Incr 23.1/2 SETR	3	2023	3	2023
CEC NIFC Hypersonic Incr 23.3/4 SETR	1	2024	1	2024
CEC NIFC Hypersonic Incr 24.1/2 SETR	3	2024	3	2024
CEC NIFC Hypersonic Incr 24.3/4 SETR	1	2025	1	2025
CEC NIFC Hypersonic Incr 25.1/2 SETR	3	2025	3	2025
CEC FIRECAPE Incr 21.3/4 SETR	1	2022	1	2022
CEC FIRECAPE Incr 22.1/2 SETR	3	2022	3	2022
CEC FIRECAPE Incr 22.3/4 SETR	2	2023	2	2023
CEC FIRECAPE Incr 23.1/2 SETR	3	2023	3	2023
CEC FIRECAPE Incr 23.3/4 SETR	1	2024	1	2024
CEC FIRECAPE Incr 24.1/2 SETR	3	2024	3	2024
CEC FIRECAPE Incr 24.3/4 SETR	1	2025	1	2025
CEC FIRECAPE Incr 25.1/2 SETR	3	2025	3	2025
CEC CIIF CaaS FNC Incr 21.3/4 SETR	1	2022	1	2022
CEC CIIF CaaS FNC Incr 22.1/2 SETR	3	2022	3	2022
CEC CIIF CaaS FNC Incr 22.3/4 SETR	2	2023	2	2023
CEC CIIF CaaS FNC Incr 23.1/2 SETR	3	2023	3	2023
CEC CIIF CaaS FNC Incr 23.3/4 SETR	1	2024	1	2024
CEC CIIF CaaS FNC Incr 24.1/2 SETR	3	2024	3	2024
CEC ELEKTRA Incr 23.1/2 SETR	3	2023	3	2023
CEC ELEKTRA Incr 23.3/4 SETR	1	2024	1	2024
CEC ELEKTRA Incr 24.1/2 SETR	3	2024	3	2024
CEC ELEKTRA Incr 24.3/4 SETR	1	2025	1	2025

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0607658N / *Cooperative Engagement Capability*	**Project (Number/Name)** 3240 / *CEC Increment II*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
CEC ELEKTRA Incr 25.1/2 SETR	3	2025	3	2025
CEC ELEKTRA Incr 25.3/4 SETR	1	2026	1	2026
CEC ELEKTRA Incr 26.1/2 SETR	3	2026	3	2026
CEC ELEKTRA Incr 26.3/4 SETR	1	2027	1	2027
CEC ELEKTRA Incr 27.1/2 SETR	3	2027	3	2027
CEC ELEKTRA Incr 27.3/4 SETR	1	2028	1	2028
CEC ELEKTRA Incr 28.1/2 SETR	3	2028	3	2028
DWO DEMO	1	2022	1	2022
CEC BLK II TEMP	4	2023	4	2023
CEC Signal Data Processor (SDP) - Next Phase I OTA	1	2022	3	2022
CEC Comms and Interoperability for IF (CIIF) Comms as a Service NFC Develop	1	2022	3	2022
CEC Signal Data Processor (SDP) - Next Phase II OTA	4	2022	4	2025
SRR	1	2026	1	2026
SFR	3	2026	3	2026
CEC BLOCK 3 Incr 26.3/4 SETR	1	2027	1	2027
CEC BLOCK 3 Incr 27.1/2 SETR	3	2027	3	2027
CEC BLOCK 3 Incr 27.3/4 SETR	1	2028	1	2028
CEC BLOCK 3 Incr 28.1/2 SETR	3	2028	3	2028

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy												Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0101221N *I Strategic Sub & Wpns Sys Supt*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	1,613.143	190.928	312.502	321.648	-	321.648	324.458	539.483	658.284	1,088.058	Continuing	Continuing
0951: *Joint Warhead Fuze Sustainment Program*	710.809	6.570	3.087	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	720.466
2021: *Mk4B Shape Stable Nose Tip*	63.446	9.474	7.598	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	80.518
2228: *Technical Applications Programs*	714.722	70.969	173.344	192.003	-	192.003	113.530	115.484	117.284	119.634	Continuing	Continuing
3097: *W-93 / Mk 7*	79.295	69.702	97.089	126.466	-	126.466	207.708	420.717	537.660	965.017	Continuing	Continuing
3158: *Integrated Nuclear Weapons Security Sys Dev*	15.911	3.322	3.384	3.179	-	3.179	3.220	3.282	3.340	3.407	Continuing	Continuing
9999: *Congressional Adds*	28.960	30.891	28.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	87.851

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): 178

A. Mission Description and Budget Item Justification

The Strategic Submarine & Weapon Systems Support program element directly supports the Navy's deterrence mission, specifically the Submarine Launched Ballistic Missile (SLBM). The SLBM, accounting for approximately 70 percent of the deployable nuclear inventory, is the most survivable leg of the triad and foundational to the nation's deterrence strategy. Nuclear deterrence underwrites every U.S. military operation and capability on the globe and serves as the backstop for both our national defense and the defense of our allies. The nation's nuclear triad serves as the bedrock of our ability to deter aggression, assure our allies and partners, achieve U.S. objectives should deterrence fail, and hedge against an uncertain future. This program element focuses on the modernization of the nuclear deterrent, and its role as trusted steward of the safety and security of these weapons.

Major projects in the Strategic Submarine & Weapon Systems Support program include: 1) Joint Warhead Fuze Sustainment Program; 2) Mk4B Shape Stable Nose Tip; 3) Technical Applications Programs; 4) W93/Mk7 Reentry Program; and 5) Integrated Nuclear Weapons Security System Development.

The Joint Warhead Fuze Sustainment Program (0951) is an effort to develop advanced components to improve the reliability, safety, and security of Arming, Fuzing, and Firing (AF&F) systems for nuclear reentry systems. The current effort is focused on supporting the alteration of the AF&F system for the W88/MK5 system which will be five years beyond its design life at the scheduled deployment of the AF&F alteration. This effort also supports future utilization of the developed components by the US Air Force and United Kingdom. This project's final year of development is FY 2023.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0101221N *I Strategic Sub & Wpns Sys Supt*

The Mk4B (formerly referred to as Mk4A) Shape Stable Nose Tip (SSNT) (2021) effort will convert reentry body (RB) forward shell assemblies (FSAs) from legacy carbon composite nose tips to SSNTs. This will require ground and flight testing of SSNT Reentry Body Assemblies, updates and modifications to RB documentation (Weapon Specifications, Interface Control Drawings, product drawings, etc.), updated Fire Control software for fleet implementation, conversion of war reserve RBs to FSAs with SSNT, procurement/conversion of surveillance and flight test units, Strategic Weapons Facility (SWF) logistics implementation planning and execution, review and update Mk4B surveillance planning and the DoD share of National Nuclear Security Administration (NNSA) Office of Secure Transportation (OST) for shipping. This project's final year of development is FY 2023.

The Technology Applications Program (2228) consists of three elements: D5 Life Extension 2 (D5LE2), Multi-Star Enhanced Pre-Launch (MEP), and Systems Engineering Modeling and Simulation.

The TRIDENT II modernization, D5 Life Extension 2 (D5LE2), modernizes and replaces the current TRIDENT II D5 Life Extension (D5LE) Strategic Weapons System (SWS). D5LE supports all OHIO Class submarines. At least 12 COLUMBIA Class SSBNs will replace today's 14 OHIO SSBNs beginning in FY 2030, D5LE will also support initial missile load-outs on COLUMBIA through the 8th SSBN. Safety critical D5LE missile electronics begin to exceed their qualification period by FY 2039. Several D5LE components are obsolete, out of production, and no longer supported by industry. D5LE2 is required to replace D5LE to support COLUMBIA Class missile inventory requirements starting in FY 2039. While the D5LE program extended the lifetime of some missile components, D5LE2 will leverage technologies for both the missile and shipboard systems ensuring adaptability and survivability of the weapons system out to the 2080s. The D5LE2 program is a hybrid of pull-through cost-effective technology (e.g. solid rocket motors, ignitors) and redesign candidates (e.g., avionics, guidance, system architecture).

The Multi Star Enhanced Prelaunch (MEP) project delivers enhanced Strategic Weapon System (SWS) resiliency by 1) leveraging the capability of the D5 Life Extension Guidance (Mk6 Mod1) to sight two stars vice one allowing for improved in-flight error correction and 2) updating interfaces to the Fire Control and Navigation subsystems enabling enhanced use of Navigation Sonar System (NSS) data for weapon system error control during Prelaunch. This capability reduces SWS reliance on Global Positioning System (GPS) and Bathymetry data which enables operation in environments where GPS is denied and improves SSBN security during patrol. This capability also has potential for future relief to the strict tolerance requirements of the strategic navigator on the current OHIO Class Submarines and the COLUMBIA class program. This project's final year of development is FY 2022.

The Systems Engineering Modeling and Simulation capability will consist of three elements: Model Based Design, SWS Integrated Modeling and Simulation/Common Architecture & Framework, and SWS Enhancement Ground Test. This effort will provide the capability to comprehensively evaluate and test the integrated SWS within representative operational environments, providing unprecedented visibility across the SWS and system performance characterization equivalent to flight testing. This capability will enable trade space analysis to identify technical margin, subsystem interactions, and lifecycle affordability opportunities to include other services and be able to identify the benefits and risks of commonality to the individual programs, requirements and CONOPs modifications that could facilitate commonality, potential common acquisition strategies between the services, and total life cycle cost implications. This project's final year of development is FY 2023.

The W93/Mk7 warhead project (3097), formerly known as the Interoperable Warhead (IW), will design, develop, and test a future Navy warhead to include a new Navy Aeroshell for a SLBM. Early FYDP efforts will primarily consist of developing programmatic planning and structure to support the continuing study and future program along with further exploration and refinement of the concept studies that resulted from the FY 2019 Navy Feasibility Study.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0101221N *I Strategic Sub & Wpns Sys Supt*

The Integrated Nuclear Weapons Security System (INWSS) (3158) efforts support the Nuclear Weapons Security program and SSBN Escort mission. The policies and requirements regarding the safeguard of nuclear weapons within the Department of Defense is established by DoD S5210.41M. Within the Department of the Navy, nuclear weapons are limited to TRIDENT Fleet Ballistic Missiles (FBM), either deployed aboard TRIDENT submarines or located landside at Naval Submarine Base, Kings Bay, or Naval Submarine Base, Bangor where missiles are assembled/disassembled, tested as well as repaired. This project supports efforts directed at improving the current technological baseline through a series of studies. These efforts aim to improve countermeasure technologies to address detection, delay and denial.

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	186.998	284.502	327.597	-	327.597
Current President's Budget	190.928	312.502	321.648	-	321.648
Total Adjustments	3.930	28.000	-5.949	-	-5.949
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	28.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	10.000	0.000			
• SBIR/STTR Transfer	-6.070	0.000			
• Rate/Misc Adjustments	0.000	0.000	-5.949	-	-5.949

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2022	FY 2023
Project: 9999: *Congressional Adds*		
Congressional Add: *Next Generation Strategic Inertial Measurement Unit*	5.792	10.000
Congressional Add: *Scalable Very High Temperature Composite Manufacturing Technologies*	5.792	0.000
Congressional Add: *Autonomous fiber optic sensing network*	4.827	0.000
Congressional Add: *Strategic weapons systems shipboard navigation system modernization*	14.480	0.000
Congressional Add: *Multimodal biometric authentication*	0.000	8.000
Congressional Add: *Navigation modernization capabilities*	0.000	10.000
Congressional Add Subtotals for Project: 9999	30.891	28.000
Congressional Add Totals for all Projects	30.891	28.000

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0101221N *I Strategic Sub & Wpns Sys Supt*

Change Summary Explanation

The increase in funding from FY 2023 to FY 2024 is due to the required growth for the D5LE2 (2228) and W93/Mk7 (3097) projects. D5LE2 Program's increase in funding will support three major efforts: System Studies and Architecture Development, SLBM technologies, and Strategic Guidance technologies. These efforts are ramped and phased to deliver a System Requirements Review in FY 2025. W93/Mk7 Program's increase is attributed to the increased activities throughout Phase 2 (Feasibility Study and Design Options) and personnel ramping to support schedule, cost, design and development planning to meet defined First Production Unit (FPU) date.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101221N / *Strategic Sub & Wpns Sys Supt*	Project (Number/Name) 0951 / *Joint Warhead Fuze Sustainment Program*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
0951: *Joint Warhead Fuze Sustainment Program*	710.809	6.570	3.087	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	720.466
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 178

A. Mission Description and Budget Item Justification

The Joint Warhead Fuze Sustainment Program is an effort to develop advanced components to improve the reliability, safety, and security of AF&F systems for nuclear reentry systems. The current effort is focused on supporting the alteration of the AF&F system for the W88/MK5 system which will be five years beyond its design life at the scheduled deployment of the AF&F alteration. This effort also supports future utilization of the developed components by the U.S. Air Force and United Kingdom. FY 2023 will be the last year of development for the Joint Warhead Fuze Sustainment Program.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: TRIDENT II	6.570	3.087	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: Identify, prioritize, develop, proof, and demonstrate advanced technologies that will be leveraged and incorporated into future AF&Fs. ***FY 2023 Plans:*** - Complete evaluation of CET-4 telemetry data in association with qualification of Upper S-Band Telemetry for all future flight tests. ***FY 2024 Base Plans:*** N/A ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The FY 2023 to FY 2024 decrease is attributed to development activities ramping down as FY 2023 is the final year of development.					
Accomplishments/Planned Programs Subtotals	6.570	3.087	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101221N / *Strategic Sub & Wpns Sys Supt*	Project (Number/Name) 0951 / *Joint Warhead Fuze Sustainment Program*	

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• RDTEN/3219: *SBSD Nuclear Technology Development*	60.142	56.707	54.400	-	54.400	44.385	39.173	35.834	36.222	Continuing	Continuing
• RDTEN/3220: *COLUMBIA Class Submarine Development*	287.533	268.996	185.739	-	185.739	121.400	121.994	107.882	134.707	Continuing	Continuing
• OPN/5358: *Strategic Missile Systems Equip*	276.430	279.430	325.318	-	325.318	321.406	435.968	325.448	447.515	Continuing	Continuing
• WPN/1250: *TRIDENT II Mods*	1,120.241	1,125.164	1,284.705	-	1,284.705	1,705.878	2,468.925	2,897.274	3,186.112	4,352.768	30,073.252
• SCN/1045: *COLUMBIA Class Submarine*	4,776.980	5,857.776	5,834.332	-	5,834.332	7,275.820	8,467.564	8,788.208	8,728.802	52,170.081	112,651.052
• OMN/1D2D: *Fleet Ballistic Missile*	1,474.005	1,664.933	1,763.238	-	1,763.238	1,861.325	1,890.125	1,934.921	1,983.564	0.000	12,572.111

Remarks

D. Acquisition Strategy

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

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 0951 / *Joint Warhead Fuze Sustainment Program*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Joint Warhead Fuze Sustainment DOE	MIPR	DOE : NM	572.411	4.090	Nov 2021	0.200	Dec 2022	0.000		-		0.000	0.000	576.701	-
Joint Warhead Fuze Sustainment ITT	SS/CPFF	ITT : VA	27.023	0.000		0.000		0.000		-		0.000	0.000	27.023	-
Joint Warhead Fuze Sustainment LMMS	SS/CPFF	LMMS : CA	78.227	1.100	Nov 2021	0.000		0.000		-		0.000	0.000	79.327	-
Joint Warhead Fuze Sustainment	WR	NSWC Dahlgren : VA	20.639	0.000		0.000		0.000		-		0.000	0.000	20.639	-
Joint Warhead Fuze Sustainment	SS/CPFF	BAE : MD	1.889	0.000		0.000		0.000		-		0.000	0.000	1.889	-
Joint Warhead Fuze Sustainment	SS/CPIF	APL : MD	1.052	0.000		0.000		0.000		-		0.000	0.000	1.052	-
Joint Warhead Fuze Sustainment	WR	CNSW : IN	2.079	0.880	Dec 2021	0.000		0.000		-		0.000	0.000	2.959	-
Joint Warhead Fuze Sustainment	C/BA	PERATON : VA	5.058	0.000		0.000		0.000		-		0.000	0.000	5.058	-
Joint Warhead Fuze Sustainment	C/BA	TOYON : VA	2.431	0.500	Jan 2022	2.000	Feb 2023	0.000		-		0.000	0.000	4.931	-
Joint Warhead Fuze Sustainment	C/CPFF	L3 Harris : CA	0.000	0.000		0.887	Feb 2023	0.000		-		0.000	0.000	0.887	-
		Subtotal	710.809	6.570		3.087		0.000		-		0.000	0.000	720.466	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	710.809	6.570		3.087		0.000		-		0.000	0.000	720.466	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 0951 / *Joint Warhead Fuze Sustainment Program*

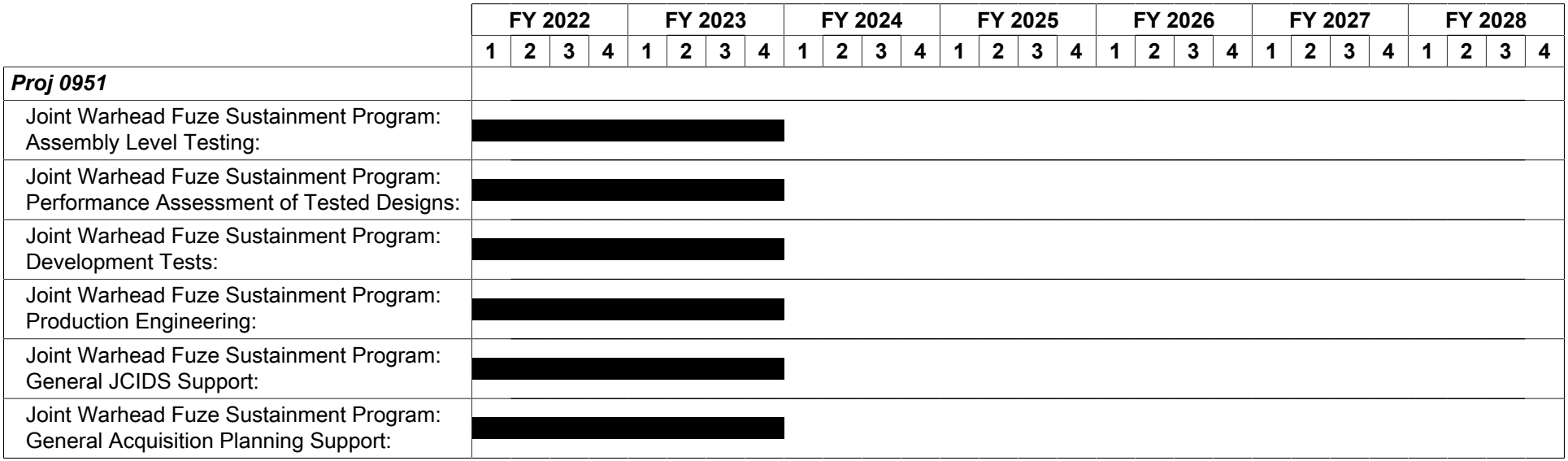

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 0951 / *Joint Warhead Fuze Sustainment Program*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0951				
Joint Warhead Fuze Sustainment Program: Assembly Level Testing:	1	2022	4	2023
Joint Warhead Fuze Sustainment Program: Performance Assessment of Tested Designs:	1	2022	4	2023
Joint Warhead Fuze Sustainment Program: Development Tests:	1	2022	4	2023
Joint Warhead Fuze Sustainment Program: Production Engineering:	1	2022	4	2023
Joint Warhead Fuze Sustainment Program: General JCIDS Support:	1	2022	4	2023
Joint Warhead Fuze Sustainment Program: General Acquisition Planning Support:	1	2022	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101221N / *Strategic Sub & Wpns Sys Supt*	Project (Number/Name) 2021 / *Mk4B Shape Stable Nose Tip*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2021: *Mk4B Shape Stable Nose Tip*	63.446	9.474	7.598	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	80.518
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Mk4B (formerly referred to as Mk4A) Shape Stable Nose Tip (SSNT) effort will convert reentry body (RB) forward shell assemblies (FSAs) from legacy carbon composite nose tips to SSNTs. This will require ground and flight testing of SSNT RBs, updates and modifications to RB documentation (Weapon Specifications, Interface Control Drawings, product drawings, etc), updated Fire Control software for fleet implementation, conversion of war reserve RBs to FSAs with SSNT, procurement/conversion of surveillance and flight test units, Strategic Weapons Facility (SWF) logistics implementation planning and execution, and review and updates to both the Mk4B surveillance planning and the DoD share of National Nuclear Security Administration (NNSA) Office of Secure Transportation (OST) for shipping. FY 2023 will be the last year of development for the Mk4B program.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Mk4B Shape Stable Nose Tip	9.474	7.598	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2023 Plans: - Complete system and component level development testing at DoE and DoD facilities - Assess and update Mk4B aerodynamic model with new flight test data, complete analysis of component and system design in support of requirements verification					
FY 2024 Base Plans: N/A					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: The FY 2023 to FY 2024 decrease is due to FY 2023 being the final year of development before this effort fully transitions to production as shown in Navy WPN budget line item 1250.					
Accomplishments/Planned Programs Subtotals	9.474	7.598	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 2021 / *Mk4B Shape Stable Nose Tip*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• WPN/1250: *Trident II Mods*	1,120.241	1,125.164	1,284.705	-	1,284.705	1,705.878	2,468.925	2,897.274	3,186.112	4,352.768	30,073.252

Remarks

D. Acquisition Strategy

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

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 2021 / *Mk4B Shape Stable Nose Tip*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SSNT LMSS	SS/CPIF	LMSSC : CA	40.710	3.981	Nov 2021	3.378	Jan 2023	0.000		-		0.000	0.000	48.069	-
SSNT DOE/NNSA	MIPR	DOE/NNSA : NM	15.285	4.000	Nov 2021	4.070	Jan 2023	0.000		-		0.000	0.000	23.355	-
SSNT JHU-APL	SS/CPFF	APL : MD	2.615	1.193	Nov 2021	0.000		0.000		-		0.000	0.000	3.808	-
SSNT PERATON	SS/CPFF	PERATON : VA	1.558	0.000		0.000		0.000		-		0.000	0.000	1.558	-
SSNT NSWC	WR	NSWC : VA	1.586	0.100	Oct 2021	0.000		0.000		-		0.000	0.000	1.686	-
SSNT Toyon	SS/CPFF	TOYON : CA	1.042	0.000		0.000		0.000		-		0.000	0.000	1.042	-
SSNT SPA	SS/CPFF	SPA : VA	0.500	0.000		0.000		0.000		-		0.000	0.000	0.500	-
SSNT Draper	SS/CPFF	Draper : MA	0.150	0.200	Nov 2021	0.150	Feb 2023	0.000		-		0.000	0.000	0.500	-
		Subtotal	63.446	9.474		7.598		0.000		-		0.000	0.000	80.518	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	63.446	9.474		7.598		0.000		-		0.000	0.000	80.518	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 2021 / *Mk4B Shape Stable Nose Tip*

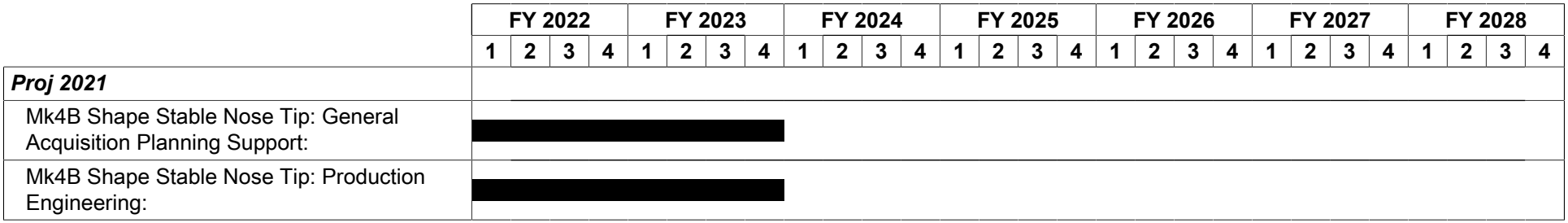

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 2021 / *Mk4B Shape Stable Nose Tip*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2021				
Mk4B Shape Stable Nose Tip: General Acquisition Planning Support:	1	2022	4	2023
Mk4B Shape Stable Nose Tip: Production Engineering:	1	2022	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101221N / *Strategic Sub & Wpns Sys Supt*	Project (Number/Name) 2228 / *Technical Applications Programs*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2228: *Technical Applications Programs*	714.722	70.969	173.344	192.003	-	192.003	113.530	115.484	117.284	119.634	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project 2228 consists of three elements: D5 Life Extension 2 (D5LE2), Multi-Start Enhanced Pre-Launch (MEP) (effort completed in FY 2022), and Systems Engineering Modeling and Simulation (effort completes in FY 2023).

Trident II D5 Modernization (D5LE2):
The Submarine Launched Ballistic Missile (SLBM) is the most survivable leg of the triad and foundational to the nation's deterrence strategy. The heart of the SLBM capability is the D5LE Strategic Weapon System (SWS) currently hosted aboard the OHIO platform throughout its remaining service life. D5LE is planned to be the initial SWS on the COLUMBIA platform but cannot support the platform throughout its predicted service life (through 2084) due to age, attrition, and obsolescence of critical components within the system. Aging components (such as flight electronics and guidance) fall below requirements as early as the late 2030s and non-aging components are reduced by flight tests and spares consumption and fall below requirements shortly thereafter. As the D5LE missile inventory cannot be extended further, the D5LE SWS will require a significant modernization - D5LE2 - which is required to support COLUMBIA missile inventory and loadouts.

The nation's Strategic Systems must be more adaptable and resilient in the face of adversaries who are increasingly showing the ability to quickly deploy capabilities that threaten the effectiveness of the existing strategic deterrent. Adaptability and resiliency will be required for the D5LE2 system in order to meet established STRATCOM requirements for the life of the COLUMBIA Class. The D5LE2 weapon system modernization and these attributes will address the COLUMBIA Class service life requirement by delivering the range and accuracy of the current system, and address the threat of near peer adversaries' improved defensive capabilities by maintaining a credible and survivable strategic deterrent.

Meeting these new and evolving challenges will require that the D5LE2 architecture be designed so that it can address evolving threats and defensive capabilities in a timely manner. Being able to adapt at the speed of relevance will require an architecture based on modular interfaces that maximize margin unlocked via critical technologies.

D5LE2's schedule is directly analogous to the previous life extension's (D5LE) executed schedule which began concept studies in the late 1990s, began design in 2004, completed design in 2011, and deployed in 2017. D5LE2 encompasses significantly more scope than D5LE on a similar timeline. Funding is required in the pre-SPALT (Strategic Systems Programs Alterations) development phase of the program to mature enabling technologies for D5LE2 in anticipation of long lead material procurements starting in 2030; therefore, significant technology investments must be continued in 2024 to support execution of the program of record. To ensure that key technologies have reached appropriate maturation and been tested in a relevant environment prior to the Preliminary Design Review (PDR) in FY 2028, funding to improve Technology and Manufacturing Readiness Levels (TRL/MRL) by commodity is phased according to complexity and need.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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D5LE2 is focused on maturation of critical technologies required to modernize the Navy's SWS. The technology investments are architecture agnostic (i.e. they must be developed regardless of the design of the architecture) and represent the fundamental building blocks for the SWS. The ability to rapidly mature these technologies represents the single greatest risk mitigation to the program. D5LE2 strategic modernization efforts will focus on critical technologies such as:

- Post Boost Control System (PBCS) Technologies utilizing high refractory metal
- Next Generation Low - Size Weight and Power (SWaP) Guidance Inertial Instruments and Components
- Strategic Radiation Hardened Electronics
- Modernized Structural Components (e.g. Nose Fairing and Equipment Section)

D5LE2 Technology Development targets replacements for legacy D5 and D5LE technologies now obsolete with manufacturing lines shutdown that are required regardless of architecture chosen (e.g. radiation hardened parts) and/or have long lead maturity and development timelines. Technology advancements and improved system architecture concepts will unlock existing system capability, and add adaptability, manufacturability, SWS operations, and sustainability - while at the same time reconstituting an industrial base that has not performed SLBM development for decades.

In order to support STRATCOM requirements without gapping capability, in FY 2020 D5LE2 began critical architecture agnostic technology maturation efforts on key strategic technologies and studies to explore potential modern System Level Architectures. FY 2020 efforts have focused on filling requirements voids in the areas of threat effectiveness, cyber vulnerabilities, evaluating the SWS contribution to platform survivability, developing the military utility curves by which concepts will be evaluated and limited technology development on certain key technologies. Efforts also focused on limited technology development on certain key technologies. FY 2021 concluded with preliminary architecture concepts that enabled key architecture decisions in FY 2022, followed by performance allocations to requirements in FY 2023. The program also funded efforts for advanced technology development and maturation of critical SWS D5LE2 components in the areas of high refractory metal PBCS Valve Assemblies, alternative batteries, nuclear safe out-of-line blocking elements, large Missile Structures, and RADHARD parts & shielding. Additionally, efforts funded included Strategic Guidance activities to include the development of technologies and components for strategic sensors to support the next generation of inertial sensors, instruments, rotary components and high performance processing electronics to address the need for advanced sensor data processing and low SWaP modular solutions.

FY 2022 accomplishments included preliminary functional and physical system architecture concept (to include lifecycle concepts and performance evaluation), evaluation and prototyping of materials and critical components for technology maturation, fabrication and evaluation of SLBM and strategic guidance subsystem parts for advanced development and to support prototyping and radiation testing.
-FY 2022 System Studies and Architecture Development efforts focused on refining previous studies, key architecture defining decisions, development of mission effectiveness and threat mitigation boundaries, refinement of digital engineering, CONOPS development activities associated with system operations that potentially lead to opportunities for affordability improvements, and activities to define core SWS architecture elements.
-FY 2022 SLBM technologies concentrated on advanced technology development and maturation of critical SWS D5LE2 components in the areas of high refractory metal PBCS and Valve Assemblies, batteries, large Missile Structures. FY 2022 efforts focused on continuation of activities critical to establishing the supply chain.
-FY 2022 Strategic Guidance efforts included the development of technologies and components to support the next generation of inertial sensors, rotary mechanical components and rad-hard electronics to address the need for high performing low SWaP modular solutions.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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FY 2023 plans continue critical D5LE2 efforts in the area of Systems Studies for Performance Allocations, Requirements and Architecture, SLBM technology investment and maturation efforts and Strategic Guidance efforts - all of which are based on historical timelines and execution for developing new technologies in this challenging environment to support the proposed D5LE2 and COLUMBIA class schedules.
-FY 2023 System Studies and Architecture Development efforts include continuing and completing prior year studies and architecture decisions.
-FY 2023 SLBM technologies concentrates on Common Parts ID, Battery Small Scale Tests, Radiation Hardened Testing start, Data Bus CONOPS, Additive Manufacturing Surveys, PBCS Thruster Valve cold gas tests, and Nose Fairing Element level tests.
-FY 2023 Strategic Guidance efforts include Algorithm simulation, fabrication and prototyping.

FY 2024 plans continue critical D5LE2 efforts in the area of Systems Studies for Performance Allocations, Requirements and Architecture, and SLBM technology investment and maturation efforts and Strategic Guidance efforts.
-FY 2024 SLBM technology investment areas will continue the maturation of the Common Parts Database, Flight System Batteries, Development of Radiation Hardened Test Capability, Maturation of a Nuclear Safe Data Bus, continued evaluation of Additive Manufacturing for high reliability space applications, continued maturation of Post Boost Control System (PBCS), Nose Faring, and Equipment Section Designs.
-FY 2024 Strategic Guidance efforts encompass Radiation Hardened Parts Concepts Evaluation to include candidate vendor allocations and technology down select fabrication, accelerometers, gyroscopes, stellar components, high fidelity lab/simulation testing, and mechanical packaging studies, Low Space Weight and Power solid state inertial sensor prototyping, Advanced imaging technology prototyping, Inertial Measurement Unit electro-mechanical component prototyping, Prototype Avionics developmental testing, Guidance Navigation and Control Software and Algorithm Studies, and Inertial Measurement Unit single axis testing and evaluation.
-FY 2024 System Level Studies and Architecture Development efforts culminate in an iterative update to the D5LE2 concept baseline to conduct a System Studies Concept Review (SCR), generating a sufficiently refined system architecture and requirements to support a System Readiness Review (SRR) in FY 2025. The FY 2025 SRR supports developing modernized commodities, requalifying pull-through commodities, iterative model maturation, integration, and ground testing with the first flight test in FY 2033. Completion of first flight test will lead to early production to support the loadout of an entire boat with qualified missiles in FY 2039.

Multi Star Enhanced Pre-Launch:
The Multi Star Enhanced Prelaunch (MEP) project delivers enhanced SWS resiliency by 1) leveraging the capability of the D5 Life Extension Guidance (Mk6 Mod1) to sight two stars vice one allowing for improved in-flight error correction and 2) updating interfaces to the Fire Control and Navigation subsystems enabling enhanced use of Navigation Sonar System (NSS) data for weapon system error control during Prelaunch. This capability reduces SWS reliance on Global Positioning System (GPS) and Bathymetry data which enables operation in environments where GPS is denied and improves SSBN security during patrol. This capability also has potential for future relief to the strict tolerance requirements of the strategic navigator on the current OHIO Class Submarines and the COLUMBIA class program. FY 2022 was the final year of development for the MEP project.

Systems Engineering Modeling and Simulation:
The Systems Engineering Modeling and Simulation capability will consist of three elements: Model Based Design, SWS Integrated Modeling and Simulation/Common Architecture & Framework, and SWS Enhancement Ground Test. This effort will provide the capability to comprehensively evaluate and test the integrated SWS within representative operational environments, providing unprecedented visibility across the SWS and system performance characterization equivalent to flight testing. This

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 2228 / *Technical Applications Programs*

capability will enable trade space analysis to identify technical margin, subsystem interactions, and lifecycle affordability opportunities to include other services and be able to identify the benefits and risks of commonality to the individual programs, requirements and CONOPs modifications that could facilitate commonality, potential common acquisition strategies between the services, and total life cycle cost implications. FY 2023 is the final year of development for this effort.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: D5LE2	56.012	156.974	192.003	0.000	192.003
Articles:	-	-	-	-	-
FY 2023 Plans: System Studies: FY 2023 activities build upon the FY 2022 completion of the system requirements specification. Specifically, efforts focus on the System Architecture Concept Refinement and Allocated Systems Requirement Specification, which divides the architecture agnostic systems' requirements to the subsystems and is required prior to both the system and subsystem SRRs. FY 2023 System Studies include ones of significantly increased complexity from those performed in FY 2020-2022. Continued and Expanded: - Lifecycle concepts - Cyber Response Concept Development - Missile Handling and Recertification - Performance Allocations - Reliability Allocation - Reconfiguration Time Initiated: - Allocated capability requirements - Allocated performance requirements - System Navigation Solution - Inter-subsystem data requirements - Allocated environments specification - Identification of induced survivability environments - Allocated safety and surety architecture and design guidelines - Reconfiguration time performance allocations - Accuracy Allocations to subsystems - Electronics and Guidance interfaces					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 2228 / *Technical Applications Programs*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Flexible payload interfaces Technology Investments: FY 2023 technology investments efforts continue and include a significant increase in the scope of both the expanded and initiated major missile and guidance technologies to inform potential down selection and prototyping of scale design concepts. Continued and Expanded: - Radiation Hardened Parts Concepts Evaluation to include candidate vendor allocations and technology down select fabrication - Radiation Hardened Survivable Field Programmable Gate Array Evaluation - PBCS Technologies (proportional valve) Concepts and Evaluation, detailed studies - Battery Concepts and Evaluations including additive manufacturing local shield and enclosure shield and batteries - Nose Fairing and Equipment Section Materials evaluation - Connectors/Cables Concepts and evaluation - Guidance Concepts and Sensors including accelerometers, gyroscopes, stellar components, high fidelity lab/ simulation testing, and mechanical packaging studies Initiated: - Radiation Hardened Parts Solid State Switch (RHSSS) for safety/surety - Radiation Hardened Addressable Electric Foil Initiator Firing unit feasibility evaluation - Additive Manufacturing Shielding studies - PBCS proportional valve material candidates and test - PBCS alternative manufacturing planning and evaluation - Batteries small scale tests following battery cell-level tests - Nose Fairing alternate materials evaluation - Equipment Section materials studies, candidate evaluation, and test - Missile Health monitoring concepts - Missile Common Parts Identification process initiation - Data Bus CONOPS - Additive Manufacturing technology surveys - Connectors/fiber/Cables testing					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 2228 / *Technical Applications Programs*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Avionics testbed development in support of Hardware in the Loop and enhanced ground testing - Guidance accelerometer and gyroscope lab characterization testing and critical component testing - Low Space Weight and Power solid state inertial sensor prototyping - Advanced imaging prototyping - Inertial Measurement Unit electro-mechanical component prototyping - Inertial Measurement Unit single axis testbed development					
FY 2024 Base Plans: System Studies: FY 2024 System level studies will define the system concept and system architecture and culminate with a System Concept Review. Following the review, updates to the system functional baseline will be made leading to the System Requirements Review (SRR) in FY 2025. Several data products will be developed and baseline in FY 2024 in support of the SRR. The Allocated System Requirements Specification (ASRS) Revision that formally establishes subsystem allocated requirements will be delivered. Subsystem Interfaces and interface constraints will be captured in the system descriptive model. Performance (Accuracy and Reliability) requirements will be allocated and baselined. Continued, Expanded, and Baselined for SRR: - Lifecycle concepts - Cyber Response Concept Development - Missile Handling and Recertification - Performance Allocations - Reliability Allocation - Reconfiguration Time - Allocated capability requirements - Allocated performance requirements - System Navigation Solution - Inter-subsystem data requirements - Allocated environments specification - Identification of induced survivability environments - Allocated safety and surety architecture and design guidelines - Reconfiguration time performance allocations - Accuracy Allocations to subsystems					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 2228 / *Technical Applications Programs*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Electronics and Guidance interfaces - Flexible payload interfaces Technology Investments: FY 2024 technology investments efforts continue and include a significant increase in the scope of both the expanded and initiated major missile and guidance technologies to inform potential down selection and prototyping of scale design concepts. Continued and Expanded: - Radiation Hardened Parts Solid State Switch (RHSSS) for safety/surety testing - Radiation Hardened by Design (RHBD) test boards fabrication - Additive Manufacturing Shielding design rules and sample material analysis - PBCS Technologies Thruster valve cold gas testing and analysis following cold gas hardware fabrication - PBCS Technologies Thruster Valve performance models and hot gas demonstration - Batteries large scale design, fabrication and testing to create and evaluate a large scale battery of approximate form/fit/function - Nose Fairing component level trade studies to include tooling and processing strategies to refine component models with structural details and configurations and material characterization - Equipment Section materials element level tests of advanced materials to refine material model performance, thermal, stress/structural analysis, and material characterization - Common Parts, Materials, and Processes (PMP) initial lab testing and electrical performance evaluation, along with environmental testing and a manufacturability and cost assessment - Missile Common Parts database and Common PMP Trades Model Based Engineering (MBE) models for selected components - Down selection of Data Bus selected technologies from suppliers and Data Bus vendor design - Linear Accelerator (LINAC) Critical Design Review (CDR) and fabrication start - Radiation Hardened Parts Concepts Evaluation to include candidate vendor allocations and technology down select fabrication - Guidance Concepts and Sensors including accelerometers, gyroscopes, stellar components, high fidelity lab/ simulation testing, and mechanical packaging studies - Guidance accelerometer and gyroscope lab characterization testing and critical component testing - Low Space Weight and Power solid state inertial sensor prototyping - Advanced imaging technology prototyping					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 2228 / *Technical Applications Programs*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Inertial Measurement Unit electro-mechanical component prototyping Initiated: - Prototype Avionics developmental testing of Hardware in the Loop environment - Guidance Navigation and Control Software and Algorithm Studies - Inertial Measurement Unit single axis testing and evaluation ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The D5LE2 Program's FY 2023 to FY 2024 increase in funding supports three major efforts: SLBM technologies, Strategic Guidance technologies, and System Studies and Architecture Development. These efforts are ramped and phased to, just-in-time, deliver a System Requirements Review in FY 2025 and ensure that architecture agnostic technologies that will support the modernized portions of the TRIDENT II system are of sufficient maturity to support the transfer to redesign and engineering for D5LE2 in the mid-2020s. FY 2024 technology investments efforts continue maturation and include a significant increase in the scope of both the expanded and initiated major missile and guidance technologies to inform potential down selection and prototyping of scale design concepts. FY 2024 System Level Studies and Architecture Development efforts culminate in an iterative update to the D5LE2 concept baseline to conduct a System Studies Concept Review (SCR), generating sufficiently refined system architecture and requirements. FY 2024 efforts across these areas are critical to continue and complete development activities that will foster TRL maturation, enable successful completion of the Systems Requirement Review (SRR) in FY 2025, and secure the uninterrupted sustainment of the Trident SWS while meeting requirements for adaptability and survivability.					
Title: Multi-Star Enhanced Prelaunch (MEP) ***Articles:*** ***FY 2023 Plans:***	4.405 -	0.000 -	0.000 -	0.000 -	0.000 -

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 2228 / *Technical Applications Programs*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A ***FY 2024 Base Plans:*** N/A ***FY 2024 OCO Plans:*** N/A					
Title: System Engineering Modeling and Simulation	10.552	16.370	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue development of physical model based tools/virtual reality for training and planning. - Complete the expansion of initially planned sites for the secure computing infrastructure at the Secret level. - Expand the secure computing infrastructure at the Top Secret level. In FY 2023 there are 3 locations selected for connectivity: NSWC Crane, NSWC Dahlgren, and Waterton. - Continue developing SE Governance Process and Documentation including (but not limited to) System Modeling Ontology, System Modeling Profiles, and Configuration Management Plan for the Digital Engineering Environment. - Draft the Tailored Object Oriented Systems Engineering Modeling Approach. - Update the following documents: Integrate Modeling and Simulation: Simulation Standards & Guidelines for Model Development and Software Coding & Real-Time Hardware-in-the Loop. - Select and purchase Digital Engineering tools and licenses for the initial baseline of the secure computing infrastructure Government Reference Architecture (GRA). ***FY 2024 Base Plans:*** N/A ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The decrease from FY 2023 to FY 2024 is attributed to the System Engineering Modeling and Simulation sub-project ending in FY 2023.					
Accomplishments/Planned Programs Subtotals	70.969	173.344	192.003	0.000	192.003

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 2228 / *Technical Applications Programs*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

D5LE2 will modernize D5LE under the TRIDENT II D5 existing acquisition program and remain an ACAT IC Major Defense Acquisition Program (MDAP). The Assistant Secretary of the Navy, for Research Development & Acquisition (ASN RDA) will continue as the Milestone Decision Authority (MDA) maintaining effective oversight for the proven, highly successful TRIDENT II D5 program to continue achieving desired cost, schedule, and performance outcomes. This acquisition approach minimizes technical and programmatic risk, ensuring on-time delivery of the performance needed to sustain the nation's sea-based strategic deterrent.

D5LE2 will be procured as a Strategic Systems Programs (SSP) Alteration (SPALT). SPALTs are an SSP process to insert new technologies into, extend the life of, or otherwise alter components of the Strategic Weapons System. SSP has performed many SPALTs over decades, from minor modifications to major component modernization (e.g. the first D5 Life Extension). SPALTs are executed under the TRIDENT II program to allow for seamless execution while maintaining the intent and rigor of acquisition oversight

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

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101221N / *Strategic Sub & Wpns Sys Supt*	Project (Number/Name) 2228 / *Technical Applications Programs*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Technical Applications LMSS	SS/CPIF	LMSS : CA	194.683	23.509	Oct 2021	68.260	Nov 2022	91.477	Oct 2023	-		91.477	Continuing	Continuing	Continuing
Technical Applications DRAPER	SS/CPFF	Draper : MA	369.300	18.474	Nov 2021	53.736	Nov 2022	42.204	Oct 2023	-		42.204	Continuing	Continuing	Continuing
Technical Applications APL	SS/CPFF	APL : MD	13.386	9.023	Nov 2021	13.685	Nov 2022	9.380	Oct 2023	-		9.380	Continuing	Continuing	Continuing
Technical Applications VAR	Various	Various : Various	29.577	2.394	Nov 2021	9.672	Nov 2022	7.224	Oct 2023	-		7.224	Continuing	Continuing	Continuing
Technical Applications CRANE	SS/CPFF	NSWC Crane : IN	2.908	8.247	Oct 2021	12.485	Nov 2022	22.363	Oct 2023	-		22.363	Continuing	Continuing	Continuing
Technical Applications Dahlgren	WR	Dahlgren : VA	99.342	2.188	Nov 2021	1.866	Nov 2022	1.706	Oct 2023	-		1.706	Continuing	Continuing	Continuing
Technical Applications GDMS	SS/CPFF	GDMS : MA	3.310	2.321	Feb 2022	3.971	Nov 2022	1.713	Dec 2023	-		1.713	Continuing	Continuing	Continuing
Technical Applications NGMS	SS/CPFF	NGMS : CA	0.000	0.000		0.681	Feb 2023	0.425	Oct 2023	-		0.425	Continuing	Continuing	Continuing
Technical Applications PSU ARL	SS/CPFF	ARL : PA	1.000	0.200	May 2022	0.731	Dec 2022	0.493	Dec 2023	-		0.493	Continuing	Continuing	Continuing
Technical Applications SPA	SS/CPFF	SPA : VA	0.303	1.200	Nov 2021	1.516	Nov 2022	1.356	Nov 2023	-		1.356	Continuing	Continuing	Continuing
Technical Applications BAE	SS/CPFF	BAE : VA	0.913	2.224	Nov 2021	2.004	Nov 2022	0.510	Oct 2023	-		0.510	Continuing	Continuing	Continuing
Technical Applications LMRMS	SS/CPIF	LMRMS : NY	0.000	0.475	Nov 2021	0.539	Jan 2023	0.599	Oct 2023	-		0.599	Continuing	Continuing	Continuing
Technical Applications China Lake	WR	China Lake : CA	0.000	0.634	Nov 2021	0.088	Nov 2022	0.088	Oct 2023	-		0.088	Continuing	Continuing	Continuing
Technical Applications Carderock	WR	Carderock : MD	0.000	0.000		0.074	Feb 2023	0.074	Oct 2023	-		0.074	Continuing	Continuing	Continuing
Technical Applications Peraton	SS/CPFF	Peraton : VA	0.000	0.000		0.673	Feb 2023	1.413	Oct 2023	-		1.413	Continuing	Continuing	Continuing
Technical Applications Battelle	SS/CPFF	Battelle : OH	0.000	0.000		0.379	Feb 2023	0.796	Nov 2023	-		0.796	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101221N / *Strategic Sub & Wpns Sys Supt*	Project (Number/Name) 2228 / *Technical Applications Programs*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Technical Applications EMCUBE	SS/CPFF	EMCUBE : VA	0.000	0.000		0.165	Feb 2023	0.269	Nov 2023	-		0.269	Continuing	Continuing	Continuing
Technical Applications MARC	SS/CPFF	MARC : VA	0.000	0.000		0.097	Feb 2023	0.196	Nov 2023	-		0.196	Continuing	Continuing	Continuing
Technical Applications DEVCOM	MIPR	ARMY DEVCOM : MD	0.000	0.080	Nov 2021	2.722	Feb 2023	9.717	Nov 2023	-		9.717	0.000	12.519	-
		Subtotal	714.722	70.969		173.344		192.003		-		192.003	Continuing	Continuing	N/A

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	714.722	70.969		173.344		192.003		-		192.003	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 2228 / *Technical Applications Programs*

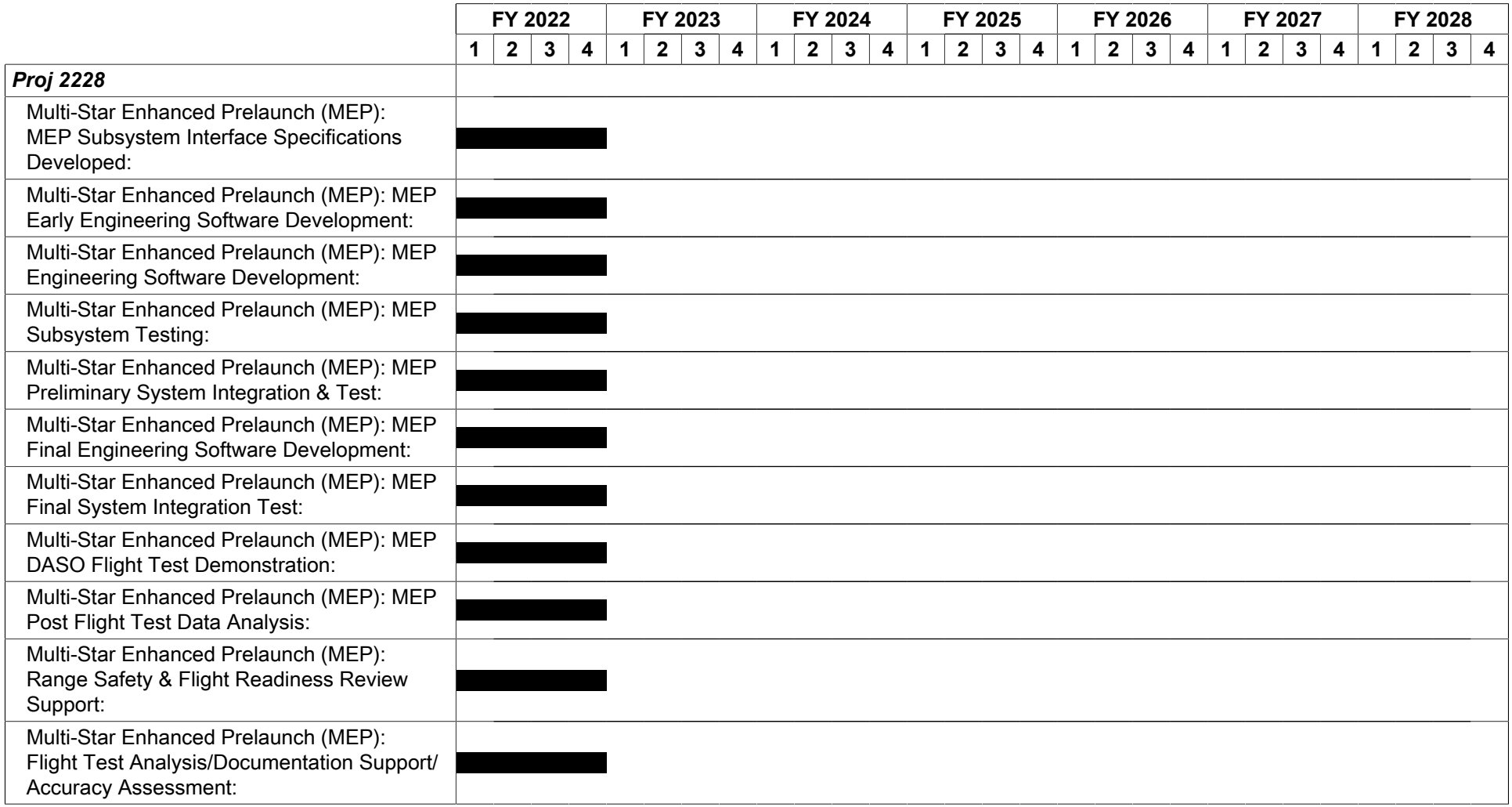


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 2228 / *Technical Applications Programs*

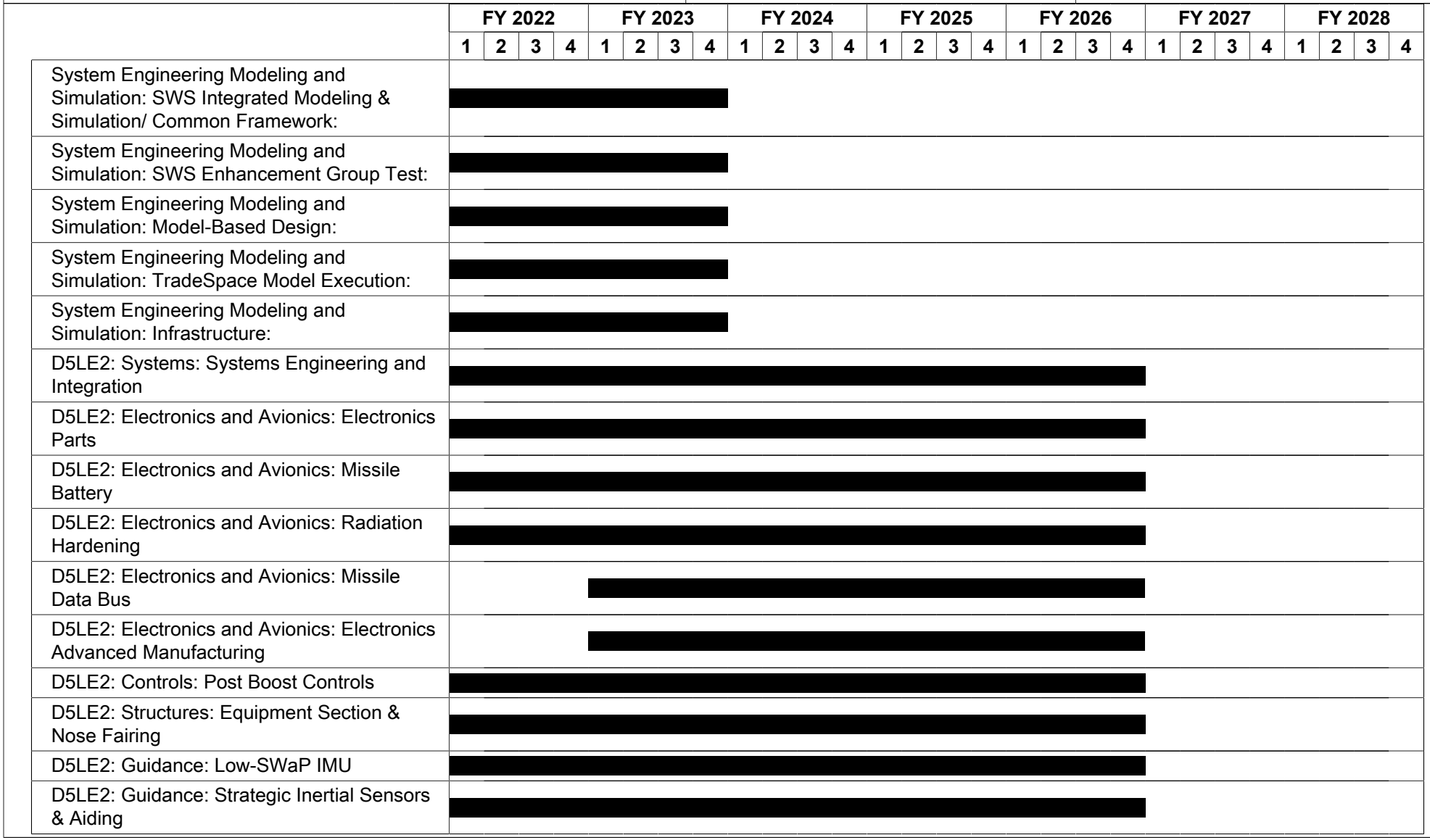


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 2228 / *Technical Applications Programs*

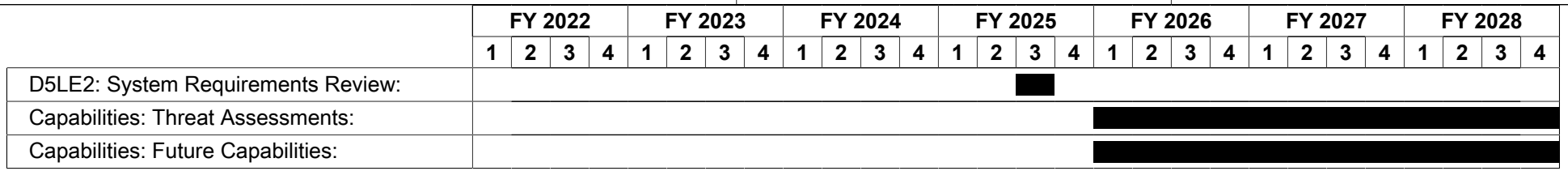


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 2228 / *Technical Applications Programs*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2228				
Multi-Star Enhanced Prelaunch (MEP): MEP Subsystem Interface Specifications Developed:	1	2022	4	2022
Multi-Star Enhanced Prelaunch (MEP): MEP Early Engineering Software Development:	1	2022	4	2022
Multi-Star Enhanced Prelaunch (MEP): MEP Engineering Software Development:	1	2022	4	2022
Multi-Star Enhanced Prelaunch (MEP): MEP Subsystem Testing:	1	2022	4	2022
Multi-Star Enhanced Prelaunch (MEP): MEP Preliminary System Integration & Test:	1	2022	4	2022
Multi-Star Enhanced Prelaunch (MEP): MEP Final Engineering Software Development:	1	2022	4	2022
Multi-Star Enhanced Prelaunch (MEP): MEP Final System Integration Test:	1	2022	4	2022
Multi-Star Enhanced Prelaunch (MEP): MEP DASO Flight Test Demonstration:	1	2022	4	2022
Multi-Star Enhanced Prelaunch (MEP): MEP Post Flight Test Data Analysis:	1	2022	4	2022
Multi-Star Enhanced Prelaunch (MEP): Range Safety & Flight Readiness Review Support:	1	2022	4	2022
Multi-Star Enhanced Prelaunch (MEP): Flight Test Analysis/Documentation Support/ Accuracy Assessment:	1	2022	4	2022
System Engineering Modeling and Simulation: SWS Integrated Modeling & Simulation/ Common Framework:	1	2022	4	2023
System Engineering Modeling and Simulation: SWS Enhancement Group Test:	1	2022	4	2023
System Engineering Modeling and Simulation: Model-Based Design:	1	2022	4	2023
System Engineering Modeling and Simulation: TradeSpace Model Execution:	1	2022	4	2023
System Engineering Modeling and Simulation: Infrastructure:	1	2022	4	2023
D5LE2: Systems: Systems Engineering and Integration	1	2022	4	2026
D5LE2: Electronics and Avionics: Electronics Parts	1	2022	4	2026

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 2228 / *Technical Applications Programs*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
D5LE2: Electronics and Avionics: Missile Battery	1	2022	4	2026
D5LE2: Electronics and Avionics: Radiation Hardening	1	2022	4	2026
D5LE2: Electronics and Avionics: Missile Data Bus	1	2023	4	2026
D5LE2: Electronics and Avionics: Electronics Advanced Manufacturing	1	2023	4	2026
D5LE2: Controls: Post Boost Controls	1	2022	4	2026
D5LE2: Structures: Equipment Section & Nose Fairing	1	2022	4	2026
D5LE2: Guidance: Low-SWaP IMU	1	2022	4	2026
D5LE2: Guidance: Strategic Inertial Sensors & Aiding	1	2022	4	2026
D5LE2: System Requirements Review:	3	2025	3	2025
Capabilities: Threat Assessments:	1	2026	4	2028
Capabilities: Future Capabilities:	1	2026	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101221N / *Strategic Sub & Wpns Sys Supt*	Project (Number/Name) 3097 / *W-93 / Mk 7*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
3097: *W-93 / Mk 7*	79.295	69.702	97.089	126.466	-	126.466	207.708	420.717	537.660	965.017	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The 3097 RDTEN project has been designated as the W93/Mk7 warhead, a third variant for the TRIDENT. This project was formerly known as the Interoperative Warhead (IW); the name change to W93/Mk7 is reflected herein. This project will design, develop, and test a future warhead to include a new Navy Aeroshell for a Submarine Launched Ballistic Missile (SLBM). W93/Mk7 will mitigate risk from aging or technical failure by balancing the sea-leg warhead strategic force.

The U.S. has not delivered an integrated ballistic reentry system since the 1980s. Critical early investments are required for development of critical skills and recapitalization of the atrophied industrial base. The program will align to the President's priority of strengthening our Nation's manufacturing and defense industrial base while improving supply chain resiliency and reducing reliance on foreign countries by making critical investments in the aeroshell industrial base. In order to maintain a credible sea-based deterrent capable of the flexibility and adaptability necessary to meet future adversarial threats, the Department of Defense (DoD) and Department of Energy (DOE) / National Nuclear Security Administration (NNSA) have initiated a joint DoD-DOE/NNSA Nuclear Weapons Life-Cycle Process.

Progress and activity (Phase 1 - 2/2A):

- Early efforts primarily consist of developing programmatic planning and structure to support the future program along with further exploration and refinement of the concept studies that resulted from the Feasibility Management Team Study, which was directed in the 2018 Nuclear Posture Review (NPR). Following the results of the Feasibility Management Team Study, refinement of the concept study will be accomplished through system trade studies and drafting initial high level requirements documents in order to support the program entering a Phase 2 (Feasibility Study and Design Options) / 2A (Design Definition and Cost Study).
- As part of the Phase 1 analysis, U.S. Navy Strategic Systems Programs and the NNSA have identified ways to reduce the overall burden on the Nation's weapons complex and nuclear enterprise facilities through innovative design and logistics planning. These changes to legacy planning factors will result in significant cost reduction to the program's sustainment and lifecycle costs.
- Development and submission of Executive Report to Nuclear Weapons Council (NWC) outlines analysis and findings from Phase 1 which will serve as the baseline for further analysis of refined and matured concept designs in Phase 2.
- Identify necessary investments and align OSD stakeholders on planned investments within the nuclear enterprise.
- Develop draft military characteristics, stockpile to target sequence and identified interdependencies between requirement drivers of DoD and DOE.
- Develop initial nuclear enterprise assurance and supply chain protection considerations.
- Draft threat and vulnerability assessments as well as safety, security, and use control architectures.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: W93 / Mk7	69.702	97.089	126.466	0.000	126.466

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 3097 / *W-93 / Mk 7*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Articles:	-	-	-	-	-
FY 2023 Plans: - Conduct Flight Systems System Requirements Review. - Analyze ability to meet system requirements, define production quantities, which includes Surveillance and War Reserve quantities. - Begin in-depth analysis of each design option. - Begin an in-depth review of planned support equipment, facility upgrades and technical publications. - Update requirements documents (Military Characteristics, Stockpile-to-Target Sequence, and Interface Control Drawings). - Review/update readiness levels for technologies and manufacturing (TRLs and MRLs) and associated risk analysis and constraints. - Purchase of capital equipment to support aeroshell industrial base recapitalization effort; creates efficiency and reduces operational/maintenance risk. - Analyze carbonization and heat shield capacity in support of TPS/Aeroshell requirements. - Analyze research and development (R&D) and production requirements and capabilities, including identifying long-lead items and production constraints. - Begin development of qualification and certification requirements. - Analyze research and development, production, life-cycle maintenance, and logistics scope. - Identify and certify manufacturing processes and supply chains for new-builds of substrates, heatshield material from new rayon source, antenna windows, and other non-nuclear components critical to the thermal protection system. - Development of instrumentation for thermomechanical and aerothermal testing to certify components for flight test and system qualification.					
FY 2024 Base Plans: - Conduct Thermal Protection System (TPS) System Requirements Review. - Conduct Development-1Flight Test Body Critical Design Review. - Continue analysis of each design option. - Continue analysis of ability to meet system requirements, define production quantities, which includes Surveillance and War Reserve quantities. - Continue review of planned support equipment, facility upgrades and technical publications. - Continue to refine requirements documents (Military Characteristics, Stockpile-to-Target Sequence, and Interface Control Drawings).					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 3097 / *W-93 / Mk 7*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Continue development of qualification and certification requirements. - Identify and certify manufacturing processes and supply chains for new-builds of substrates, heatshield material from new rayon source, antenna windows, and other non-nuclear components critical to the thermal protection system. - Continue development of instrumentation for thermomechanical and aerothermal testing to certify components for flight test and system qualification. - Continue purchase of capital equipment to support aeroshell industrial base recapitalization effort; creates efficiency and reduces operational/maintenance risk. - Continue analysis of carbonization and heat shield capacity in support of TPS/Aeroshell requirements. - Conduct microstructure analysis of legacy substrate material. - Procure and conduct analysis of new substrate material to be used in future aeroshell production. - Begin to define project scope and design definition in preparation for Phase 2A. - Begin development of integrated project requirements management plan and project schedule. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** From FY 2023 to FY 2024 Phase 2 efforts of the program will continue to require personnel ramping to support schedule, cost, design and development planning to meet defined First Production Unit (FPU) date. The results of the Phase 2 study, including the DoD evaluation of design options, will be captured in the Joint Integrated Program Plan (JIPP) and shall be independently reviewed for cost.					
Accomplishments/Planned Programs Subtotals	69.702	97.089	126.466	0.000	126.466

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Contracts will be awarded to those sources who were engaged in the ALT 370 program and are currently engaged in the production and/or operational support of the deployed W78/88-1 Systems on the basis of Other Than Full and Open Competition pursuant to the authority of 10 U.S.C. 2304 (c) (1) and (3) implemented by FAR 6.302.-1, 3, 4

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 3097 / *W-93 / Mk 7*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
W93/Mk7	SS/CPIF	LMS : PA	47.099	36.391	Nov 2021	41.699	Nov 2022	57.384	Nov 2023	-		57.384	Continuing	Continuing	Continuing
W93/Mk7	MIPR	DOE : NM	14.367	10.241	Nov 2021	26.127	Oct 2022	34.500	Nov 2023	-		34.500	Continuing	Continuing	Continuing
W93/Mk7	SS/CPFF	ARCFIELD : VA	6.188	2.414	Jan 2022	3.700	Mar 2023	5.000	Nov 2023	-		5.000	Continuing	Continuing	Continuing
W93/Mk7	SS/CPFF	APL : MD	8.238	7.072	Nov 2021	4.671	Mar 2023	7.000	Nov 2023	-		7.000	Continuing	Continuing	Continuing
W93/Mk7	SS/CPFF	Various : Various	1.943	1.850	Dec 2021	2.233	Dec 2022	3.490	Nov 2023	-		3.490	Continuing	Continuing	Continuing
W93/Mk7	SS/CPFF	BAE : MD	0.000	0.800	Nov 2021	0.988	Dec 2022	0.987	Dec 2023	-		0.987	Continuing	Continuing	Continuing
W93/Mk7	SS/CPFF	NSWC RSO : MD	0.273	7.064	Nov 2021	13.552	Feb 2023	13.835	Nov 2023	-		13.835	Continuing	Continuing	Continuing
W93/Mk7	C/CPFF	SPA : VA	0.054	0.500	Jan 2022	0.510	Feb 2023	0.520	Jan 2024	-		0.520	Continuing	Continuing	Continuing
W93/Mk7	SS/CPFF	TOYON : CA	1.133	3.370	Nov 2021	1.354	Oct 2022	1.450	Nov 2023	-		1.450	Continuing	Continuing	Continuing
W93/Mk7	WR	CNSW : IN	0.000	0.000		2.000	Feb 2023	2.040	Nov 2023	-		2.040	Continuing	Continuing	Continuing
W93/Mk7	SS/CPFF	EMCUBE : VA	0.000	0.000		0.255	Mar 2023	0.260	Nov 2023	-		0.260	Continuing	Continuing	Continuing
		Subtotal	79.295	69.702		97.089		126.466		-		126.466	Continuing	Continuing	N/A

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	79.295	69.702		97.089		126.466		-		126.466	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 3097 / *W-93 / Mk 7*

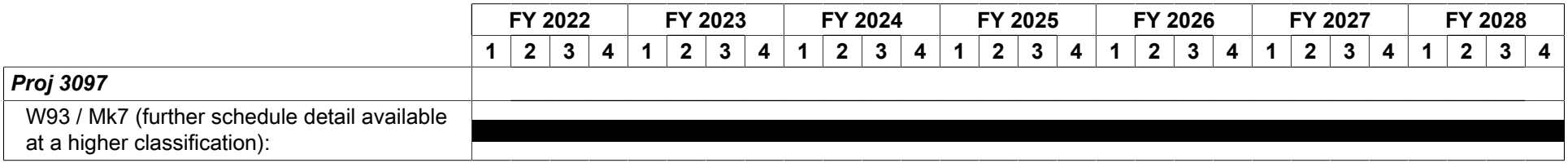


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 3097 / *W-93 / Mk 7*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3097				
W93 / Mk7 (further schedule detail available at a higher classification):	1	2022	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101221N / *Strategic Sub & Wpns Sys Supt*	Project (Number/Name) 3158 / *Integrated Nuclear Weapons Security Sys Dev*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
3158: *Integrated Nuclear Weapons Security Sys Dev*	15.911	3.322	3.384	3.179	-	3.179	3.220	3.282	3.340	3.407	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

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

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Integrated Nuclear Weapons Security Sys Dev	3.322	3.384	3.179	0.000	3.179
Articles:	-	-	-	-	-
FY 2023 Plans: Identify, develop, and test technologies needed for aerial and underwater surveillance, for detection and defeat (passive and active) of unmanned aircraft systems and unmanned underwater vehicles. Investment into technologies that aide in mitigating risks posed by cyber-security threats, assess susceptibility and vulnerability to malicious activities, and to strengthen against unauthorized access to electronic security systems.					
FY 2024 Base Plans: Continue to identify, develop, and test technologies needed for aerial and underwater surveillance, for detection and defeat (passive and active) of unmanned aircraft systems and unmanned underwater vehicles. Continue investing in technologies that aide in mitigating risks posed by cyber-security threats, assess susceptibility and vulnerability to malicious activities, and strengthen against unauthorized access to electronic security systems.					
FY 2024 OCO Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 3158 / *Integrated Nuclear Weapons Security Sys Dev*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The decrease from FY 2023 to FY 2024 is due to miscellaneous rate adjustments.					
Accomplishments/Planned Programs Subtotals	3.322	3.384	3.179	0.000	3.179

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• OPN/Various-2: *OPN (Nuclear Weapons Security)*	33.970	39.837	37.749	-	37.749	38.460	39.335	40.086	40.886	Continuing	Continuing
• OMN/11D2D-3: *Fleet Ballistic Missile (Nuclear Weapons Security)*	103.772	103.468	110.641	-	110.641	103.515	106.022	107.706	110.137	Continuing	Continuing
• OMN/11D2D-5: *Fleet Ballistic Missile (Transit/Escort)*	104.888	117.906	119.321	-	119.321	120.924	123.251	125.736	128.251	Continuing	Continuing

Remarks

D. Acquisition Strategy

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

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101221N / *Strategic Sub & Wpns Sys Supt*	Project (Number/Name) 3158 / *Integrated Nuclear Weapons Security Sys Dev*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Nuclear Weapons Security Sys Dev	SS/CPFF	APL : MD	4.369	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	SS/CPFF	JRC : VA	3.872	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	C/BA	DRAPER : MA	0.556	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys Dev	WR	CNWS : ID	3.083	2.016	Oct 2021	2.091	Feb 2023	1.135	Nov 2023	-		1.135	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys	C/CPFF	GDMS : MA	1.837	0.416	Nov 2021	0.398	Feb 2023	0.000	Nov 2023	-		0.000	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys	C/CPFF	ARL : TX	0.000	0.000		0.330	Feb 2023	0.489	Oct 2023	-		0.489	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys	C/CPFF	SPA : VA	0.545	0.325	Nov 2021	0.461	Feb 2023	0.467	Nov 2023	-		0.467	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys	C/CPFF	EMCUBE : VA	0.381	0.000		0.104	Feb 2023	0.101	Dec 2023	-		0.101	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys	C/CPFF	ASC : CA	0.800	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys	WR	DAHLGREN : VA	0.075	0.250	Apr 2022	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys	WR	KEYPORT : VA	0.000	0.315	Feb 2022	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys	Various	various : various	0.393	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Integrated Nuclear Weapons Security Sys	WR	NIWC Pacific : CA	0.000	0.000		0.000		0.987	Nov 2023	-		0.987	0.000	0.987	-
		Subtotal	15.911	3.322		3.384		3.179		-		3.179	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101221N / *Strategic Sub & Wpns Sys Supt*	Project (Number/Name) 3158 / *Integrated Nuclear Weapons Security Sys Dev*	

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	15.911	3.322		3.384		3.179		-		3.179	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 3158 / *Integrated Nuclear Weapons Security Sys Dev*

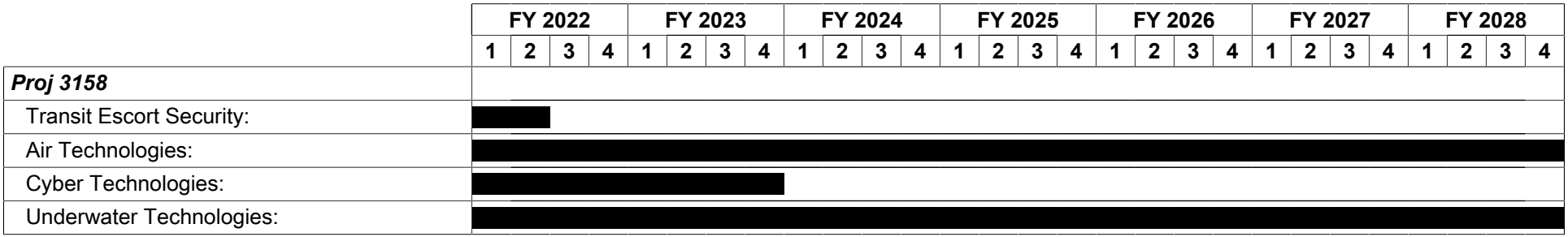


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 3158 / *Integrated Nuclear Weapons Security Sys Dev*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3158				
Transit Escort Security:	1	2022	2	2022
Air Technologies:	1	2022	4	2028
Cyber Technologies:	1	2022	4	2023
Underwater Technologies:	1	2022	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101221N / *Strategic Sub & Wpns Sys Supt*	Project (Number/Name) 9999 / *Congressional Adds*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
9999: *Congressional Adds*	28.960	30.891	28.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	87.851
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Congressional adds to support:

- Next Generation Strategic Inertial Measurement Unit will research, develop and demonstrate radiation-hardened navigation technologies for reentry specific applications, strategic grade inertial instruments, software, electromechanical components and algorithms that exercise strategic skills and are applicable to the long-term viability of the nation's strategic grade guidance systems.

- Scalable Very High Temperature Composite Manufacturing Technologies supports development and production effort for three dimensionally reinforced carbon/carbon SSNTs and further high temperature composite material in support of SSNT and future Navy reentry systems.

- Autonomous fiber optic sensing network will develop advanced sensor systems for counterterrorism and antiterrorism operations to meet rigorous performance metrics necessary for nuclear facility, material, and weapons protection.

- Strategic weapons systems shipboard navigation system modernization will conduct improvement backlog assessment, estimation, and prioritization; evaluation on the sustainability of all Navigation Subsystem Auxiliary Systems and incorporate cyber resilient methods and strategies into the build and production process for targeted Navigation Software Configuration Items (SWCIs).

- Multimodal biometric authentication supports the investigation and development of biometric technology.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023
Congressional Add: Next Generation Strategic Inertial Measurement Unit	5.792	10.000
FY 2022 Accomplishments: Research and develop new and alternate Guidance, Navigation, and Control (GN&C) technologies and concepts to support Strategic Systems Programs (SSP) Missions. FY 2022 planned scope includes: - Research, develop and demonstrate radiation-hardened navigation technologies for reentry specific applications, strategic grade inertial instruments, software, electromechanical components and algorithms - Perform technical trade studies to deliver a navigation solution that optimizes the system for size, weight, and power		

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 9999 / *Congressional Adds*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023
while maintaining the flight test accuracy requirements Develop and deliver an IMU specification defining all system level requirements necessary for deployment on Navy flight test systems - Analyze, design, deliver, and test iterations of a small navigation grade IMU and other non-inertial navigation aids. - Develop requirement definitions and program planning - Conduct trade study/cost-benefit analysis to determine the best value hardware solution for processing and input/output hardware design. - Perform System and Component Engineering of Navigation and avionics systems - Demonstrate navigation system capability and development progress by conducting design reviews. - Conduct Test and Evaluation (T&E) activities to include test development, procedure review, conducting tests, review and analysis of test data, and documentation of test results. - Monitor and assess maintaining accuracy of the existing hypersonic flight systems through analysis, simulation and test of design options. - Assess guidance options including improved/alternate correlation algorithms for reference generation and validation of selected sensors while considering impact on current components. ***FY 2023 Plans:*** Build and test Quantity 3 HyperFlite Engineering Development Unit (EDU) IMUs; including detailed calibration, thermal excursions and ground based environmental test cells Further reduce Size Weight and Power for hypersonic and strategic platforms Integrate HyperFlite EDU IMU flight test data into a model, including updates to modeled parameters where applicable Develop HyperFlite IMU based avionics architecture and concept designs, assuming an optimized HyperFlite design Execute a minimum of one flight test with a HyperFlite EDU IMU, to support progression of TRL		
Congressional Add: Scalable Very High Temperature Composite Manufacturing Technologies ***FY 2022 Accomplishments:*** Funds continued to support heatshield material testing and future capability development. Funds also support recapitalization of US manufacturing capabilities. Specific activities include ground testing and development of machining procedures. ***FY 2023 Plans:*** N/A	5.792	0.000
Congressional Add: Autonomous fiber optic sensing network ***FY 2022 Accomplishments:*** Develop a fiber optic acoustic sensor system that will detect, track, and classify unmanned underwater vehicles. It will be installed and developed with a focus on reduction of technical and	4.827	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 9999 / *Congressional Adds*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023
integration risks in an operational environment. This effort will enable a future transition into the Waterside Security System as part of the Electronic Harbor Security System. ***FY 2023 Plans:*** N/A		
Congressional Add: Strategic weapons systems shipboard navigation system modernization ***FY 2022 Accomplishments:*** - Provide support for and collaboration with the SWS Shipboard Modernization Program Working Groups. - Provide support for and collaboration with Shipboard partners to include development of Navigation Modernization concepts, technologies, and designs compatible with Shipboard Architecture Modernization Objectives, establishment of a Navigation Development Roadmap integrated with the Shipboard Modernization Program, and execution of trade studies in support of Program Increment Objectives. - Provide support for and collaboration with Navigation Future Capabilities Working Groups. - Conduct Navigation improvement backlog assessment, estimation, and prioritization. - Conduct evaluation on the sustainability of all Navigation Subsystem Auxiliary Systems, to include the estimated remaining life cycle of each auxiliary system, and provide recommendations for upgrading, replacing, consolidation, and/or retirement of these auxiliary systems. - Conduct pilot projects for incorporation of cyber resilient methods and strategies into the build and production process for targeted Navigation Software Configuration Items (SWCIs). ***FY 2023 Plans:*** N/A	14.480	0.000
Congressional Add: Multimodal biometric authentication ***FY 2022 Accomplishments:*** N/A ***FY 2023 Plans:*** Funding provides for investigation/development of multimodal biometric authentication. Goal is to achieve a method or methods of applying biometric techniques to supplement Columbia's Identity Access Management (IDAM) solution to enhance the security of highly sensitive information.	0.000	8.000
Congressional Add: Navigation modernization capabilities ***FY 2022 Accomplishments:*** N/A ***FY 2023 Plans:*** - Conduct and support Broad Band Navigation Sonar (BBNS) Future Navigation Capability (FNC) development and test activities including develop software architecture and design to support BBNS FNC, develop BBNS FNC test plans and procedures for testing in Ashore Navigation Center (ANC) and Sea Navigation Center (SNC), Implement software and integrate GFI software components, Conduct test, validation	0.000	10.000

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 9999 / *Congressional Adds*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023
and data analysis per approved Test Plans, Support BBNS FNC meetings, product reviews, and Technical Interchange Meetings - Using the artifacts (e.g., software, test procedures, etc) developed for the BBNS FNC demonstration develop and submit BBNS FNC SWT Plan and Procedures for onboard SSBN testing, Conduct onboard SWT and data analysis per the approved Test Plan, - Evaluate and assess potential BBNS functionalities and develop design that allows incorporation of potential BBNS functionalities into the tactical baseline. The assessment should include an analysis of alternatives concerning determination of areas of overlap and uniqueness between NSS and BBNS; assessment of existing tactical and prototype software code with respect to cyclomatic complexity, modularity, and other software quality metrics. - Support and collaborate with the SWS Shipboard Modernization Program Working Groups. - Provide support for and collaboration with Shipboard partners to include development of Navigation Modernization concepts, technologies, and designs compatible with Shipboard Architecture Modernization Objectives, establishment of a Navigation Development Roadmap integrated with the Shipboard Modernization Program, and execution of trade studies in support of Program Increment Objectives. - Provide support for and collaboration with Navigation Future Capabilities Working Groups. - Investigate development of the system design to enhance the current bathymetric fix capability to a broader ocean environment - support prototype development of a Navigation MBSE Descriptive System Model (DSM) in support of the DoD Digital Engineering Strategy, digital transformation, and migration of legacy requirements and design information - Support investigation and definition of the evolution of the current NAV architecture in terms of system logical / functional, physical, and interfaces - support development and tactical incorporation of the system design to modernize filter and monitor functions in the Navigation Subsystem in support of Enhanced Pre-launch development activities - support a trade study for implementing encryption/decryption of the U.S. Naval Oceanographic Office (NAVO) provided-Navigation Map Data Reference Disk (NMRD) bathymetric and gravity disc for use on SSBN patrols		
Congressional Adds Subtotals	30.891	28.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 9999 / *Congressional Adds*

D. Acquisition Strategy

Where possible RDTEN Congressional Adds shall be competitively awarded, or provided to programs that have received competitive awards in the past. Alternatively, contracts will be awarded to those sources who were engaged in program and are currently engaged in the production and/or operational support on the basis of Other Than Full and Open Competition pursuant to the authority of 10 U.S.C. 2304 (c) (1) and (3) implemented by FAR 6.302.-1, 3, 4.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 9999 / *Congressional Adds*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Next Generation SIMU	SS/CPFF	Draper Labs* : Cambridge, MA	11.584	5.792	May 2022	10.000	Mar 2023	0.000		-		0.000	0.000	27.376	-
High Temperature Composite Expansion	C/BA	NSWC Crane : Bloomington, IN	5.792	5.792	Apr 2023	0.000		0.000		-		0.000	0.000	11.584	-
SWS Shipboard Navigation System Modernization	SS/CPFF	LMRMS : Uniondale, NY	0.000	14.480	Jun 2022	10.000	Mar 2023	0.000		-		0.000	0.000	24.480	-
Multimodal Biometric Authentication	C/FFP	Defense Unicorns : Prairie Village, KS	0.000	0.000		8.000	Sep 2023	0.000		-		0.000	0.000	8.000	-
Autonomous Fiber Optic Sensing Network	TBD	Digital Force Technologies : Bangor, WA	0.000	4.827	Sep 2022	0.000		0.000		-		0.000	0.000	4.827	-
High Temperature Composite Expansion	SS/CPFF	FMI/Intermat : Biddeford, ME	11.584	0.000		0.000		0.000		-		0.000	0.000	11.584	-
		Subtotal	28.960	30.891		28.000		0.000		-		0.000	0.000	87.851	N/A

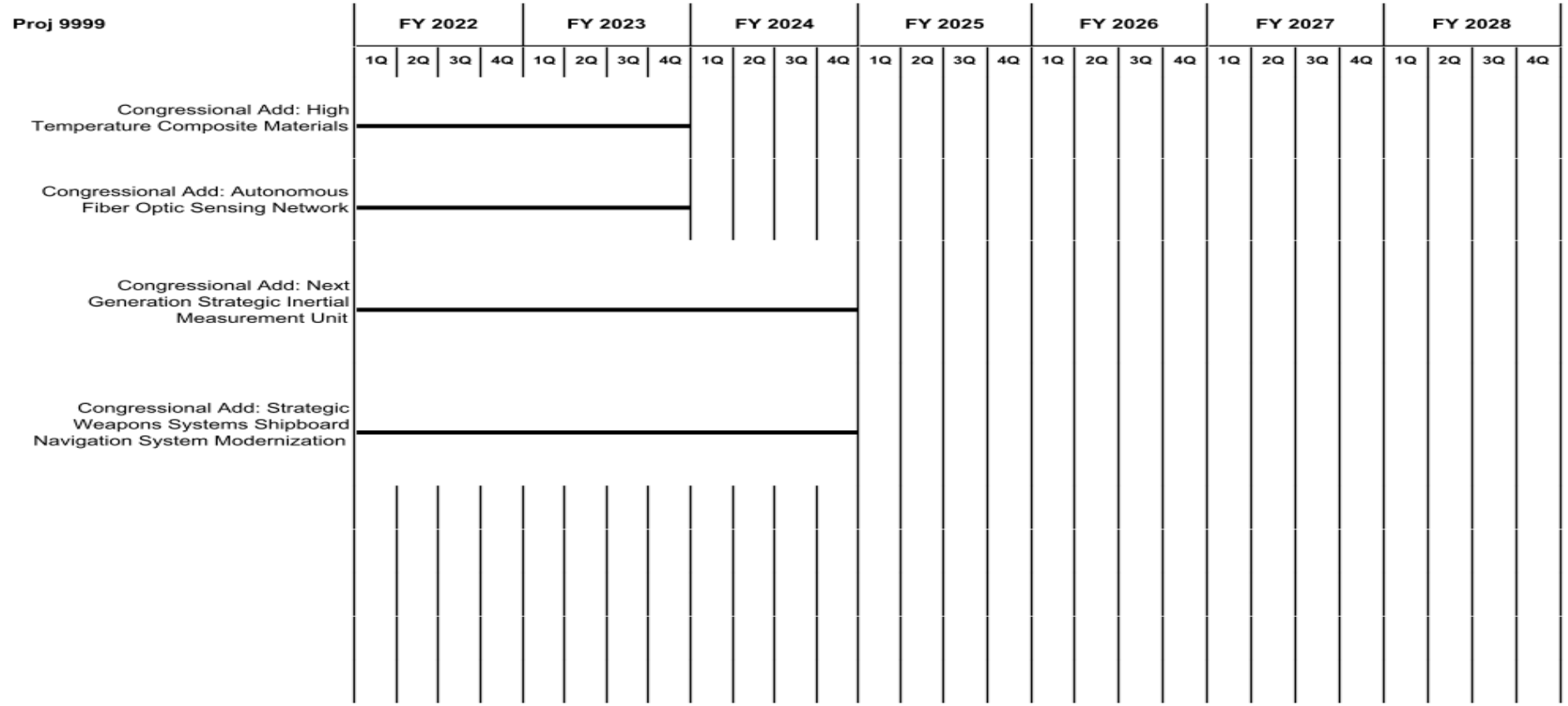
Remarks

*Significant sub-contractor is Moog Inc in East Aurora, NY.

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	28.960	30.891		28.000		0.000		-		0.000	0.000	87.851	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 9999 / *Congressional Adds*



2024PB - 0101221N - 9999

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 9999 / *Congressional Adds*

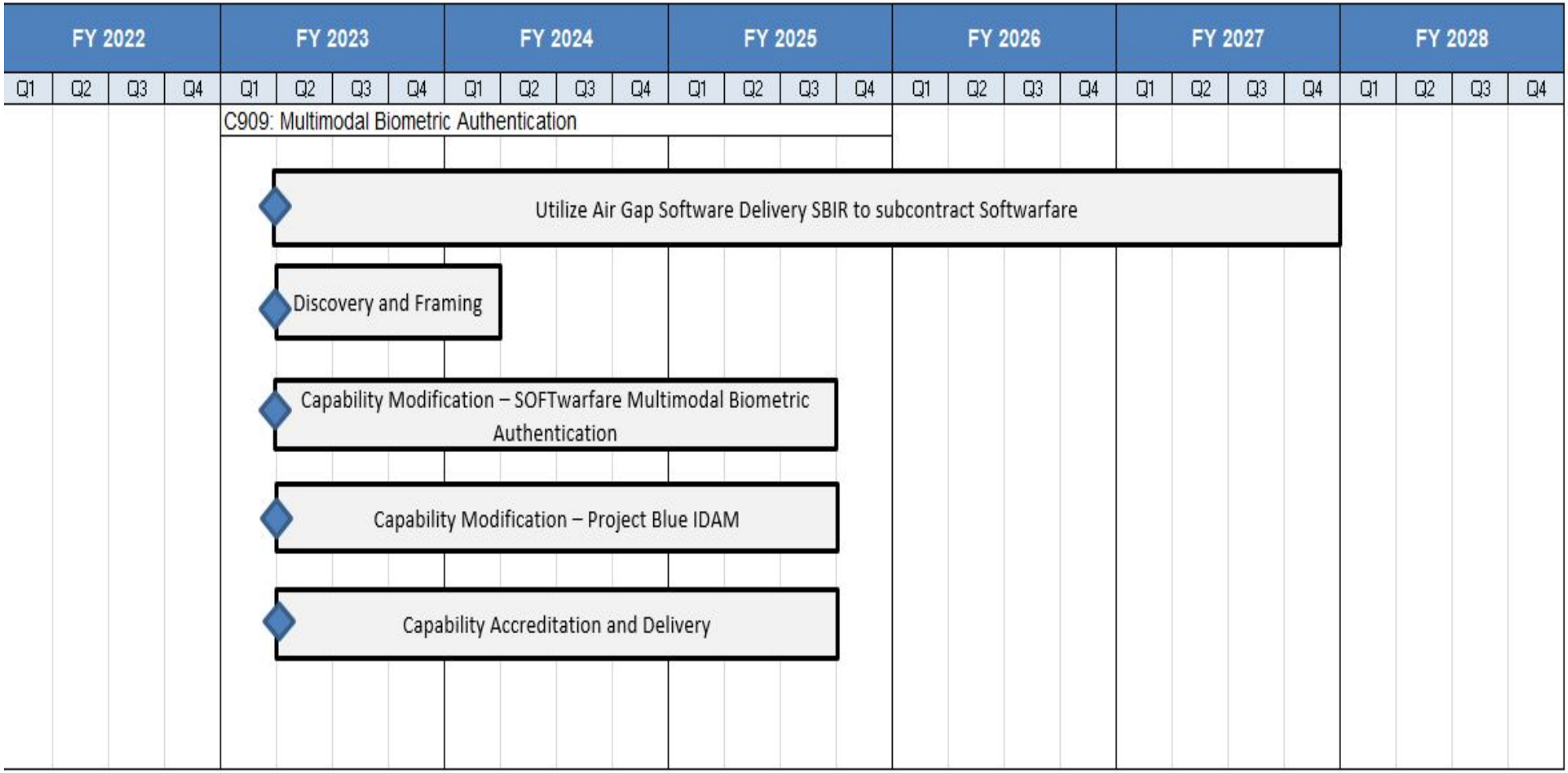


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101221N / *Strategic Sub & Wpns Sys Supt*	**Project (Number/Name)** 9999 / *Congressional Adds*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 9999				
Congressional Add: High Temperature Composite Materials: High Temperature Composite Materials	1	2022	4	2023
Congressional Add: Autonomous Fiber Optic Sensing Network: Autonomous Fiber Optic Sensing Network	1	2022	4	2023
Congressional Add: Next Generation Strategic Inertial Measurement Unit: Next Generation Strategic Inertial Measurement Unit	1	2022	4	2024
Congressional Add: Strategic Weapons Systems Shipboard Navigation System Modernization: Strategic Weapons Systems Shipboard Navigation System Modernization	1	2022	4	2024
Congressional Add: Multimodal Biometric Authentication				
Utilize Air Gap Software Delivery SBIR to subcontract Softwarfare	2	2023	3	2027
Discovery and Framing	2	2023	1	2024
Capability Modification - SOFTwarfare Multimodal Biometric Authentication	2	2023	3	2025
Capability Modification - Project Blue IDAM	2	2023	3	2025
Capability Accreditation and Delivery	2	2023	3	2025

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0101224N / *SSBN Security Tech Program*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	44.212	50.761	62.694	-	62.694	63.824	65.572	67.582	69.160	Continuing	Continuing
0092: *SSBN Security*	0.000	42.750	49.409	47.806	-	47.806	48.163	48.957	50.014	51.014	Continuing	Continuing
2369: *Subsea and Seabed Security*	0.000	1.462	1.352	2.092	-	2.092	2.825	3.562	4.298	5.035	Continuing	Continuing
3391: *SSN/SSGN Survivability Program*	0.000	0.000	0.000	12.796	-	12.796	12.836	13.053	13.270	13.111	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 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	45.587	50.939	47.540	-	47.540
Current President's Budget	44.212	50.761	62.694	-	62.694
Total Adjustments	-1.375	-0.178	15.154	-	15.154
• Congressional General Reductions	-	-0.178			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.375	0.000			
• Program Adjustments	0.000	0.000	0.346	-	0.346
• Rate/Misc Adjustments	0.000	0.000	14.808	-	14.808

Change Summary Explanation

Technical: Not applicable.
Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101224N / *SSBN Security Tech Program*	Project (Number/Name) 0092 / *SSBN Security*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
0092: *SSBN Security*	0.000	42.750	49.409	47.806	-	47.806	48.163	48.957	50.014	51.014	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101224N / *SSBN Security Tech Program*	Project (Number/Name) 2369 / *Subsea and Seabed Security*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2369: *Subsea and Seabed Security*	0.000	1.462	1.352	2.092	-	2.092	2.825	3.562	4.298	5.035	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy												Date: March 2023
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0101224N / *SSBN Security Tech Program*				Project (Number/Name) 3391 / *SSN/SSGN Survivability Program*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
3391: *SSN/SSGN Survivability Program*	0.000	0.000	0.000	12.796	-	12.796	12.836	13.053	13.270	13.111	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy												Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0101226N *I Submarine Acoustic War Dev*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	94.883	58.645	81.237	92.869	-	92.869	78.572	55.692	54.743	55.250	Continuing	Continuing
1265: *Sub Defensive Warfare*	78.223	16.587	17.917	15.322	-	15.322	17.520	16.063	15.556	15.359	Continuing	Continuing
1267: *Compact Rapid Attack Weapon (CRAW)*	13.363	39.064	55.782	74.869	-	74.869	58.350	36.872	36.374	37.021	Continuing	Continuing
1268: *Non-Traditional Acoustic Communications (NTAC)*	3.297	2.994	2.538	2.678	-	2.678	2.702	2.757	2.813	2.870	Continuing	Continuing
9999: *Congressional Adds*	0.000	0.000	5.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	5.000

A. Mission Description and Budget Item Justification

The Submarine Acoustic Warfare (SAWS) Development Program develops acoustic countermeasures, submarine defense capabilities, external launch systems and all acoustic augmentation systems for the U.S. Navy submarines. The SAWS Development Program is comprised of the Submarine Defensive Warfare Program, Compact Rapid Attack Weapon (CRAW) and Non-Traditional Acoustic Communications (NTAC).

Project 1265 Sub Defensive Warfare
The ADC MK 5 acoustic countermeasure (ACAT III) developmental contract awarded in Sep 2018 and is currently in the Engineering and Manufacturing Development (E&MD) phase. The first development (Increment 1) effort of the overall Submarine Torpedo Defensive Systems (SubTDS) program is focused on delivering full internal countermeasure launcher (ICL) functionality to all submarine in the fleet via the Acoustic Device Countermeasure (ADC) MK5 effort. The ADC MK5 development includes delivering fully functional test units and Engineering Development Model (EDM) variants. The ADC MK5 will bring new technologies including adaptability packaged in a three-inch diameter body. The ADC MK5 efforts support on- going development including component and subsystem design, in support of the Preliminary Design Review (PDR), Critical Design Review (CDR) and procurement contract award of multiple ADC MK5 EDM countermeasure developmental variants.

FY23 funding will complete the Critical Design Review (CDR) and deliver four (4) Countermeasure Control Tools (CCT) and four (4) Sonar Test Units (STU- E). Hardware in the Loop Testing (HWIL) in the Environment Centric Weapons Analysis Facility (EC WAF) on STU-E will begin in FY23. EDM-2 production prototyping will continue in preparation for beginning deliveries in FY24.

FY24 funding will include EDM-2 Test Readiness Review (TRR) and will deliver one hundred and twenty two (122) EDM-2 units. Twenty (20) units to be utilized for Environmental Qualification Testing (EQT), three (3) units to be utilized for HERO testing, and ninety nine (99) units to be utilized for DT. Procurement of long lead items for eighty-four (84) Low Rate Initial Production (LRIP) units will also begin in FY24 in preparation for initial deliveries beginning in FY25.

The next development in the SubTDS program (Increment 2) focuses on the development of the External Countermeasure Launcher (ECL) hosted 6-inch acoustic countermeasure,
Tactical Decision Aid, and integration with ship systems for to provide improved adaptive capabilities leading up to a contract award in FY25.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0101226N *I Submarine Acoustic War Dev*

The Undersea Defense Working Group (UDWG) is a working group comprised of fleet, resource sponsor, (testing community) and acquisition community representatives to assess fleet threats and the effectiveness of our countermeasure systems against these threats, both known and projected. This includes associated studies, demonstrations, models, and simulations. The Technical Direction Agent (TDA) and In-Service Engineering Agent (ISEA) will provide hardware and software development support for Acoustic Devices Countermeasure (ADC) as well as Countermeasures Set, Acoustic (CSA) systems, future variants, and Acoustic Augmentation Support Systems (AASS) in the Acoustic Augmentation Support Program (AASP), and advanced communication systems improvements in support of the AASP, including component level technical insertion.

PMS415 Submarine Tethered Expendable Buoy (STEB) effort is limited to the development of changes to the internal countermeasure launcher, specifically the breech door, to integrate STEB. This integration will provide a communications path to and from the buoy, bringing buoy sensor data internal to the submarine.

Project 1267 Compact Rapid Attack Weapon (CRAW)
1. Compact Rapid Attack Weapon (CRAW) Development Design
CRAW is a very lightweight torpedo that will have Anti-Submarine Warfare (ASW) and Anti-Torpedo Torpedo (ATT) capabilities. ONR began a follow-on FNC in FY20 to demonstrate the ability to modify a previous design for submarine integration and use as an ASW weapon via TEMPALT in FY24. PMS415 began a Rapid Prototyping (RP) Middle Tier Acquisition (MTA) in FY22 to transition the ONR FNC effort to a lasting Early Operational Capability via a SHIPALT in FY26. The ONR FNC and CRAW MTA program received forty (40) plus existing legacy hardware devices that will be updated for submarine integration, and will be known as the CRAW TI-1 hardware baseline. The critical updates consist of integrating a new Safe and Arming (S&A) and Warhead (WH) design, and the development of Anti-Submarine Warfare (ASW) mission software. PSU/ARL will support the ONR FNC demonstration, the development of the CRAW TI-1 hardware and software updates, and the maturation of the design into a permanent capability through the RP MTA approach.

Leveraging the existing legacy hardware devices and the long standing technological knowledge of PSU/ARL for designing, testing, and qualifying the CRAW device will enable the program to deliver the leave behind residual capability in FY26 as the TI-1/ASW Early Operational Capability (EOC). The program will then transition the RP MTA into a Major Capability Acquisition Program that will update the TI-1 baseline into a supportable and producible industry design that will be known as the TI-2 hardware baseline. PMS415 awarded a UTIC OTA contract in FY22 to Raytheon (Prime Contractor) who will work with ARL/PSU in FY23 to transfer knowledge and begin initial TI-2 baseline development. In FY24, Raytheon will be developing the TI-2 hardware and procuring long lead material that will address obsolescence issues, develop the production line, improve manufacturing processes, stand-up the vendor base, and deliver TI-2 EDMs in support of future full-rate production. PMS415 intends to formally initiate the TI-2 program of record in FY23 as a post MS-B ACAT III program. The program is planning to reach MS-C in FY28.

2. Compact Rapid Attack Weapon (CRAW) Submarine Integration
Submarine integration of CRAW into the external countermeasure launcher (ECL) assembly requires upgrades to the combat systems in support of pre-planning and launch control of the CRAW, a new launch tube assembly that fits into the ECL, and ship alteration and modernization planning documents. This effort requires upgrades to the submarine combat system as a part of the Submarine Federated and Warfare Tactical Systems (SWFTS) modernization cycle. The major components requiring hardware and software upgrades to support CRAW include the ECL assembly, BYG-1 combat system, and Common Weapon Launcher (CWL). The upgrades

will come in two initial phases with a Temporary Alteration (TEMPALT) for the ONR FNC demonstration launch from a Virginia Class Submarine (VCS), and then a permanent Ship Alteration (SHIPALT) to TI-24 for VCS Blk III and later hulls as a part of the Rapid Prototyping MTA. In addition, the necessary TEMPALT and SHIPALT documentation (e.g., design changes, safety reports, test reports, etc.) required for installation aboard a submarine will be developed. An integrated test program and operational testing with the Navy's Command Operational Test and Evaluation Force will be conducted after installation of the TI-24 SHIPALT.

In FY2024 the program will complete a TEMPALT data package and coordinate with ONR FNC to demonstrate the launch of a CRAW from an ECL on a submarine in FY24. This test will inform the final SHIPALT configuration needed for permanent integration and installation of CRAW on a submarine beginning in FY2026. The program will also continue development of upgrades necessary to support CRAW launch and control from the BYG-1 combat system. The program will also begin work with ONR on Revolver Multi Payload (MP) to enable CRAW launch and control via torpedo tubes. This has the potential to significantly reduce DT/OT duration by enabling the launch of test CRAWs from the torpedo room and thereby minimizing the time consuming replacement and reloading of ECL assemblies (which must be accomplished pier side with crane support).

Project 1268 Non-Traditional Acoustic Communications (NTAC)

This capability provides advanced undersea acoustic communications across multiple platforms within the Navy. This program builds upon the baseline NTAC software capability and integrates the software components into existing hardware to expand the effectiveness and reliability of the capability. Additional details are available at the classified level.

The SAWS Development Program transitions the research and development of new technologies and capabilities generated under the Future Naval Capabilities (FNC), Small Business and Innovative Research (SBIR), and other Research, Development, Test & Evaluation (RDT&E) initiatives. Hardware and software evaluations in representative acoustic environments, against projected threats utilizing digital and hardware-in-the-loop simulations determines the effectiveness and impact on improving submarine survivability. The technology is then integrated into the appropriate product line. Additionally, this effort also includes advanced studies, product development and improvements for Submarine Acoustic Warfare Systems (SAWS) including but not limited to AASP, CSA, SubTDS, CRAW and NTAC.

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	59.752	81.237	93.214	-	93.214
Current President's Budget	58.645	81.237	92.869	-	92.869
Total Adjustments	-1.107	0.000	-0.345	-	-0.345
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-5.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	5.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.107	0.000			
• Program Adjustments	0.000	0.000	-1.548	-	-1.548

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy					Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*		R-1 Program Element (Number/Name) PE 0101226N *I Submarine Acoustic War Dev*			
• Rate/Misc Adjustments	0.000	0.000	1.203	-	1.203

Congressional Add Details ($ in Millions, and Includes General Reductions)

	FY 2022	FY 2023
Project: 9999: *Congressional Adds*		
Congressional Add: *Integration of four-tube launch system*	0.000	5.000
Congressional Add Subtotals for Project: 9999	0.000	5.000
Congressional Add Totals for all Projects	0.000	5.000

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101226N / *Submarine Acoustic War Dev*	Project (Number/Name) 1265 / *Sub Defensive Warfare*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
1265: *Sub Defensive Warfare*	78.223	16.587	17.917	15.322	-	15.322	17.520	16.063	15.556	15.359	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Submarine Acoustic Warfare (SAWS) Development Program develops acoustic countermeasures, submarine defense capabilities, external launch systems and all acoustic augmentation systems for the U.S. Navy submarines. The SAWS Development Program is comprised of the Submarine Defensive Warfare Program.

Project 1265 Sub Defensive Warfare Submarine Torpedo Defense System (SubTDS)
The ADC MK 5 acoustic countermeasure (ACAT III) developmental contract awarded in Sep 2018 and is currently in the Engineering and Manufacturing Development (E&MD) phase. The first development (Increment 1) effort of the overall Submarine Torpedo Defensive Systems (SubTDS) program is focused on delivering full internal countermeasure launcher (ICL) functionality to all submarine in the fleet via the Acoustic Device Countermeasure (ADC) MK5 effort. The ADC MK5 development includes delivering fully functional test units and Engineering Development Model (EDM) variants. The ADC MK5 will bring new technologies including adaptability packaged in a three-inch diameter body. The ADC MK5 efforts support on- going development including component and subsystem design, in support of the Preliminary Design Review (PDR), Critical Design Review (CDR) and procurement contract award of multiple ADC MK5 EDM countermeasure developmental variants.

FY23 will complete the Critical Design Review (CDR) and deliver four (4) Countermeasure Control Tools (CCT) and four (4) Sonar Test Units (STU-E). Hardware in the Loop Testing (HWIL) in the Environment Centric Weapons Analysis Facility (EC WAF) on STU-E will begin in FY23. EDM-2 production prototyping will continue in preparation for beginning deliveries in FY24.

FY24 will include EDM-2 Test Readiness Review (TRR) and will deliver one hundred and twenty two (122) EDM-2 units. Twenty (20) units to be utilized for Environmental Qualification Testing (EQT), three (3) units to be utilized for HERO testing, and ninety nine (99) units to be utilized for DT. Procurement of long lead items for eighty-four (84) Low Rate Initial Production (LRIP) units will also begin in FY24 in preparation for initial deliveries beginning in FY25.

The next development in the SubTDS program (Increment 2) focuses on the development of the External Countermeasure Launcher (ECL) hosted 6-inch acoustic countermeasure, Tactical Decision Aid, and integration with ship systems for to provide improved adaptive capabilities leading up to a contract award in FY25.

The Undersea Defense Working Group (UDWG) is a working group comprised of fleet, resource sponsor, (testing community) and acquisition community representatives to assess fleet threats and the effectiveness of our countermeasure and systems against these threats, both known and projected. This includes associated studies, demonstrations, models, and simulations. The Technical Direction Agent (TDA) and In-Service Engineering Agent (ISEA) will provide hardware and software development support for Acoustic Devices Countermeasure (ADC) as well as Countermeasures Set, Acoustic (CSA) systems, future variants, and Acoustic Augmentation Support Systems (AASS) in the Acoustic Augmentation Support Program (AASP), and advanced communication systems improvements in support of the AASP, including component level technical insertion.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101226N / *Submarine Acoustic War Dev*	**Project (Number/Name)** 1265 / *Sub Defensive Warfare*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Submarine Torpedo Defense System (SubTDS)	16.587	17.917	12.751	0.000	12.751
Articles:	-	122	84	-	84
Description: The ADC MK5 Acoustic Countermeasure (ACAT III) developmental contract awarded in Sep 2018 and is currently in the Engineering & Manufacturing Development phase. The first effort of the overall SubTDS program focuses on delivering full internal countermeasure launcher functionality to all submarines in the fleet via the Acoustic Device Countermeasure (ADC) MK5 effort.					
FY 2023 Plans: - Conduct ADC MK5 Critical Design Review (CDR). - Continue ADC MK5 EDM design and prototype builds. - Continue M&S assessment of known and projected torpedo threats. - Continue development of required program documentation. - Continue development of concept of operations and operational tactics. - Continue assessment of Threat for UDWG and WAF with updated vulnerability assessments. - Deliver four (4) CCT, four (4) STU-E - Continue procurement of long lead items for twenty (20) EDM-2 to be utilized for Environmental Qualification Testing (EQT) - Continue procurement of long lead items for three (3) EDM-2 to be utilized for Hazards of Electromagnetic Radiation to Ordnance (HERO) Testing - Continue procurement of long lead items for ninety nine (99) EDM-2 to be utilize for in-water developmental testing - Start Hardware in the Loop (HWIL) Testing on STU-E					
FY 2024 Base Plans: - TRR for EDM-2 - Deliver twenty (20) EDM-2 for EQT - Deliver three (3) EDM-2 for HERO testing - Begin deliveries of ninety nine (99) EDM-2 for DT - Initiate procurement of long lead items for eighty four (84) Low Rate Initial Production units to be utilized for Operational Testing (OT) in FY26					
FY 2024 OCO Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101226N / *Submarine Acoustic War Dev*	**Project (Number/Name)** 1265 / *Sub Defensive Warfare*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY 2023 to FY 2024 the program decreased by $5.166 million due to reduction of article procurement by 38 quantity.					
Title: Submarine Tethered Expendable Bouy ***Articles:*** ***Description:*** Future Naval Capabilities BA-03 transfer (PE 0603673N / Prj 3346). This effort supports the development of changes to the internal countermeasure launcher, specifically the breech door, to integrate the Submarine Tethered Expendable Buoy (STEB). This integration will provide a communications path to and from the buoy, bringing buoy sensor data internal to the submarine. ***FY 2023 Plans:*** N/A ***FY 2024 Base Plans:*** - Initiate design and development of an internal countermeasure breech door that enables pre and post-launch connectivity with a STEB. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY 2024 reflects the initiation of the STEB Transition to a Program of Record effort.	0.000 -	0.000 -	2.571 -	0.000 -	2.571 -
Accomplishments/Planned Programs Subtotals	16.587	17.917	15.322	0.000	15.322

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• OPN/2210: *Submarine Acoustic Warfare System*	24.578	31.708	46.726	-	46.726	46.283	38.944	37.451	34.548	Continuing	Continuing

Remarks

OPN 2210 includes SubTDS and Compact Rapid Attack Weapon System (CRAW) starting in FY 2023. Funding profile shows SubTDS equity only.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101226N / *Submarine Acoustic War Dev*	**Project (Number/Name)** 1265 / *Sub Defensive Warfare*

D. Acquisition Strategy

Submarine Acoustic Warfare System (SAWS) develops Undersea Defensive Warfare technologies to improve the survivability of all U.S. Submarine classes.

SUBTDS

Through a full and open competition, the ADC MK5 development contract awarded in Sep 2018. The Cost Plus Incentive Fee (CPIF) contract funds the design and development of Engineering Development Model (EDM) variants, Technical Data Packages (TDP), and Low-Rate Initial Production (LRIP) units for accomplishing Operational Testing (OT). The ADC MK5 contractor subsystem testing and joint contractor/Navy Development Testing (DT) will occur in FY23 through FY25 and Navy OT in FY26. Milestone C is nominally in

FY26. Initial Operational Capability (IOC) is nominally FY27 for the Internal Countermeasure Launcher (ICL) configuration. After successfully completing OT and Full Rate Production Decision Review (FRP DR), award of a full and open competitive production contract occurs in FY27. APB and TEMP will be approved in FY23. The next development effort for addressing the overall SubTDS program will begin in FY25 and focus on the development of the External Countermeasure Launcher (ECL) launched 6-inch acoustic countermeasure variant.

Development of the acquisition strategy is beginning, with a contract award planned for FY25.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101226N / *Submarine Acoustic War Dev*	Project (Number/Name) 1265 / *Sub Defensive Warfare*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SubTDS WAF ANALYSIS UDWG	WR	NUWC : NEWPORT, RI	13.069	0.000		2.995	Dec 2022	0.508	Dec 2023	-		0.508	Continuing	Continuing	Continuing
SubTDS SYSYTEM ENGINEERING	WR	NUWC : NEWPORT, RI	16.650	2.404	Nov 2021	1.517	Dec 2022	2.638	Dec 2023	-		2.638	Continuing	Continuing	Continuing
SubTDS ADC MK5 New Development	C/CPIF	LEIDOS : RESTON, VA	22.821	11.790	Nov 2021	11.641	Nov 2022	5.539	Nov 2023	-		5.539	Continuing	Continuing	Continuing
SubTDS ADC MK5 SYSTEM ENGINEERING and Logistics	WR	NUWC : KEYPORT, WA	5.510	0.200	Nov 2021	0.204	Dec 2022	0.481	Dec 2023	-		0.481	Continuing	Continuing	Continuing
SubTDS Modeling And Simulation	WR	NUWC : NEWPORT, RI	7.304	1.796	Nov 2021	0.830	Dec 2022	1.958	Dec 2023	-		1.958	Continuing	Continuing	Continuing
SubTDS Tactical Decision Aid TacDA	WR	NUWC : NEWPORT, RI	6.481	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Acoustic Augmentation Support Program (AASP)	WR	NUWC : NEWPORT, RI	0.435	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Sabot Development	WR	NUWC : NEWPORT, RI	1.270	0.000		0.000		0.000		-		0.000	0.000	1.270	-
SubTDS ADC MK5 Principal for Safety and Logistics	WR	NSWC : INDIAN HEAD, MD	0.015	0.045	Dec 2021	0.020	Dec 2022	0.066	Dec 2023	-		0.066	0.000	0.146	-
STEB Development	WR	NUWC : NEWPORT, RI	0.000	0.000		0.000		2.571	Mar 2024	-		2.571	0.000	2.571	-
SAWS Roadmap	C/FP	SPA : ARLINGTON, VA	0.000	0.150	Jun 2022	0.000		0.000		-		0.000	0.000	0.150	-
SubTDS SYSYTEM ENGINEERING	WR	NSWC : CORONA, CA	0.000	0.000		0.000		0.069	Dec 2023	-		0.069	0.000	0.069	-
		Subtotal	73.555	16.385		17.207		13.830		-		13.830	Continuing	Continuing	N/A

Remarks

FY24 will deliver, twenty (20) EDM-2 EQT, three (3) EDM-2T and ninety nine (99) to support ADC MK 5 developmental testing (DT).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101226N / *Submarine Acoustic War Dev*	Project (Number/Name) 1265 / *Sub Defensive Warfare*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	WR	NUWC : NEWPORT, RI	0.137	0.000		0.380	Dec 2022	0.844	Dec 2023	-		0.844	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	OPTEVFOR : NORFOLK, VA	0.000	0.000		0.000		0.052	Dec 2023	-		0.052	0.000	0.052	-
		Subtotal	0.137	0.000		0.380		0.896		-		0.896	Continuing	Continuing	N/A

Remarks

FY24 will perform Test Readiness Review (TRR) for EDM-2 and will begin DT on units delivered.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SAWS TRAVEL	WR	NAVSEA : Washington, DC	0.882	0.010	Oct 2021	0.040	Dec 2022	0.050	Dec 2023	-		0.050	Continuing	Continuing	Continuing
SubTDS PROGRAM MANAGEMENT SUPPORT	C/CPAF	TECH MARINE : Washington, DC	0.900	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
SubTDS PROGRAM MANAGEMENT SUPPORT	C/CPAF	BOOZ ALLEN : Washington, DC	2.369	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
SubTDS PROGRAM MANAGEMENT SUPPORT	C/CPAF	Synchron : Washington, DC	0.380	0.192	Jun 2022	0.290	Dec 2022	0.546	Dec 2023	-		0.546	Continuing	Continuing	Continuing
		Subtotal	4.531	0.202		0.330		0.596		-		0.596	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	78.223	16.587		17.917		15.322		-		15.322	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101226N / *Submarine Acoustic War Dev*	**Project (Number/Name)** 1265 / *Sub Defensive Warfare*

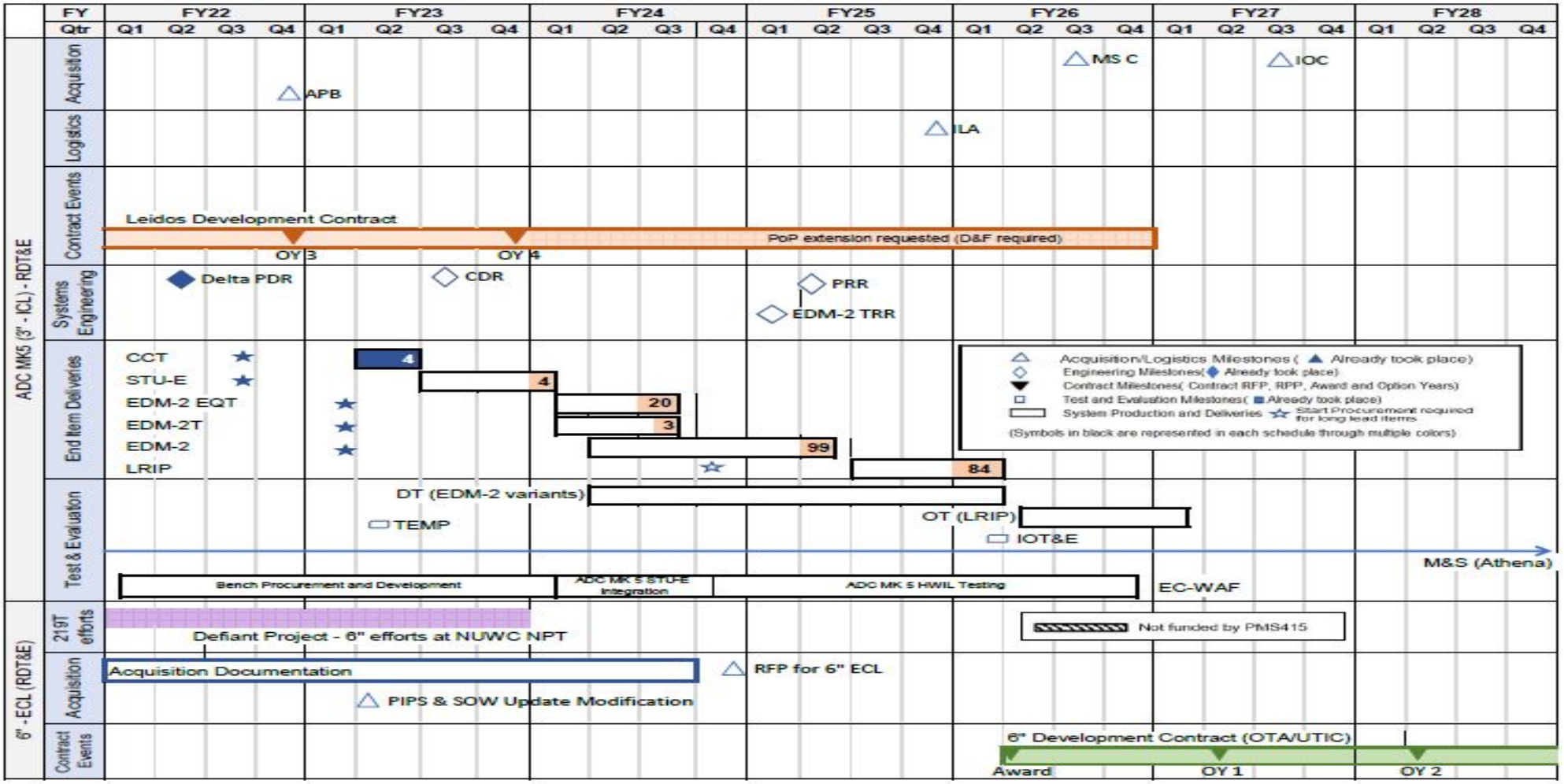


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101226N / *Submarine Acoustic War Dev*	**Project (Number/Name)** 1265 / *Sub Defensive Warfare*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 1265				
Schedule Detail	1	2022	1	2027
Weapons Analysis Facility (WAF): Countermeasure (CM) Effectiveness/Weapon Analysis Facility (WAF) Vulnerability	1	2022	4	2026
Submarine Torpedo Defense Systems (SubTDS): SubTDS M&S	1	2022	4	2025
Submarine Torpedo Defense Systems (SubTDS): TEMP Development	1	2022	4	2022
Submarine Torpedo Defense Systems (SubTDS): ADC MK5 5 PDR	1	2022	1	2022
Submarine Torpedo Defense Systems (SubTDS): ADC MK5 5 Delta PDR/IPR	2	2022	2	2022
Submarine Torpedo Defense Systems (SubTDS): ADC MK5 Critical Design Review (CDR)	3	2023	3	2023
Submarine Torpedo Defense Systems (SubTDS): EDM-2 Variant Production and Deliveries	1	2023	2	2025
Submarine Torpedo Defense Systems (SubTDS): DT (EDM-2 Variants)	1	2025	1	2026
Submarine Torpedo Defense Systems (SubTDS): LRIP Production and Deliveries	3	2025	1	2026
Submarine Torpedo Defense Systems (SubTDS): MS-C Decision Reviews	3	2026	3	2026
Submarine Torpedo Defense Systems (SubTDS): OT (LRIP)	3	2026	2	2027
Submarine Torpedo Defense Systems (SubTDS): ECL Development Start	1	2026	1	2026

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101226N / *Submarine Acoustic War Dev*	Project (Number/Name) 1267 / *Compact Rapid Attack Weapon (CRAW)*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
1267: *Compact Rapid Attack Weapon (CRAW)*	13.363	39.064	55.782	74.869	-	74.869	58.350	36.872	36.374	37.021	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Compact Rapid Attack Weapon (CRAW) Development Design

Compact Rapid Attack Weapon (CRAW) Development Design CRAW is a very lightweight torpedo that will have Anti-Submarine Warfare (ASW) and Anti-Torpedo Torpedo (ATT) capabilities. ONR began a follow-on FNC in FY20 to demonstrate the ability to modify a previous design for submarine integration and use as an ASW weapon via TEMPALT in FY24. PMS415 began a Rapid Prototyping (RP) Middle Tier Acquisition (MTA) in FY22 to transition the ONR FNC effort to a lasting Early Operational Capability via a SHIPALT in FY26. The ONR FNC and CRAW MTA program received forty (40) plus existing legacy hardware devices that will be updated for submarine integration and will be known as the CRAW TI-1 hardware baseline. The critical updates consist of integrating a new Safe and Arming (S&A) and Warhead (WH) design, and the development of Anti-Submarine Warfare (ASW) mission software. ARL/PSU will support the ONR FNC demonstration, the development of the CRAW TI-1 hardware and software updates, and the maturation of the design into a permanent capability through the RP MTA approach. Leveraging the existing legacy hardware devices and the long standing technological knowledge of PSU/ARL for designing, testing, and qualifying the CRAW device will enable the program to deliver the leave behind residual capability in FY26 as the TI-1/ASW Early Operational Capability (EOC). The program will then transition the RP MTA into a Major Capability Acquisition Program that will update the TI-1 baseline into a supportable and producible industry design that will be known as the TI-2 hardware baseline. PMS415 awarded a UTIC OTA contract in FY22 to Raytheon (Prime Contractor)that will work with ARL/PSU in FY23 to transfer knowledge and begin initial TI-2 baseline development. In FY24, The prime contractor will be developing the TI-2 hardware and procuring long lead material that will address obsolescence issues, develop the production line, improve manufacturing processes, stand-up the vendor base, and deliver TI-2 EDMs in support of completing qualification testing and integrated testing (IT). PMS415 intends to initiate the TI-2 program of record in mid to late FY23 as a post MS-B ACAT III program. The program is planning to reach MS-C in FY28.

Compact Rapid Attack Weapon (CRAW) Submarine Integration

Submarine integration of CRAW into the external countermeasure launcher (ECL) assembly requires upgrades to the combat systems in support of pre-planning and launch control of the CRAW, a new launch tube assembly that fits into the ECL, and ship alteration and modernization planning documents. This effort requires upgrades to the submarine combat system
as a part of the Submarine Federated and Warfare Tactical Systems (SWFTS) modernization cycle. The major components requiring hardware and software upgrades to support CRAW include the ECL assembly, BYG-1 combat system, and Common Weapon Launcher (CWL). The upgrades will come in two initial phases with a Temporary Alteration (TEMPALT) for the ONR FNC demonstration launch from a Virginia Class Submarine (VCS), and then a permanent Ship Alteration (SHIPALT) to TI-24 for VCS Blk III/IV hulls as a part of the Rapid Prototyping MTA. In addition, the necessary TEMPALT and SHIPALT documentation (e.g., design changes, safety reports, test reports, etc.) required for installation aboard a submarine will be developed. An integrated test program and operational testing with the Navy's Command Operational Test and Evaluation Force will be conducted after installation of the TI-24 SHIPALT.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101226N / *Submarine Acoustic War Dev*	**Project (Number/Name)** 1267 / *Compact Rapid Attack Weapon (CRAW)*

In FY2024 the program will have a fully approved TEMPALT data package and coordinate with ONR FNC to demonstrate the launch of a CRAW from an ECL on a submarine in FY24. This test will inform the final SHIPALT configuration needed for permanent integration and installation of CRAW on a submarine beginning in FY2026. The program will also continue development of upgrades necessary to support CRAW launch and control from the BYG-1 combat system. The program will also begin work with ONR on Revolver MP to enable CRAW launch and control via torpedo tubes. This has the potential to reduce IT/OT duration by enabling the launch of test CRAWs from the torpedo room and thereby minimizing the time consuming replacement and reloading of ECL assemblies (which must be accomplished pier side with crane support).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Compact Rapid Attack Weapon (CRAW) Development Design	34.300	44.878	66.989	0.000	66.989
Articles:	-	24	24	-	24
Description: Compact Rapid Attack Weapon (CRAW) development will transition the current ONR design effort into a Middle Tier Acquisition rapid prototyping POR. The CRAW vehicle design and technology will be matured to meet Submarine ASW and Torpedo Defense requirements, system safety and reliability qualification standards, device interface with ship system of system launchers and combat control and development of a technical data package that can be utilized for transition to TI-2 full-rate production.					
FY 2023 Plans: - Continue TI-1/ASW MTA Rapid Prototyping execution - Obtain Acquisition Decision Memorandum (ADM-2) approval for post Milestone B ACAT III program. - Begin OTA/UTIC TI-2 hardware development - Continue assembly of TI-1 CRAW devices - Conduct Preliminary Design Review for TI-2 - Continue design and development of manufacturing test equipment - Continue ASW SW testing - Begin development of ATT software - Begin Launch Tube Assembly builds for testing - Conduct in-water performance testing of ASW software - Continue development of Warhead design - Procure WH/S&A test articles for qualification - Continue execution of CRAW system safety program - Begin transition Multi Vehicle Torpedo Tube Deployment System (MVTTDS) to Revolver MP - Begin Submarine qualification of Revolver MP for live fire testing					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101226N / *Submarine Acoustic War Dev*	**Project (Number/Name)** 1267 / *Compact Rapid Attack Weapon (CRAW)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Continue development of program planning documents including Cyber Strategy, System Safety, Life Cycle Sustainment Plan, and Program Life Cycle Cost Estimate - Continue execution of CRAW system safety program - Begin Revolver MP transition					
FY 2024 Base Plans: - Continue TI-1/ASW MTA Rapid Prototyping execution - Continue OTA/UTIC TI-2 hardware development - Continue assembly of TI-1 CRAW devices - Conduct Critical Design Review of TI-2 - Continue design and development of manufacturing test equipment - Continue ASW SW testing - Continue development of ATT software - Continue Launch Tube Assembly builds for testing - Conduct in-water performance testing of ASW software - Continue development of Warhead design - Procure WH/S&A test articles for qualification - Begin WH/S&A Qualification testing - Continue execution of CRAW system safety program - Continue transition Multi Vehicle Torpedo Tube Deployment System (MVTTDS) to Revolver MP - Continue Submarine qualification of Revolver MP for live fire testing - Continue development of program planning documents including Cyber Strategy, System Safety, Life Cycle Sustainment Plan, and Program Life Cycle Cost Estimate - Conduct ONR FNC launch demonstration from a VA CL submarine - Continue execution of CRAW system safety program - Continue Revolver MP transition					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: FY 2023 to FY 2024 increased by $22.111 million for: - CRAW TI-1 modifications and assembly of the remaining twenty- four (24) TI-1 devices. - Increased development for the ATT software capability and initial testing.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101226N / *Submarine Acoustic War Dev*	**Project (Number/Name)** 1267 / *Compact Rapid Attack Weapon (CRAW)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Industry contractor development of the TI-2 hardware configurations. - Increased and continued development, in FY24, of the combat systems interfaces for submarine integration with CWL, and BYG-1 for supporting submarine TI-24 SHIPALT for early operational capability in FY26. - Systems engineering, Warhead development, and Systems Safety is increased in FY24 for supporting increased testing, qualification and analysis for SHIPALT packages, and submarine preparations for fielding.					
Title: Compact Rapid Attack Weapon (CRAW) Submarine Integration	4.764	10.904	7.880	0.000	7.880
Articles:	-	-	-	-	-
Description: Compact Rapid Attack Weapon (CRAW) platform design work and systems integration for submarines. This includes the engineering and design effort to modify submarine hardware systems, update the combat system, and create the necessary alteration documentation needed to integrate the CRAW capability onto a submarine.					
FY 2023 Plans: - Continue in-water testing of launch tube assembly - Finalize development of External Countermeasure Launcher (ECL) design changes - Increased work for tactics/submarine interface development of combat software (BYG-1) for TI-24 Virginia Class baseline - Advance integration of existing countermeasure set, acoustic (CSA) with Combat Weapons Launcher (CWL) - Expand Common Weapon Launcher simulator for increased migration of submarine launcher functionality - Deliver CWL prototype for Submarine demonstration launch in FY24 - Complete required drawing and training packages for fully approved TEMPALT package for Virginia Class sub					
FY 2024 Base Plans: - Complete in-water testing of launch tube assembly - Approved External Countermeasure Launcher (ECL) design changes - Increased work for tactics/submarine interface development of combat software (BYG-1) for TI-24 Virginia Class baseline - Continued integration of existing countermeasure set, acoustic (CSA) with Combat Weapons Launcher (CWL) - Continued Common Weapon Launcher simulator for increased migration of submarine launcher functionality - Install and conduct submarine launched demonstration					
FY 2024 OCO Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101226N / *Submarine Acoustic War Dev*	**Project (Number/Name)** 1267 / *Compact Rapid Attack Weapon (CRAW)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY 2023 to FY 2024 decreased by $3.024 million due to Combat Systems and External Countermeasure development and integration efforts for TI-24 fielding completing in FY25.					
Accomplishments/Planned Programs Subtotals	39.064	55.782	74.869	0.000	74.869

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• OPN/2210: *Submarine Acoustic Warfare System*	0.000	1.791	8.419	-	8.419	9.896	5.985	6.100	6.222	Continuing	Continuing

Remarks

OPN 2210 includes Submarine Torpedo Defense System (SubTDS) and CRAW. Funding profile shows CRAW equity only. In FY24, OPN funding will procure eight (8) Launch tube assemblies for integration with Virginia submarine External Countermeasure Launchers, one (1) Common Weapon Launcher (CWL) kit for a FY25 VA CL installation, initial Shipping containers for the warhead/CRAW devices/All-up round Launch tube assemblies, and material for Revolver MP.

D. Acquisition Strategy

The Office of Naval Research (ONR) developed the initial CRAW design to be a multi-platform and multi-mission weapon. The ONR FNC investment and demonstration is aligned to the POR Rapid prototyping approach to provide a common solution that will provide the design spiral for transitioning to the Production and Deployment Phase. CRAW is a very lightweight torpedo that will have Anti-Submarine Warfare (ASW) and Anti-Torpedo Torpedo (ATT) capabilities. ONR began a follow-on FNC in FY20 to demonstrate the ability to modify a previous design for submarine integration and use as an ASW weapon via TEMPALT in FY24. PMS415 began a Rapid Prototyping (RP) Middle Tier Acquisition (MTA) in FY22 to transition the ONR FNC effort to a lasting Early Operational Capability via a SHIPALT in FY26. The ONR FNC and CRAW MTA program received forty (40) plus existing legacy hardware devices that will be updated for submarine integration and will be known as the CRAW TI-1 hardware baseline. The critical updates consist of integrating a new Safe and Arming (S&A) and Warhead (WH) design and development of Anti-Submarine Warfare (ASW) mission software. PSU/ARL will support the ONR FNC demonstration, for the development of the CRAW TI-1 hardware and software, and for maturing the design into a permanent capability through the RP MTA approach. Leveraging the existing legacy hardware devices and the long standing technological knowledge of PSU/ARL for designing, testing, and qualifying the CRAW device will enable the program to deliver the leave behind residual capability in FY26 as the TI-1/ASW Early Operational Capability (EOC). The program will transition the RP MTA into a Major Capability Acquisition Program that will update the TI-1 baseline into a supportable and producible industry design that will be known as the TI-2 hardware baseline. PMS415 awarded a UTIC OTA contract in FY22 to a prime contractor that will work with ARL/PSU in FY23 to transfer knowledge and begin initial TI-2 baseline development. In FY24, The prime contractor will be developing the TI-2 hardware and procuring long lead material that will address obsolescence issues, develop the production line, improve manufacturing processes, stand-up the vendor base, and deliver TI-2 EDMs in support of future full-rate production. PMS415 intends to formally initiate the TI-2 program of record in FY23 as a post MS-B ACAT III program. The program is planning

to reach MS-C in FY28. In FY28, the qualified and tested TI-2 CRAW devices integrated with the full ASW/ATT capability will transition from MS-C into Low-Rate Initial Production (LRIP). Listed below are the major efforts and milestones that mature the CRAW capability from the ONR FNC/PMS 415 shared efforts (FY20-FY23) through transitioning the CRAW program of record to Production and Deployment:

ONR FNC/PMS415 shared effort (FY21-FY24)
ONR FNC efforts will complete and transition fully to PMS 415 CRAW POR with the submarine launched demonstration from a VA class boat. Planned activities include:
- Awarded a contract to PSU/ARL in Q3FY21 to complete the ONR FNC configuration in support of the ONR FNC Demonstration.
- Complete combat system integration efforts to support the TI-20 TEMPALT needed for the ONR FNC demonstration.
- Complete Launch Tube Assembly (LTA) prototype design baseline for demonstration
- Complete ASW SW baseline development for demonstration
- Complete Safe and Arm baseline development for demonstration
- Complete External Countermeasure Launcher changes required to support demonstration
- Platform identified to support 2024 install of TEMPALT for submarine launched demonstration

CRAW TI-1 MTA (FY22-FY26)
After CRAW TI-1 MTA establishment in FY22, the program began efforts to transition the ONR FNC CRAW HW configuration for delivering ASW operational capability to the fleet by EOC in FY26. Planned activities include:
- Began Rapid Prototyping (RP) in FY22
- Support the ONR FNC demonstration in FY24 and transfer technology to CRAW TI-1 MTA
- Complete CRAW TI-1 HW and ASW software development, integration, and testing
- Finalize and qualify the LTA design
- Develop a SHIPALT package to support EOC installations (mods to BYG-1 Combat System and CWL on VCS)
- Complete S&A device integration and testing
- Develop Warhead (WH) capability and complete integration and qualification by NSWC IHEOD

ARL/PSU will execute the rapid prototyping effort (RP) by modifying the legacy configuration devices to CRAW TI-1 HW configurations for submarine launch and ASW software baselines while completing the ONR FNC demonstration in FY24. The ONR FNC demo will utilize the prototype representative LTA configuration for use with the final CRAW TI-1 baseline configuration. This configuration will result in a final LTA TDP and support EOC in FY26 and transitioning TI-1 operational capability to VCS.

NSWC IHEOD will continue integration and testing with TI-1 HW and procure sufficient WH/S&A devices to begin qualification testing in FY24. After qualification testing is completed in FY25, NSWC IHEOD will be responsible for manufacturing the CRAW warhead for all CRAW configurations.

CRAW TI-2 (Post-MS B starting in FY23)

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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Beginning in FY23, the CRAW program will begin TI-2 hardware and ATT software development as a Major Capability Acquisition program for transitioning the full ASW/ATT operational capability. During this phase, the CRAW TI-2 HW production baseline will be developed by Raytheon (Prime Contractor) through an OTA/UTIC contract awarded in late FY22. As part of the Engineering and Manufacturing Development phase, the developer will design, build, test and deliver EDM's and stand-up the vendor base and production line to transition to Production and Deployment following a MS C decision in FY28. Operational Testing of the full TI-2/ASW/ATT capability will begin in FY29, and achieve Initial Operational Capability (IOC) in FY31. Planned activities include:
- Initiate CRAW TI-2 HW and ATT software development efforts in FY23
- Industry partner development of TI-2 hardware and build/deliver EDM's. Scope of work will include establishing a TI-2 hardware production baseline that resolves TI-1 obsolescence and enhances manufacturing methods
- Integrate a certified WH/S&A device
- Transition to initial production of the TI-2 production baseline configurations for device/system testing and qualification as a Launcher Assembly (LA)

The TI-2/ATT development will be accomplished by the prime Contractor through a five-year competitive UTIC OTA development contract awarded in FY22 to start transitioning the TI-1 baseline to the TI-2 production representative configuration. The Contractor will focus on addressing TI-1 hardware obsolescence, establishing the vendor base, improving manufacturing methods, and enabling the stand-up and establishment of a production line. Between FY25 to FY26, the Contractor will build and deliver eighteen (18) TI-2 CRAW devices and twenty-two (22) refurbishment kits for use in qualification testing, Developmental Testing (DT), Live Fire Test and Evaluation (LFT&E).

In addition, PSU/ARL will continue to be the design agent for all tactical software and build upon the ASW software baseline to develop the ATT software. The TI-2 production representative configuration will be baselined after integrating CRAW TI-2 device hardware with the ATT software baseline along with the previously developed and qualified ASW and Warhead/S&A.

CRAW Program Submarine Integration
PMS 415 and the CRAW program will be responsible for developing the Non-Tactical TEMPALT and SHIPALT work packages for coordinating installations with in-service ship programs during scheduled availabilities.

Initial submarine integration of combat control and ECL launch capability began under the ONR FNC and will continue in FY23 as part of rapid prototyping. Submarine integration of CRAW into the external countermeasure launcher (ECL) assembly requires upgrades to the combat systems in support of pre-planning and launch control of the CRAW, a new launch tube assembly that fits into the ECL, and ship alteration and modernization planning documents. This effort requires upgrades to the submarine combat systems as a part of the Submarine Federated and Warfare Tactical Systems (SWFTS) modernization cycle. The major components requiring hardware and software upgrades to support CRAW include the ECL assembly, BYG-1 combat system, and Common Weapon Launcher (CWL). The upgrades will come in two initial phases with a Temporary Alteration (TEMPALT) for ONR FNC demonstration launch from a Virginia Class Submarine (VCS) in FY24, and then a permanent Ship Alteration (SHIPALT) in TI-24 for VCS Blk III/IV via in-service modernization and Blk V New Construction class hulls. In addition, the necessary TEMPALT and SHIPALT documentation (e.g., design changes, safety reports, test reports, etc.) required for installation aboard a submarine will be developed. An integrated test program and operational testing with the Navy's Command Operational Test and Evaluation Force will be conducted post installation.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101226N / *Submarine Acoustic War Dev*	**Project (Number/Name)** 1267 / *Compact Rapid Attack Weapon (CRAW)*

In FY2023 the program will complete a TEMPALT data package and coordinate with ONR FNC to demonstrate the launch of a CRAW from an ECL on a submarine in FY24. This test will inform the final SHIPALT needed for early integration and install of CRAW on a submarine beginning in FY2026. The program will also continue development of upgrades necessary to support CRAW launch and control from the BYG-1 combat system.

Additionally, the Revolver MP transition will result in a TEMPALT package that will enable the launch testing of CRAW via the torpedo tubes during FY27 CRAW DT.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101226N / *Submarine Acoustic War Dev*	Project (Number/Name) 1267 / *Compact Rapid Attack Weapon (CRAW)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CRAW - ONR FNC System Engineering	WR	NUWC : Newport, RI	0.500	0.997	Dec 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
CRAW - ONR FNC Launch Tube Assembly	WR	Applied Research Laboratory Penn State University : State College, PA	1.700	2.786	Jan 2022	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
CRAW - Launch Tube Assembly	WR	Applied Research Laboratory Penn State University : State College, PA	0.000	0.000		2.830	Jan 2023	1.450	Dec 2023	-		1.450	0.000	4.280	-
Revolver	TBD	TBD : TBD	0.000	0.000		1.000	Jan 2023	2.500	Dec 2023	-		2.500	0.000	3.500	-
CRAW - Hardware Design (TI-1)	C/CPAF	Applied Research Laboratory Penn State University : State College, PA	1.500	1.525	Jan 2022	1.000	Jan 2023	1.500	Dec 2023	-		1.500	Continuing	Continuing	Continuing
CRAW - Engineering Development Models (TI-2)	C/CPFF	TBD : TBD	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
CRAW - Software Development	C/CPAF	Applied Research Laboratory Penn State University : State College, PA	0.000	2.350	Jan 2022	4.000	Jan 2023	6.470	Dec 2023	-		6.470	Continuing	Continuing	Continuing
CRAW - Safe and Arm Design / Development	WR	NSWC : Indian Head, MD	2.900	4.343	Dec 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
CRAW - Warhead Design Analysis	WR	NSWC : Indian Head, MD	0.000	5.100	Dec 2021	10.006	Dec 2022	8.620	Dec 2023	-		8.620	Continuing	Continuing	Continuing
CRAW - Systems Engineering (Requirements)	WR	NUWC : Newport, RI	1.050	1.485	Dec 2021	2.810	Dec 2022	3.220	Dec 2023	-		3.220	Continuing	Continuing	Continuing
CRAW - Systems Engineering (Safety)	WR	NSWC : Indian Head, MD	0.250	0.750	Dec 2021	1.350	Dec 2022	1.722	Dec 2023	-		1.722	Continuing	Continuing	Continuing
CRAW - Systems Engineering (Cyber)	WR	NUWC : Keyport, WA	0.196	0.486	Dec 2021	0.380	Dec 2022	0.450	Dec 2023	-		0.450	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101226N / *Submarine Acoustic War Dev*	**Project (Number/Name)** 1267 / *Compact Rapid Attack Weapon (CRAW)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CRAW - Systems Engineering (Integration)	WR	Applied Research Laboratory Penn State University : State College, PA	0.475	1.429	Dec 2021	1.500	Dec 2022	2.000	Dec 2023	-		2.000	Continuing	Continuing	Continuing
CRAW - Systems Engineering (Ship Design Manager	WR	NSWC : Carderock, MD	0.035	0.150	Dec 2021	0.870	Dec 2022	0.776	Dec 2023	-		0.776	Continuing	Continuing	Continuing
CRAW - Systems Engineering (Requirements)	C/CPFF	Amentum : Washington, DC	0.150	0.200	Dec 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
CRAW - Engineering Developmental Models (TI-1) Assembly	C/CPAF	Applied Research Laboratory Penn State University : State College, PA	0.000	1.286	Jan 2022	2.000	Jan 2023	1.500	Dec 2023	-		1.500	Continuing	Continuing	Continuing
CRAW - Modeling and Simulation	WR	NUWC : Newport, RI	0.000	1.786	Jan 2022	3.500	Dec 2022	2.760	Dec 2023	-		2.760	Continuing	Continuing	Continuing
CRAW - Engineering Development Models (TI-1) Assembly	C/CPFF	TBD : TBD	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
CRAW - Modeling and Simulation	C/CPFF	Applied Research Laboratory Penn State University : State College, PA	0.000	0.544	Jan 2022	0.400	Jan 2023	1.250	Dec 2023	-		1.250	Continuing	Continuing	Continuing
CRAW - Integrated Logistics Planning	WR	NUWC : Keyport, WA	0.000	0.770	Dec 2021	0.760	Dec 2022	1.250	Dec 2023	-		1.250	Continuing	Continuing	Continuing
CRAW - Integration - Ship Alteration Design	WR	NUWC : Newport, RI	0.500	1.475	Dec 2021	2.450	Dec 2022	1.728	Dec 2023	-		1.728	Continuing	Continuing	Continuing
CRAW - Manufacturing and Assembly Planning	C/CPFF	TBD : TBD	0.000	0.000		0.000	Mar 2023	0.000		-		0.000	0.000	0.000	-
CRAW - Integration - Combat System ECL Control	WR	NUWC : Keyport, WA	0.000	0.700	Dec 2021	0.350	Dec 2022	0.000		-		0.000	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101226N / *Submarine Acoustic War Dev*	Project (Number/Name) 1267 / *Compact Rapid Attack Weapon (CRAW)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CRAW - Integration - Combat Systems Integration	C/CPAF	Progeny : Washington, DC	0.400	2.387	Jan 2022	2.613	Jan 2023	0.830	Dec 2023	-		0.830	Continuing	Continuing	Continuing
CRAW Integration - Combat System Systems Engineering	WR	NUWC : Newport, RI	1.200	1.000	Dec 2021	2.250	Dec 2022	1.250	Dec 2023	-		1.250	Continuing	Continuing	Continuing
CRAW - Integration - CSA/ CWL development	C/CPAF	General Dynamics Electric Boat : Not Specified	1.500	0.610	Jan 2022	1.180	Jan 2023	1.500	Dec 2023	-		1.500	Continuing	Continuing	Continuing
CRAW - Hardware Design (TI-2)	C/CPFF	Raytheon : Newport, RI	0.000	2.000	Mar 2022	8.522	Mar 2023	24.000	Dec 2023	-		24.000	Continuing	Continuing	Continuing
		Subtotal	12.356	34.159		49.771		64.776		-		64.776	Continuing	Continuing	N/A

Remarks

FY2024 Product Development increase of $14.783M to CRAW TI-1 modifications and assembly of the twelve (12) TI-1 devices. Industry contractor development of the TI-2 hardware configurations. Increased development of the ATT software capability and initial testing. Additionally in FY24, increased and continued development of the of the combat systems interfaces for submarine integration with CWL, and BYG-1 for supporting submarine TI-24 SHIPALT for early operational capability in FY26. Systems engineering, Warhead development, and Systems Safety increased in FY24 for supporting increased testing, qualification and analysis for SHIPALT packages, and submarine preparations for fielding. Revolver - Multi Payload (MP) Transitions from ONR to PMS 415 in FY24 for beginning submarine integration and initial fielding.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	NUWC : Keyport, RI	0.075	0.500	Dec 2021	1.161	Dec 2022	2.150	Dec 2023	-		2.150	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	COMPOTEVFOR : Norfolk, VA	0.000	0.250	Dec 2021	0.250	Dec 2022	0.500	Dec 2023	-		0.500	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	NUWC : Keyport, WA	0.550	1.700	Dec 2021	1.600	Dec 2022	3.443	Dec 2023	-		3.443	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	C/CPFF	Applied Research Laboratory Penn	0.000	1.000	Jan 2022	1.500	Jan 2023	2.150	Dec 2023	-		2.150	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101226N / *Submarine Acoustic War Dev*	**Project (Number/Name)** 1267 / *Compact Rapid Attack Weapon (CRAW)*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		State University : State College, PA													
		Subtotal	0.625	3.450		4.511		8.243		-		8.243	Continuing	Continuing	N/A

Remarks

In FY2024 there is an increase of $3.732M to support additional hardware and software developmental testing of TI-1 and TI-2.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CRAW - Program Management Support	C/CPAF	Booz Allen Hamilton : Washington, DC	0.375	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
CRAW Travel	WR	NAVSEA : Washington, DC	0.007	0.050	Dec 2021	0.100	Dec 2022	0.200	Dec 2023	-		0.200	Continuing	Continuing	Continuing
CRAW - Program Management Support	C/CPAF	Synchron : Washington, DC	0.000	1.405	Jan 2022	1.400	Jan 2023	1.650	Dec 2023	-		1.650	Continuing	Continuing	Continuing
		Subtotal	0.382	1.455		1.500		1.850		-		1.850	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	13.363	39.064		55.782		74.869		-		74.869	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101226N / *Submarine Acoustic War Dev*	**Project (Number/Name)** 1267 / *Compact Rapid Attack Weapon (CRAW)*

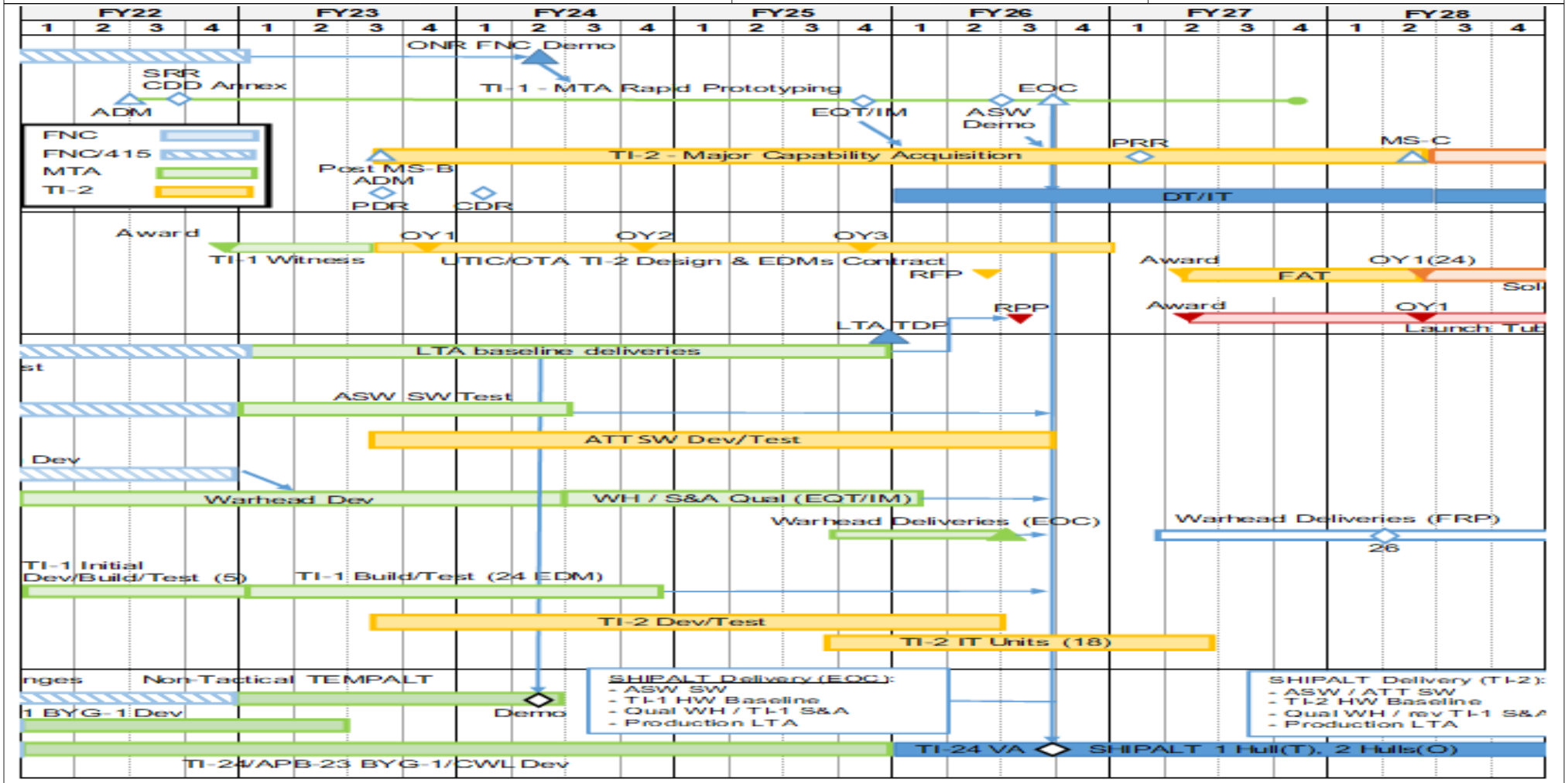


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101226N / *Submarine Acoustic War Dev*	**Project (Number/Name)** 1267 / *Compact Rapid Attack Weapon (CRAW)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 1267				
REQUIREMENTS: SubTDS Capabilities Development Document (CDD) CRAW ANNEX Approval	2	2022	4	2023
AQUISITION MILESTONES: Rapid Prototyping (RP) Acquisition Decision Memorandum (ADM)	3	2022	3	2022
AQUISITION MILESTONES: Early Operational Capability (EOC)	3	2026	4	2026
AQUISITION MILESTONES: Milestone C (MS/C)	2	2028	4	2028
MAJOR CONTRACT EVENTS: UTIC / OTA TI-1 Knowledge Transfer Build-Up	3	2022	3	2023
MAJOR CONTRACT EVENTS: UTIC / OTA TI-2 Design & EDMs Contract	2	2023	4	2026
MAJOR CONTRACT EVENTS: TI-2 Production Contract Request for Proposal (RFP)	2	2026	2	2026
MAJOR CONTRACT EVENTS: TI-2 Production Contract: Award	2	2027	2	2027
MAJOR CONTRACT EVENTS: Launch Tube Assembly FoS Contract: Request for Proposal (RFP)	2	2026	2	2026
MAJOR CONTRACT EVENTS: Launch Tube Assembly FoS Contract: Award	2	2027	2	2027
SYSTEMS ENGINEERING: System Requirements Review (SRR)	4	2022	4	2022
SYSTEMS ENGINEERING: Preliminary Design Review (PDR)	3	2023	4	2023
SYSTEMS ENGINEERING: Critical Design Review (CDR)	1	2024	3	2024
SYSTEMS ENGINEERING: Environmental Qualification Test/ Insensitive Munitions Test Readiness Review (EQT/IM TRR)	2	2024	1	2026
SYSTEMS ENGINEERING: Operational Test (OT) Unit Build	4	2027	4	2027
SYSTEMS ENGINEERING: Production Readiness Review (PRR)	2	2027	2	2027
CRAW DEVELOPMENT & PRODUCTION: Anti-Surface Warfare (ASW) Dev/Test	1	2022	2	2024
CRAW DEVELOPMENT & PRODUCTION: Anti-Torpedo (ATT) Dev/Test	3	2023	4	2026

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101226N / *Submarine Acoustic War Dev*	**Project (Number/Name)** 1267 / *Compact Rapid Attack Weapon (CRAW)*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
CRAW DEVELOPMENT & PRODUCTION: Technical Insertion-1 Dev/Test/Build (24 Engineering Development Model (EDM)	1	2023	4	2024
CRAW DEVELOPMENT & PRODUCTION: Technical Insertion-2 Dev/Test	3	2023	3	2026
CRAW DEVELOPMENT & PRODUCTION: Technical Insertion-2 Engineering Development Model (EDM) Build	3	2025	3	2027
CRAW DEVELOPMENT & PRODUCTION: S&A Dev	1	2022	4	2023
CRAW DEVELOPMENT & PRODUCTION: Warhead Development	1	2022	3	2024
CRAW DEVELOPMENT & PRODUCTION: Warhead Lot 1 (26)	4	2027	4	2027
CRAW DEVELOPMENT & PRODUCTION: Production Line Development	2	2027	4	2027
TEST & EVALUATION (VCS TI-20 TEMPALT): Dev CC / External Countermeasure Launcher (ECL) Changes	1	2022	4	2024
TEST & EVALUATION (VCS TI-20 TEMPALT): Dev PCS/BYG-1 Changes	1	2022	4	2024
TEST & EVALUATION (VCS TI-20 TEMPALT): Advanced Processor Build (APB)-21 / Technical Insertion-20 BYG-1 Dev Demo	2	2023	2	2024
TEST & EVALUATION (VCS TI-24 SHIPALT): Advanced Processor Build-23 / Technical Insertion-24 BYG-1 / CWL Dev	1	2022	4	2025
TEST & EVALUATION (VCS TI-24 SHIPALT): VIRGINIA Ship Alteration (SHIPALT)	2	2026	4	2027
S&T EFFORTS - Future Naval Capability (FNC): Submarine Demo	1	2024	3	2024

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101226N / *Submarine Acoustic War Dev*	Project (Number/Name) 1268 / *Non-Traditional Acoustic Communications (NTAC)*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
1268: *Non-Traditional Acoustic Communications (NTAC)*	3.297	2.994	2.538	2.678	-	2.678	2.702	2.757	2.813	2.870	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Non-Traditional Acoustic Communications (NTAC) is a software based solution that leverages existing hardware components on target platforms, including submarines. The NTAC program is responsible for establishing formal program requirements, supporting installation of NTAC software on various platforms, and upgrading the software to support new hardware to improve NTAC performance. The new software capability is referred to as "NTAC software delivery package."

Additional details are available at the classified level.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Non-Traditional Acoustic Communications (NTAC)	2.994	2.538	2.678	0.000	2.678
Articles:	-	-	-	-	-
Description: Non-Traditional Acoustic Communications (NTAC) This capability provides advanced undersea acoustic communications. Additional details can be provided at the classified level. This program will build upon the baseline NTAC capability and integrate it into new hardware to expand the capability effectiveness and reliability. ***FY 2023 Plans:*** Complete ARCI Integration Complete advanced transmission capability integration Complete improved transmit and receive software build ***FY 2024 Base Plans:*** - Upgrade user interface - Incorporate system automation - Improve tactical decision aides - Improve reliability, security, and interoperability of system ***FY 2024 OCO Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101226N / *Submarine Acoustic War Dev*	**Project (Number/Name)** 1268 / *Non-Traditional Acoustic Communications (NTAC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY 2023 to FY 2024 increased by $0.140 million due to inflation and working capital fund adjustments.					
Accomplishments/Planned Programs Subtotals	2.994	2.538	2.678	0.000	2.678

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

NTAC is a Government developed software application that integrates into other system components. NUWC Newport will continue to do the software development and hardware integration required to enhance the NTAC capability. In Fiscal Year (FY) 2021, the program began documenting top level requirements, system level requirements, and concepts of operation for fleet integration. In addition, the program began evaluating a new approach to integrating NTAC on submarines and conducted the necessary studies and requirements development to complete preliminary design of the NTAC software development package.

In FY22, the program continued detailed design of the NTAC software development package and conducted developmental testing of the advanced transmission capability, that meets the criteria of the top level and system level requirements developed in FY21. Additionally, NTAC began integration into ARCI. In FY23, the program will complete necessary testing on the advanced transmission capability and will prepare its software development package for integration into various nodes.

Starting in FY24, continue spiral designs of the program's transmit and receive software will be conducted. These improvements will increase reliability, interoperability as well as reduce security vulnerabilities. Additionally, NTAC aims to integrate into existing tactical decision aid interfaces. The NTAC software operator interface will continue to be improved reducing the chances of human error and lessening the manpower demand.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101226N / *Submarine Acoustic War Dev*	Project (Number/Name) 1268 / *Non-Traditional Acoustic Communications (NTAC)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NTAC - Systems Engineering	WR	NUWC : Newport, RI	0.984	0.233	Jan 2022	0.258	Jan 2023	2.338	Nov 2023	-		2.338	Continuing	Continuing	Continuing
NTAC - Software Development	WR	NUWC : Newport, RI	0.984	2.618	Jan 2022	2.145	Jan 2023	0.000		-		0.000	0.000	5.747	-
NTAC - Fleet Data Analysis	C/CPAF	NTT : Not Specified	0.752	0.000		0.000		0.000		-		0.000	0.000	0.752	-
NTAC - Tactical Decision Aid	WR	NUWC : Newport, RI	0.320	0.000		0.000		0.225	Nov 2023	-		0.225	0.000	0.545	-
		Subtotal	3.040	2.851		2.403		2.563		-		2.563	Continuing	Continuing	N/A

Remarks

FY24 continues design efforts and developmental testing.

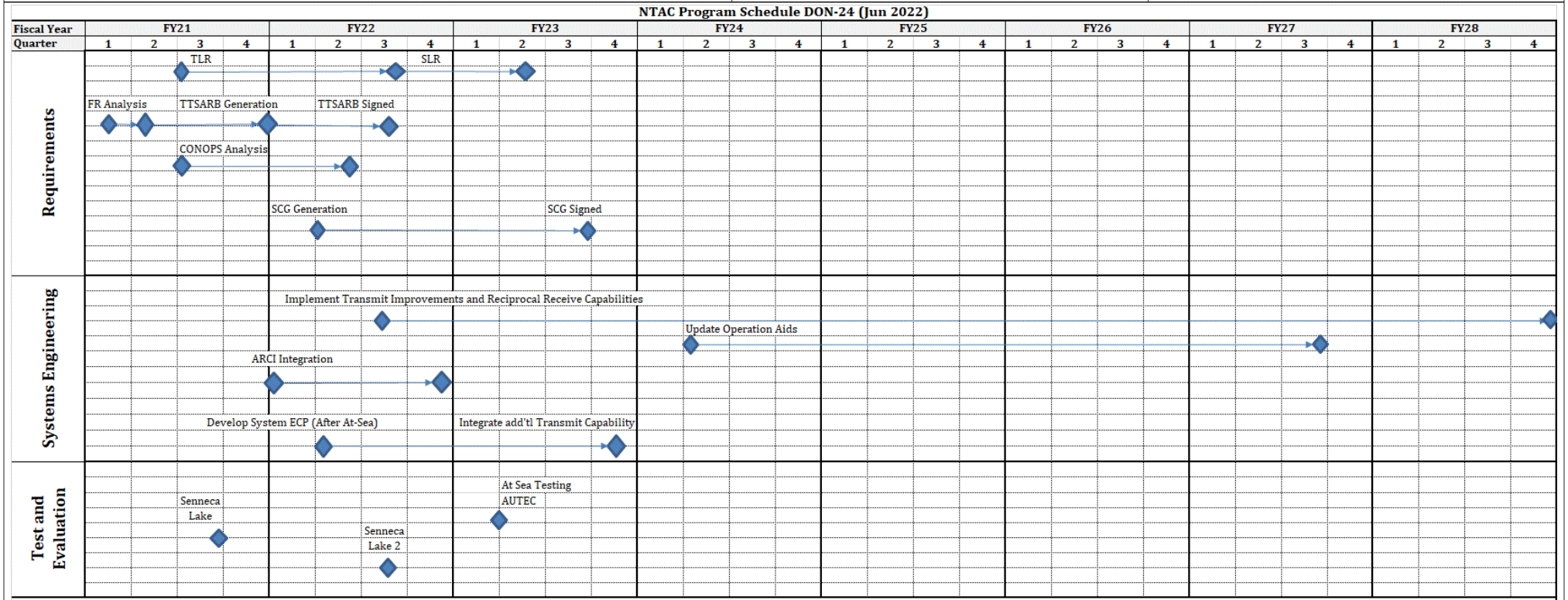
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NTAC - Program Management Support	C/CPAF	Booz Allen Hamilton : Washington, DC	0.250	0.000		0.000		0.000		-		0.000	0.000	0.250	-
NTAC - Travel	WR	NAVSEA : Washington, DC	0.007	0.051	Jan 2022	0.051	Jan 2023	0.025	Jan 2024	-		0.025	0.000	0.134	-
NTAC - Program Management Support	C/CPAF	Synchron : Washington, DC	0.000	0.092	Jan 2022	0.084	Jan 2023	0.090	Jan 2024	-		0.090	0.000	0.266	-
		Subtotal	0.257	0.143		0.135		0.115		-		0.115	0.000	0.650	N/A

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	3.297	2.994		2.538		2.678		-		2.678	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101226N / *Submarine Acoustic War Dev*	**Project (Number/Name)** 1268 / *Non-Traditional Acoustic Communications (NTAC)*



Abbreviation Definitions

ADM	Acquisition Memorandum Decision	EQT	Environmental Qualification Test	PDR	Preliminary Design Review	TI	Technical Insertion
APB	Advanced Processor Build	FNC	Future Naval Capability	PRR	Production Readiness Review	VCS	Virginia Class Submarine
ASW	Anti-Submarine Warfare	FoS	Family of Systems	RFP	Request for Proposal		
ATT	Anti-Torpedo Torpedo	FRP	Full Rate Production	RPP	Request for Prototype Proposal		
CDD	Capabilities Development Document	IOC	Initial Operational Capability	S&A	Safe & Arm		
CDR	Critical Design Review	IM	Insensitive Munitions	SCO	Strategic Capabilities Office		
CRAW	Compact Rapid Attack Weapon	IT	Integrated Test	SHIPALT	Ship Alteration		
CSA	Countermeasusre System Acoustic	LLTM	Long Lead Time Material	SRR	System Requirements Review		
DT	Development Test	LRIP	Low Rate Initial Production	SW	Software		
ECL	External Countermeasure Launcher	OT	Operational Test	TEMPALT	Temporary Alteration		
EDM	Engineering Development Model	OTA	Other Transaction Authority	TRR	Test Readiness Review		
EOC	Early Operational Capability	OY	Option Year	UTIC	Undersea Technology Innovation Consortum		

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101226N / *Submarine Acoustic War Dev*	**Project (Number/Name)** 1268 / *Non-Traditional Acoustic Communications (NTAC)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 1268				
Top Level Requirements Development	1	2022	2	2023
CONOPS/CONEMPS Analysis	1	2022	2	2022
TTSARB Signed	3	2022	3	2022
System Level Requirements Development	3	2023	4	2024
Requirements: SCG Generation	2	2022	2	2023
Requirements: SCG Signature	3	2023	3	2023
System Engineering: Advanced Capability Integration	1	2022	4	2023
System Engineering: Improve Transmit/Receive Capabilities	3	2022	4	2028
System Engineering: Operation Aids	2	2024	3	2027
System Engineering: ARCI Integration	1	2022	4	2022
Test and Evaluation: Seneca Lake Testing	1	2022	4	2022
Test and Evaluation: At-Sea Testing	1	2023	2	2023

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101226N / *Submarine Acoustic War Dev*	Project (Number/Name) 9999 / *Congressional Adds*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
9999: *Congressional Adds*	0.000	0.000	5.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	5.000
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Revolver Multi-Payload (MP) is a program that transitions the ONR Multi-Vehicle Torpedo Tube Defense System (MVTTDS) in order to facilitate launching of multiple payloads from the VIRGINIA Class Torpedo Tubes. CRAW will be the first payload integrated for use with the Revolver MP production baseline. While CRAW will be the initial payload integrated with Revolver MP, additional payloads will continue to be integrated.

Project C911: Congressional Add ($5.000M) - Integration of four-tube launch system.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023
Congressional Add: Integration of four-tube launch system	0.000	5.000
FY 2022 Accomplishments: N/A		
FY 2023 Plans: Integration of Multi-vehicle Torpedo Tube Delivery System (MVTTDS) into submarine combat system. Integration includes MVTTDS and Common Weapon Launcher (CWL) and Payload Control System integration (PCS) mods.		
Congressional Adds Subtotals	0.000	5.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Single year congressional funding to support four-tube launch system.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101226N / *Submarine Acoustic War Dev*	Project (Number/Name) 9999 / *Congressional Adds*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development	C/CPAF	Progeny : Washington, DC	0.000	0.000		3.550	Apr 2023	0.000		-		0.000	0.000	3.550	-
Systems Engineering	C/CPAF	Applied Research Laboratory Penn State University : State College, PA	0.000	0.000		0.700	Apr 2023	0.000		-		0.000	0.000	0.700	-
Safety Analysis	WR	NUWC Newport, : Newport, RI	0.000	0.000		0.250	Apr 2023	0.000		-		0.000	0.000	0.250	-
		Subtotal	0.000	0.000		4.500		0.000		-		0.000	0.000	4.500	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	TBD	Progeny : Washington, DC	0.000	0.000		0.500	Apr 2023	0.000		-		0.000	0.000	0.500	-
		Subtotal	0.000	0.000		0.500		0.000		-		0.000	0.000	0.500	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		5.000		0.000		-		0.000	0.000	5.000	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101226N / *Submarine Acoustic War Dev*	**Project (Number/Name)** 9999 / *Congressional Adds*

	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	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																												
Congressional Adds: Project C911 Integration of four-tube launch System									[redacted]																			

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101226N / *Submarine Acoustic War Dev*	**Project (Number/Name)** 9999 / *Congressional Adds*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 9999				
Congressional Adds: Project C911 Integration of four-tube launch System	2	2023	4	2024

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy												Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0101402N *I Navy Strategic Comms*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	588.725	34.474	49.424	51.919	-	51.919	27.334	28.857	28.942	29.516	Continuing	Continuing
1083: *Shore To Ship Com System*	300.314	30.953	40.642	42.910	-	42.910	23.265	24.714	24.733	25.223	Continuing	Continuing
3002: *Navy Strategic Comm Project*	288.411	3.521	8.782	9.009	-	9.009	4.069	4.143	4.209	4.293	Continuing	Continuing

Note

Beginning in FY22 efforts previously funded under PU 2959 were transferred to PE 0605180N Project Unit 3259.

A. Mission Description and Budget Item Justification

The details of program element 0101402N Project 1083 are classified UNCLASSIFIED//FOUO and are submitted to Congress in the classified budget justification books. Special Handling Statement: This exhibit contains NC3-N Controlled Unclassified Information (CUI). UNCLASSIFIED//FOUO material within shall be developed, stored, and transmitted on classified networks in accordance with SPAWAR ltr 5510 Ser 00/245 19 April 2018.

Project 3002:The E-6 is a manned airborne platform that provides survivable, endurable and reliable Command, Control and Communications capability in support of the President, Secretary of Defense and United States strategic and non-strategic forces. In order to respond effectively to emerging capability requirements, continued effort is needed to perform technical evaluations, modeling and simulation, investigative ground and flight testing, enhanced software modifications and development of configuration modifications. Funding is for operational mission analysis and hardware/software engineering required to optimize E-6 systems for cyber security and interoperability in a strategic environment.

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	35.451	49.424	44.600	-	44.600
Current President's Budget	34.474	49.424	51.919	-	51.919
Total Adjustments	-0.977	0.000	7.319	-	7.319
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.977	0.000			
• Program Adjustments	0.000	0.000	1.799	-	1.799
• Rate/Misc Adjustments	0.000	0.000	5.520	-	5.520

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0101402N *I Navy Strategic Comms*

Change Summary Explanation

The details of program element 0101402N Project 1083 are classified and are submitted to Congress in the classified budget justification books.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101402N / *Navy Strategic Comms*	Project (Number/Name) 1083 / *Shore To Ship Com System*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
1083: *Shore To Ship Com System*	300.314	30.953	40.642	42.910	-	42.910	23.265	24.714	24.733	25.223	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The details of program element 0101402N Project 1083 are classified and are submitted to Congress in the classified budget justification books.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Shore To Ship Com System	30.953	40.642	42.910	0.000	42.910
Articles:	-	-	-	-	-
FY 2023 Plans: The details of program element 0101402N Project 1083 are classified and are submitted to Congress in the classified budget justification books.					
FY 2024 Base Plans: N/A					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: The details of program element 0101402N Project 1083 are classified and are submitted to Congress in the classified budget justification books.					
Accomplishments/Planned Programs Subtotals	30.953	40.642	42.910	0.000	42.910

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• OPN/3107: *Submarine Broadcast Support*	47.579	91.150	73.213	-	73.213	67.431	66.150	44.342	45.178	Continuing	Continuing

Remarks

D. Acquisition Strategy

The details of program element 0101402N Project 1083 are classified and are submitted to Congress in the classified budget justification books.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101402N / *Navy Strategic Comms*	**Project (Number/Name)** 1083 / *Shore To Ship Com System*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Classified	Various	Not Specified : Not Specified	141.335	12.058	Nov 2021	19.414	Nov 2022	15.467	Nov 2023	-		15.467	Continuing	Continuing	Continuing
		Subtotal	141.335	12.058		19.414		15.467		-		15.467	Continuing	Continuing	N/A

Remarks

The details of program element 0101402N Project 1083 are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Classified	Various	Not Specified : Not Specified	49.748	5.181	Nov 2021	6.019	Nov 2022	12.781	Nov 2023	-		12.781	Continuing	Continuing	Continuing
		Subtotal	49.748	5.181		6.019		12.781		-		12.781	Continuing	Continuing	N/A

Remarks

The details of program element 0101402N Project 1083 are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation (OT&E)	Various	Not Specified : Not Specified	89.520	12.459	Nov 2021	13.650	Nov 2022	12.408	Nov 2023	-		12.408	Continuing	Continuing	Continuing
		Subtotal	89.520	12.459		13.650		12.408		-		12.408	Continuing	Continuing	N/A

Remarks

The details of program element 0101402N Project 1083 are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101402N / *Navy Strategic Comms*	Project (Number/Name) 1083 / *Shore To Ship Com System*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Classified	Various	Not Specified : Not Specified	19.711	1.255	Nov 2021	1.559	Nov 2022	2.254	Nov 2023	-		2.254	Continuing	Continuing	Continuing
		Subtotal	19.711	1.255		1.559		2.254		-		2.254	Continuing	Continuing	N/A

Remarks

The details of program element 0101402N Project 1083 are classified SECRET//NOFORN and are submitted to Congress in the classified budget justification books.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	300.314	30.953		40.642		42.910		-		42.910	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101402N / *Navy Strategic Comms*	**Project (Number/Name)** 1083 / *Shore To Ship Com System*

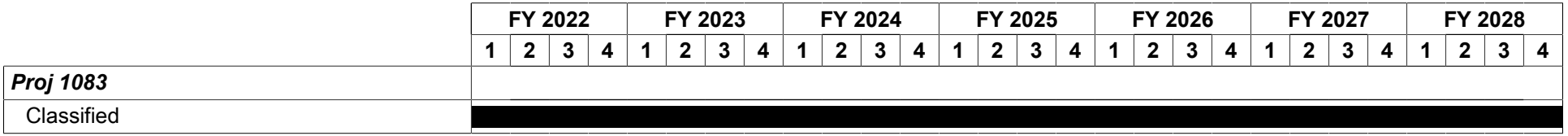


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101402N / *Navy Strategic Comms*	**Project (Number/Name)** 1083 / *Shore To Ship Com System*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 1083				
Classified	1	2022	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy										Date: March 2023		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0101402N / *Navy Strategic Comms*				Project (Number/Name) 3002 / *Navy Strategic Comm Project*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
3002: *Navy Strategic Comm Project*	288.411	3.521	8.782	9.009	-	9.009	4.069	4.143	4.209	4.293	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The E-6 is a manned airborne platform that provides survivable, endurable and reliable Command, Control and Communications capability, in support of the President, Secretary Of Defense and United States strategic and non-strategic forces. In order to respond effectively to emerging capability requirements, continued effort is needed to prototype, integrate, and demonstrate compatible communications, in support of interoperability with other Enterprise assets. Additional required efforts include performing technical assessments, Evaluations, Modeling and Simulation, investigative ground and flight testing, and enhanced software modifications and development of configuration modifications. Funding is for operational mission analysis, prototyping and integration for demonstration, and the hardware/software engineering required to optimize E-6 systems for effective cyber security and interoperability in a strategic environment.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Operational System Development, Studies and Demonstrations	3.521	8.782	9.009	0.000	9.009
Articles:	-	-	-	-	-
FY 2023 Plans: Perform operational mission analyses and conduct advanced simulations, modeling, prototyping, integrations and demonstrations, using the E-6B Systems Integration Laboratory (SIL) and contractor assets to address system obsolescence and research potential upgrades. Additional plans include researching and ensuring Cyber Security software improvements and interoperability of the E-6B platform.					
FY 2024 Base Plans: Perform operational mission analyses and conduct advanced simulations, modeling, prototyping, integrations and demonstrations, using the E-6B Systems Integration Laboratory (SIL) and contractor assets to address system obsolescence and research potential upgrades. Additional plans include researching and ensuring Cyber Security software improvements and interoperability of the E-6B platform.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: Funds increased $.227M due to increase in research and integrate additional cyber security upgrades, studies and analysis efforts and cyber management support.					
Accomplishments/Planned Programs Subtotals	3.521	8.782	9.009	0.000	9.009

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101402N / *Navy Strategic Comms*	**Project (Number/Name)** 3002 / *Navy Strategic Comm Project*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• APN/0564: *E-6 Series*	113.247	129.049	164.571	-	164.571	143.124	133.862	136.454	139.675	105.954	3,240.019

Remarks

D. Acquisition Strategy

Research, Development, Test & Evaluation, Navy (RDT&E,N) Project Unit 3002 funds continuing efforts to perform technical evaluations, modeling & simulation and investigative ground and flight testing. Aircraft Procurement, Navy, Modification of Aircraft (APN-5) funds integration, procurement and installation of aircraft modifications.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101402N / *Navy Strategic Comms*	Project (Number/Name) 3002 / *Navy Strategic Comm Project*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Production Development no longer funded in the FYDP	Various	Various : Various	195.224	0.000		0.000		0.000		-		0.000	0.000	195.224	-
Production Development	Various	Various : Various	1.436	0.549	Nov 2021	5.671	Nov 2022	5.816	Nov 2023	-		5.816	0.000	13.472	-
		Subtotal	196.660	0.549		5.671		5.816		-		5.816	0.000	208.696	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Studies & Analyses	Various	Various: : Various	10.732	0.180	Nov 2021	0.184	Nov 2022	0.187	Nov 2023	-		0.187	Continuing	Continuing	Continuing
E-6B Recapitalization Analysis of Alternatives	Various	Various : Various	5.937	0.000		0.000		0.000		-		0.000	0.000	5.937	-
Studies & Analyses	C/CPFF	John Hopkins Universtiy (JHU) : Laurel, Maryland	3.771	1.900	Nov 2021	2.028	Nov 2022	2.069	Nov 2023	-		2.069	Continuing	Continuing	Continuing
		Subtotal	20.440	2.080		2.212		2.256		-		2.256	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Operational Test & Evaluation Not Funded FYDP (PYOT&E)	Various	Various : Various	6.461	0.000		0.000		0.000		-		0.000	0.000	6.461	-
		Subtotal	6.461	0.000		0.000		0.000		-		0.000	0.000	6.461	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0101402N / *Navy Strategic Comms*	Project (Number/Name) 3002 / *Navy Strategic Comm Project*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	Various	Various : various	14.950	0.342	Nov 2021	0.342	Nov 2022	0.359	Nov 2023	-		0.359	Continuing	Continuing	Continuing
Governmental Support	Various	Various : various	36.025	0.370	Nov 2021	0.377	Nov 2022	0.395	Nov 2023	-		0.395	Continuing	Continuing	Continuing
Travel	WR	NAVAIR HQ : Patuxent River, MD	3.277	0.180	Oct 2021	0.180	Oct 2022	0.183	Nov 2023	-		0.183	Continuing	Continuing	Continuing
Prior Year Management cost no longer funded in the FYDP	Various	Various : Various	10.598	0.000		0.000		0.000		-		0.000	0.000	10.598	-
		Subtotal	64.850	0.892		0.899		0.937		-		0.937	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	288.411	3.521		8.782		9.009		-		9.009	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101402N / *Navy Strategic Comms*	**Project (Number/Name)** 3002 / *Navy Strategic Comm Project*

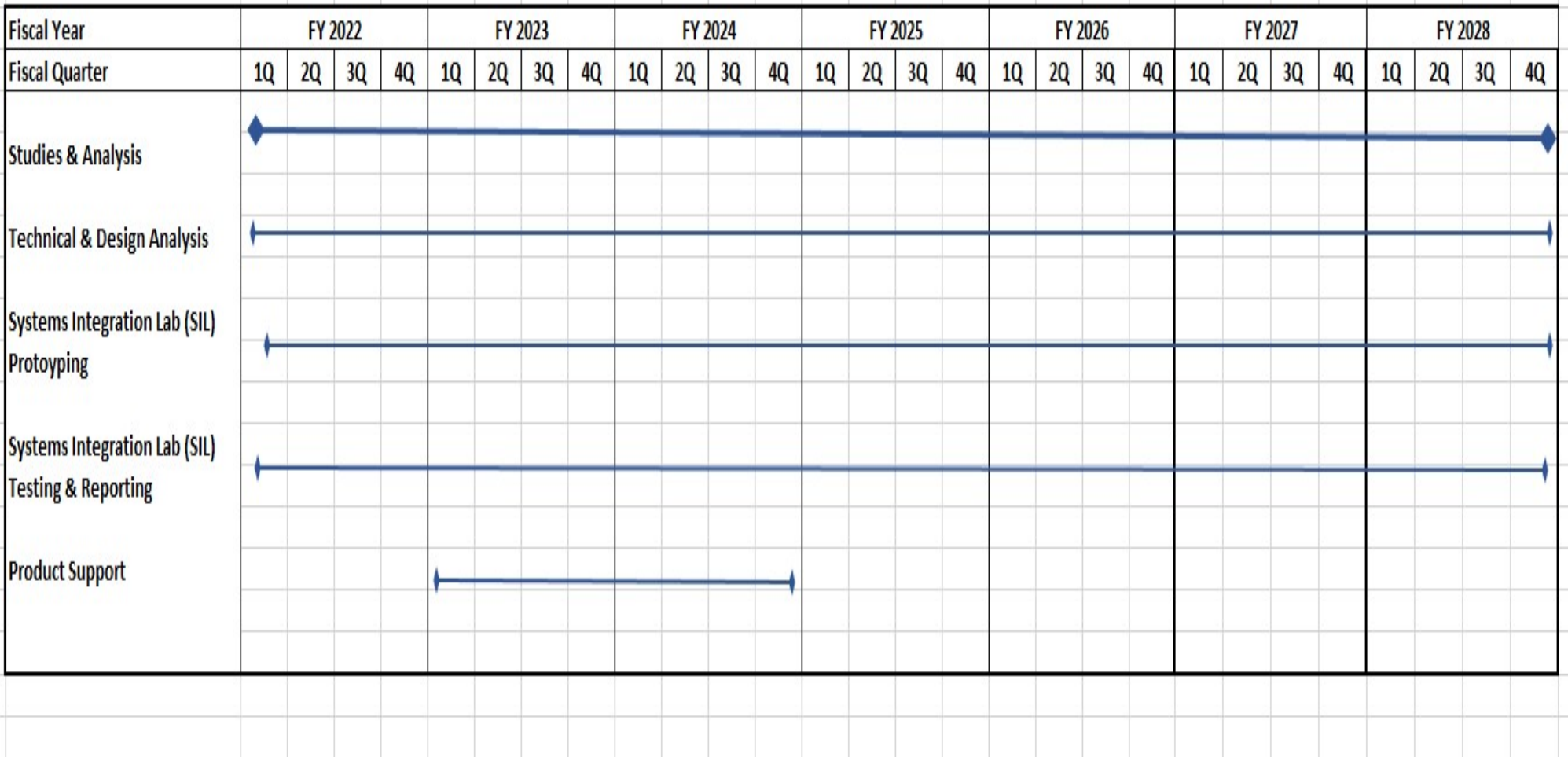


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101402N / *Navy Strategic Comms*	**Project (Number/Name)** 3002 / *Navy Strategic Comm Project*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3002				
Advanced Development: Studies & Analysis: Studies & Analysis	1	2022	4	2028
Advanced Development: Technical & Design Analysis: Technical & Design Analysis (FY22)	1	2022	4	2022
Advanced Development: Technical & Design Analysis: Technical & Design Analysis (FY23)	1	2023	4	2023
Advanced Development: Technical & Design Analysis: Technical & Design Analysis (FY24)	1	2024	4	2024
Advanced Development: Technical & Design Analysis: Technical & Design Analysis (FY25)	1	2025	4	2025
Advanced Development: Technical & Design Analysis: Technical & Design Analysis (FY26)	1	2026	4	2026
Advanced Development: Technical & Design Analysis: Technical & Design Analysis (FY27)	1	2027	4	2027
Advanced Development: Technical & Design Analysis: Technical & Design Analysis (FY28)	1	2028	4	2028
Advanced Development: Systems Integration Lab (SIL) Prototyping: Systems Integration Lab (SIL) Prototyping (FY22)	1	2022	4	2022
Advanced Development: Systems Integration Lab (SIL) Prototyping: Systems Integration Lab (SIL) Prototyping (FY23)	1	2023	4	2023
Advanced Development: Systems Integration Lab (SIL) Prototyping: Systems Integration Lab (SIL) Prototyping (FY24)	1	2024	4	2024
Advanced Development: Systems Integration Lab (SIL) Prototyping: Systems Integration Lab (SIL) Prototyping (FY25)	1	2025	4	2025
Advanced Development: Systems Integration Lab (SIL) Prototyping: Systems Integration Lab (SIL) Prototyping (FY26)	1	2026	4	2026

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0101402N / *Navy Strategic Comms*	**Project (Number/Name)** 3002 / *Navy Strategic Comm Project*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Advanced Development: Systems Integration Lab (SIL) Prototyping: Systems Integration Lab (SIL) Prototyping (FY27)	1	2027	4	2027
Advanced Development: Systems Integration Lab (SIL) Prototyping: Systems Integration Lab (SIL) Prototyping (FY28)	1	2028	4	2028
Advanced Development: Systems Integration Lab (SIL) Testing & Reporting: SIL Testing & Reporting (FY22)	1	2022	4	2022
Advanced Development: Systems Integration Lab (SIL) Testing & Reporting: SIL Testing & Reporting (FY23)	1	2023	4	2023
Advanced Development: Systems Integration Lab (SIL) Testing & Reporting: SIL Testing & Reporting (FY24)	1	2024	4	2024
Advanced Development: Systems Integration Lab (SIL) Testing & Reporting: SIL Testing & Reporting (FY25)	1	2025	4	2025
Advanced Development: Systems Integration Lab (SIL) Testing & Reporting: SIL Testing & Reporting (FY26)	1	2026	4	2026
Advanced Development: Systems Integration Lab (SIL) Testing & Reporting: SIL Testing & Reporting (FY27)	1	2027	4	2027
Advanced Development: Systems Integration Lab (SIL) Testing & Reporting: SIL Testing & Reporting (FY28)	1	2028	4	2028
Advanced Development: Product Support: Product Support (FY23)	1	2023	4	2024

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy												Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0204136N / *F/A-18 Squadrons*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	5,804.736	213.010	235.204	333.783	-	333.783	332.802	291.089	237.464	243.172	Continuing	Continuing
1662: *F/A-18 Improvement*	4,759.817	134.252	173.710	323.420	-	323.420	320.717	278.449	225.610	231.078	464.249	6,911.302
2065: *F/A-18 Radar Upgrade*	768.422	7.540	11.246	8.683	-	8.683	10.884	11.806	11.005	11.226	Continuing	Continuing
2071: *F/A-18 Block III*	245.086	37.840	33.282	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	316.208
9099: *Physiological Episodes*	5.329	4.417	2.966	1.680	-	1.680	1.201	0.834	0.849	0.868	Continuing	Continuing
9999: *Congressional Adds*	26.082	28.961	14.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	69.043

A. Mission Description and Budget Item Justification

The F/A-18 is required to perform multiple missions. The continued F/A-18 E/F and EA-18G "Flight Plan" spiral capability development is critical to the baseline of the Super Hornet next generation mission system capability to maintain the platform's tactical relevance in support of Navy Aviation Plan 2030.

Development continues for a platform solution to threat Advanced Electronic Attack (AEA) and Counter-Electronic Attack (CEA). F/A-18 solutions to CEA include upgrades to existing sensors such as F/A-18 Radar Upgrade, Infrared Search and Track Block I/II, and development of future tactical data fusion that follows previous Common Tactical Picture (CTP) risk reduction efforts. Tactical data fusion capability is the next step in expanding the F/A-18E/F contributions to the force war fighting capability by combining multiple aircraft and sensor inputs, that effectively extends the engagement range while maximizing sensors and weapons. Incremental improvements continue with Multi-System Integration (MSI), Multi-Ship Ranging (MSR), and other algorithm improvements that are driven by sensor advancements, and efforts designed to increase aircraft lethality and kill chain effectiveness. Development and fleet delivery of special purpose integrated solution designated by Speed to Fleet by commanders, such as PACFLT Tactical Edge Network Targeting in a Contested Long-range Environment (TENTaCLE), continue with dedicated resources and approved action plan. Software Modernization R&D efforts continue with new operating environment (hardware and software solutions) designed to take advantage of rapid software integration and security improvements that harden and protect the aircraft and weapon systems. The effort includes Model Based Systems Engineering (MBSE) tools that reduce future costs and schedule of technology insertion.

Capabilities of the F/A-18 weapon system and ancillary equipment require upgrades to accommodate and incorporate new and enhanced weapons and advances in technology to respond effectively to emerging future threats. Future integrated Carrier Air Wing Concept of Operations (CONOPS) demand changes to the base line Block II Super Hornet. Development and Operational Testing for Block III Super Hornet are required with incremental updates to mission computer software and fusion system will be required as fleet takes delivery of aircraft. Continuation of F/A-18 Block III development and improvements which will be incorporated in the near term with a combination of forward fit production line incorporation and retrofit modifications to the aircraft already planned as part of the Service Life Modification (SLM) Plan. Additionally, Block III system and other technology solution development will support NGAD risk reduction activities.

USMC upgrades to the platform are being developed; to include integration and capability expansion of Active Electronically Scanned Array (AESA) Radar for F/A-18 A-D, evaluation and development of an Automatic Ground Collision Avoidance System (AUTOGCAS) for all F/A-18 variants, development of increased sensor and

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0204136N *I F/A-18 Squadrons*

Electronic Warfare (EW) capability for F/A-18 A-D, weapons carriage and employment capability expansion, and enhancement of Mission Computer (MC) processing and memory capability.

Funding for Naval Aviation Physiological Episode (PE) mitigation and root cause investigation in aircraft.

Funding for the Digital Video Map Computer-Upgrade (DVMC-U)/Advanced Crew Station (ACS) Improved Tactical Displays which will enable Panoramic "Big Picture" view of the Battle Space for improved weapons employment and engagement. Leveraging completed work from F/A-18A-D to include the development of an AUTOGCAS for the F/A-18E/F and EA-18G is a logical extension of the DVMC-Upgrade using modifications to the Terrain Avoidance Warning System (TAWS) resident in the existing DVMC in fatal mishap prevention.

Current F/A-18E/F EW suite will not keep pace against evolving threats. Advanced Electronic Warfare (ADVEW) provides increased survivability and enhanced SA throughout the EM spectrum against current, expanded and complex RF threats/environment. Incremental approach to collaborative detection/jamming initiatives and Common Tactical Picture concepts.

Network Cyber Defense provides for the development of a hardware and software based solution into the Distributed Target Processor - Network (DTP-N) in order for the network cyber defense to provide the F/A-18 E/F and EA-18G with a capability to detect an intrusion and prevent avionics terminals on the data from being corrupted by malicious software and identify when the software is not operating normally.

The Next Generation Naval Mission Planning System (NGNMPS) updates legacy Joint Mission Planning System (JMPS) into an integrated capability providing advanced multiple/dissimilar aircraft planning capabilities focused on emerging, high-threat mission areas (including complex, integrated kinetic/non-kinetic effects).

Live Virtual Constructive (LVC) Aircraft funds the testing of F/A-18 and EA-18G aircraft and trainers into the Live, Virtual, Constructive, blended training environment to close the Great Powers Competition training capability gap for mission rehearsal for the high end fight. F/A-18 and EA-18G are a critical part of the Aviation LVC System of Systems (SoS) training environment bringing already-developed capabilities together with new developmental efforts to form a cohesive architecture that accurately emulates the high end fight for warfighter training.

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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0204136N *I F/A-18 Squadrons*

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	219.224	238.974	247.944	-	247.944
Current President's Budget	213.010	235.204	333.783	-	333.783
Total Adjustments	-6.214	-3.770	85.839	-	85.839
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-17.770			
• Congressional Rescissions	-	-			
• Congressional Adds	-	14.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-6.214	0.000			
• Program Adjustments	0.000	0.000	101.498	-	101.498
• Rate/Misc Adjustments	0.000	0.000	-15.659	-	-15.659

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2022	FY 2023
Project: 9999: *Congressional Adds*		
Congressional Add: *Noise reduction research*	3.861	4.000
Congressional Add: *Training technology*	9.654	0.000
Congressional Add: *Civil instrument landing system*	2.896	0.000
Congressional Add: *Solid state light off detector*	7.723	0.000
Congressional Add: *Neural network algorithms on advanced processors*	4.827	0.000
Congressional Add: *Advanced beacon landing system upgrade*	0.000	10.000
Congressional Add Subtotals for Project: 9999	28.961	14.000
Congressional Add Totals for all Projects	28.961	14.000

Change Summary Explanation

Cost:

1662: The FY2024 funding request was increased by $94.939 million for Advanced Electronic Warfare (ADVEW), $20.000 million for Next Generation Mission Planning System (NGNMPS). The FY2024 funding request was decreased by $4.552 million for higher Navy priorities and $13.563 million for miscellaneous adjustments.

2065: The FY2024 funding request was decreased by $2.109 million for miscellaneous adjustments.

2071: The FY2024 funding request was decreased by $8.889 million for higher Navy priorities.

9099: The FY2024 funding request was increased by $.013 million for miscellaneous adjustments.
9999: Not Applicable

Technical:
1662: Not Applicable
2065: Not Applicable
2071: Not Applicable
9099: Not Applicable
9999: Not Applicable

Schedule:
1662:
- Updated MSI/CTP to add H22 Agile
- Updated USMC Capability Upgrades schedule to reflect revised acquisition strategy
- Updated DVMC-U Hardware Design and Development to begin Q4 FY22
- Updated ACS/DVMC-U Development to begin Q4 FY22
- Updated ACS/DVMC-U Integration to ACS/DVMC-U Integration (Lab Testing)
- Updated ACS/DVMC-U DT to begin Q2 FY24
- Updated ACS/DVMC-U IT&E to begin Q4 FY25
- Updated Flight Plan Software Fleet Releases to align with MSI/CTP schedule
- Added schedule for Network Cyber Defense
- Added schedule for Next Generation Mission Planning System (NGNMPS)
- Added schedule for Advanced Electronic Warfare (ADVEW)
- Added schedule for Live Virtual Constructive (LVC) Aircraft Integration

2065:
- Added H22 IOC in 4Q FY27
- Added H22 OT beginning in 4Q FY27
- Revised H18 release to begin 2Q FY23
- Revised H20 release to begin 2Q FY25
- Added 80 Series SW Interoperability beginning Q3 FY27
- Added Advanced SW Development beginning Q3 FY25
- Added WBR Deliveries beginning Q3 FY27

2071:

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0204136N *I F/A-18 Squadrons*

- Revised schedule format to align with program plan to move funding to PU 1662 in FY24.

9099:
- Not Applicable

9999:
- Added schedules for Noise Reduction and Advanced Beacon Landing System Upgrade

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy										Date: March 2023		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0204136N / *F/A-18 Squadrons*				Project (Number/Name) 1662 / *F/A-18 Improvement*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
1662: *F/A-18 Improvement*	4,759.817	134.252	173.710	323.420	-	323.420	320.717	278.449	225.610	231.078	464.249	6,911.302
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The F/A-18 is required to perform multiple missions. The continued F/A-18 E/F and EA-18G "Flight Plan" spiral capability development is critical to the baseline of the Super Hornet next generation mission system capability to maintain the platform's tactical relevance in support of Navy Aviation Plan 2030.

Development continues for a platform solution to threat Advanced Electronic Attack and Counter-Electronic Attack (CEA). F/A-18 solutions to CEA include upgrades to existing sensors such as F/A-18 Radar Upgrade, Infrared Search and Track Block I/II, and development of future tactical data fusion that follows previous Common Tactical Picture (CTP) risk reduction efforts. Tactical data fusion capability is the next step in expanding the F/A-18E/F contributions to the force war fighting capability by combining multiple aircraft and sensor inputs, that effectively extends the engagement range while maximizing sensors and weapons. Incremental improvements continue with Multi-System Integration (MSI), Multi-Ship Ranging (MSR), and other algorithm improvements that are driven by sensor advancements, and efforts designed to increase aircraft lethality and kill chain effectiveness. Development and fleet delivery of special purpose solutions designated by Speed to Fleet by commanders, such as PACFLT Tactical Edge Network Targeting in a Contested Long-range Environment (TENTaCLE), continue with dedicated resources and approved action plan. Software Modernization R&D efforts continue with new operating environment (hardware and software solutions) designed to take advantage of rapid software integration and security improvements that harden and protect the aircraft and weapon systems. The effort includes Model Based Systems Engineering (MBSE) tools that reduce future costs and schedule of technology insertion.

Capabilities of the F/A-18 weapon system and ancillary equipment require upgrades to accommodate and incorporate new and enhanced weapons and advances in technology to respond effectively to emerging future threats. Future integrated Carrier Air Wing Concept of Operations (CONOPS) demand changes to the base line Block II Super Hornet. Development and Operational Testing for Block III Super Hornet are scheduled to begin in FY22, with incremental updates to mission computer software and fusion system will be required as fleet takes delivery of aircraft. Continuation of F/A-18 Block III development and improvements which will be incorporated in the near term with a combination of forward fit production line incorporation and retrofit modifications to the aircraft already planned as part of the Service Life Modification (SLM) Plan. Additionally, Block III system will support NGAD risk reduction activities.

USMC upgrades to the platform are being developed; to include integration and capability expansion of AESA Radar for F/A-18 A-D, evaluation and development of an Automatic Ground Collision Avoidance System (AUTOGCAS) for all F/A-18 variants, development of increased sensor and Electronic Warfare (EW) capability for F/A-18 A-D, weapons carriage and employment capability expansion, and enhancement of Mission Computer (MC) processing and memory capability. The requirement for Automatic Ground Collision Avoidance System (Auto-GCAS and/or AGCAS) is documented in the F/A-18 C/D Automatic Ground Collision Avoidance System Requirement Letter, dated 20 July 2020: "Controlled Flight into Terrain (CFIT) has been the leading cause of F/A-18 aircraft loss and aircrew fatality. Protecting the lives of aircrew, and preserving Marine Corps' assets are vital to combat readiness. The F/A-18 community has consistently placed AGCAS as a top platform safety priority in Naval Aviation Readiness Groups, Operational Advisory Groups, and Systems Safety Working Groups. AGCAS aligns with Section 127 of the FY19 National Defense Authorization Act, which directs the Secretary of the Navy to mitigate the risk of pilot incapacitation posed by physiological episodes. Historically, USAF F-16 squadrons have experienced similar CFIT mishap rates. To address this, the F-16 community developed a variant of AGCAS, and has demonstrated real world success

in preventing CFIT with at least eight documented "saves." Due to this capability, the risk of CFIT has been effectively mitigated in the USAF F-16 community. Most importantly, AGCAS would have prevented multiple fatal F/A-18 CFIT mishaps based on simulation re-enactments of these events. The USMC F/A-18 community requires AGCAS. The system must be capable of providing an Initial Operating Capability no later than the end of Fiscal Year 2022."

Funding for the Digital Video Map Computer-Upgrade (DVMC-U)/Advanced Crew Station (ACS) Improved Tactical Displays which will enable Panoramic "Big Picture" view of the Battle Space for improved weapons employment and engagement. Including the development of an AUTOGCAS for the F/A-18E/F and EA-18G as a logical extension of the DVMC-Upgrade leveraging completed work from F/A-18A-D using modifications to the TAWS resident in the existing Super Hornet/Growler DVMC in fatal mishap prevention.

Funding for Naval Aviation Physiological Episode (PE) mitigation and root cause investigation in aircraft.

Aviation LVC addresses the capability gap for advanced, integrated training for the Great Powers Competition (GPC) high-end fight against a peer adversary. Live execution of the extremely complex GPC scenarios would require tremendous numbers of aircraft operating at ranges and classification levels that far exceed the size and capabilities of existing Tactical Training Ranges (TTR). LVC closes this capability gap with an integrated network of aircrew-operated simulators (Virtual) and computer-generated airborne and surface forces (Constructive) to augment the Live event. This effort will test integrated capabilities with advanced threat and weapon simulation systems, Virtual and Constructive inputs in the Live cockpit, Live and Constructive entities into the simulator cockpit, and modified Operational Flight Programs (OFP) on the F/A-18 and E/A-18G. The F/A-18 effort is associated with the LVC efforts in RDTEN 3093.

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 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: F/A-18 Obsolescence Redesign	3.408	8.400	17.834	0.000	17.834
Articles:	-	-	-	-	-
Description: Develop and test modifications to address obsolescence issues.					
FY 2023 Plans: FY23 effort will include Flight Control Computer (FCC) Shop-Replaceable Assembly (SRA) level specification document development, SRA hardware design & development initiation, and software development initiation. The F/A-18E, F/A-18F and EA-18G FCC receives inputs from the aircraft sensors and provides full authority fly-by-wire aircraft control, true airspeed, true angle-of-attack, and relative air density to the Advanced Mission Computer (AMC). F/A-18E, F/A-18F and EA-18G FCCs are interchangeable. The FCC is currently impacted by multiple obsolete components; Processor Module SRA and Mezzanine Card currently have 11 obsolete components. Redesigning mitigates parts obsolescence by leveraging existing industry designs and incorporating more modern hardware and software technologies, incurring significant cost savings to the					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 1662 / *F/A-18 Improvement*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
program by eliminating O&S costs for older systems. The program will include FCC obsolescence mitigation hardware design changes, FCC software update, system and aircraft level testing. ***FY 2024 Base Plans:*** FY24 effort will include finalization of Flight Control Computer (FCC) Shop-Replaceable Assembly (SRA) level specification document development and approval, while continuing SRA hardware design & development, software development and Test Plan and Procedure development. The F/A-18E, F/A-18F and EA-18G FCC receives inputs from the aircraft sensors and provides full authority fly-by-wire aircraft control, true airspeed, true angle-of-attack, and relative air density to the Advanced Mission Computer (AMC). F/A-18E, F/A-18F and EA-18G FCCs are interchangeable. The FCC is currently impacted by multiple obsolete components; Processor Module SRA and Mezzanine Card currently have 11 obsolete components. Redesigning mitigates parts obsolescence by leveraging existing industry designs and incorporating more modern hardware and software technologies, incurring significant cost savings to the program by eliminating O&S costs for older systems. The program will include FCC obsolescence mitigation hardware design changes, FCC software update, system and aircraft level testing. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY2023 to FY2024 of $9.434 million is due to an increase in contract design and development for FCC efforts.					
Title: USMC Capability Upgrades	21.201	7.778	15.322	0.000	15.322
Articles:	-	-	-	-	-
Description: USMC upgrades to the platform are being developed to include evaluation and development of an Automatic Ground Collision Avoidance System (AUTOGCAS) for all F/A-18 variants, development of increased sensor and EW capability for F/A-18 A-D, weapons carriage and employment capability expansion, and enhancement of MC processing and memory capability. AUTOGCAS will provide the F/A-18 with an auto recovery capability that maneuvers the aircraft away from the ground in case of pilot incapacitation from G-Loss of Consciousness or a Physiological Episode (PE) event. This is a significant aircraft safety improvement that could have prevented multiple fatal F/A-18 mishaps over the past two decades. The requirement for Automatic Ground Collision Avoidance System (Auto-GCAS and/or AGCAS) is documented in the F/A-18 C/D Automatic Ground Collision Avoidance System Requirement Letter, dated 20 July 2020: "Controlled Flight into Terrain (CFIT) has been the leading cause of F/A-18 aircraft loss and aircrew fatality.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 1662 / *F/A-18 Improvement*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Protecting the lives of aircrew, and preserving Marine Corps' assets are vital to combat readiness. The F/A-18 community has consistently placed AGCAS as a top platform safety priority in Naval Aviation Readiness Groups, Operational Advisory Groups, and Systems Safety Working Groups. AGCAS aligns with Section 127 of the FY19 National Defense Authorization Act, which directs the Secretary of the Navy to mitigate the risk of pilot incapacitation posed by physiological episodes. Historically, USAF F-16 squadrons have experienced similar CFIT mishap rates. To address this, the F-16 community developed a variant of AGCAS, and has demonstrated real world success in preventing CFIT with at least eight documented "saves." Due to this capability, the risk of CFIT has been effectively mitigated in the USAF F-16 community. Most importantly, AGCAS would have prevented multiple fatal F/A-18 CFIT mishaps based on simulation re-enactments of these events. The USMC F/A-18 community requires AGCAS. The system must be capable of providing an Initial Operating Capability no later than the end of Fiscal Year 2024." ***FY 2023 Plans:*** Continue AUTOGCAS Phase 2 Flight Control Computer (FCC) Operational Flight Programs (OFP) Update and platform integration and testing. ***FY 2024 Base Plans:*** Complete AUTOGCAS platform integration flight testing. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY 2023 to FY 2024 by $7.544 million due to AUTOGCAS Integration Testing nd Mission Computer (MC) analysis efforts.					
Title: Digital Video Map Computer-Upgrade (DVMC-U)	22.585	36.726	41.315	0.000	41.315
Articles:	-	-	-	-	-
Description: Funds development of Digital Video Map Computer-Upgrade (DVMC-U) (formerly known as Advanced Capability Display Computer - ACDC) to leverage Large Area Displays (LAD) and Advanced Networking Infrastructure (ANI) in Block III to provide greater situational awareness and incorporate Tactical Decision Aids such as Common Tactical Picture. AUTOGCAS will provide the F/A-18 with an auto recovery capability that maneuvers the aircraft away from the ground in case of pilot incapacitation or Controlled Flight Into Terrain (CFIT) incidents. This is a significant aircraft safety improvement that could have prevented multiple fatal F/A-18 mishaps over the past two decades and aligns with Section 127 of the FY19 National Defense Authorization Act directing the Secretary of the Navy to mitigate the risk posed by CFIT. Modifications to					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 1662 / *F/A-18 Improvement*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
the Digital Mapping Computer (DMC), as well as the Terrain Avoidance Warning System (TAWS) and flight control laws to incorporate AUTOGCAS for the F/A-18A-D Hornet directly port over to incorporate this life-saving capability to the Super Hornet/Growler with reduced program development requirements. Including the development of an AUTOGCAS for the F/A-18E/F and EA-18G leveraging completed work from F/A-18A-D is scheduled to begin in FY22 as a logical extension of the DVMC-Upgrade using modifications to the TAWS resident in the existing DVMC in fatal mishap prevention. ***FY 2023 Plans:*** Continue design and development for the Digital Video Map Computer-Upgrade (DVMC-U) hardware & software that will enable Larger Area Display surface to be fully utilized with advanced graphical tactical displays and intuitive touch screen interface capabilities. During this time, the hardware design will be more mature so we expect the software development to ramp up. The software development will be for the internal DVMC operational program, aircraft integration via the mission computer, and enhanced displays. ***FY 2024 Base Plans:*** Continue design and development for the Digital Video Map Computer-Upgrade (DVMC-U) hardware & software that will enable Larger Area Display surface to be fully utilized with advanced graphical tactical displays and intuitive touch screen interface capabilities. During this time, the hardware design will be more mature so we expect the software development to ramp up. The software development will be for the internal DVMC operational program, aircraft integration via the mission computer, and enhanced displays. Developmental flight test efforts to begin. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY 2023 to FY 2024 by $4.589 million due to the start of developmental testing efforts of ACS/ DVMC-U.					
Title: Multi-System Integration (MSI) / Common Tactical Picture (CTP)	84.068	78.982	64.461	0.000	64.461
Articles:	-	-	-	-	-
Description: Multi-System Integration (MSI), Multi-Ship Ranging (MSR), and IRIS algorithm continue to evolve and progress from baseline H16 SCS that continues incremental approach and improvements designed to optimize the system. Concurrently, H16 Block III Common Tactical Picture (CTP) continues with development and optimization of merge data fusion and sensors from single aircraft to multiple aircraft. Advanced Tactical Data Fusion represents an incremental approach to accelerating kill chains through multi aircraft sensor fusion,					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 1662 / *F/A-18 Improvement*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
improved algorithms, automation, and aircrew decision aids. System Configuration Set (SCS) methodology of bundling capabilities and modifications into a single fleet mission computer Operational Flight Program (OFP) continue, but at an increased delivery rate to meet rapid speed to fleet demands. This is being accomplished with an incremental modernization of the F/A-18 & EA-18G software lifecycle that includes Scaled Agile Framework and Continuous Development & Integration (CD&I) methodology. ***FY 2023 Plans:*** Flight Plan continued improvements to MSI, MSR/IRIS, and development of Advanced Tactical Data Fusion that follows initial Block III Common Tactical Picture (CTP) capability. Modeling and simulation, engineering studies, and comprehensive evaluation and/or development of available tactical fusion systems designed to move from current level one category, to level four fusion for the F/A-18 & EA-18G. This includes the identification, evaluation and engineering analysis of the advanced tactical data fusion for F/A-18 & EA-18G, as well as providing Next Generation Air Dominance (NGAD) risk reduction. This effort includes improvements to mission computer, JMPS UPC, and weapon system software SCS updates associated with each incremental Block (H build) and to include ongoing Software Modernization, Cyber protections, and Speed to Fleet requirements. Advances in Super Hornet Air and Surface Warfare will continue with ongoing integration of weapons and sensors into advanced fusion, Display Improvements to enhance air-to-air and air-to-surface situational awareness and aircrew decision superiority, continued development of third party software applications and protocols for rapid fleet capability delivery, and Counter Electronic Attack enhancements to improve survivability and lethality. Increased engineering efforts for integration of active and passive kill chain capabilities and sensors associated with Flight Plan NIFC and OASuW FNC Target Identification transition efforts continues. Airwing interoperability requirements, development of follow on advanced tactical data fusion that enables aircraft division level sensor fusion and resource management, and developmental test efforts also increase at test activities, including ongoing modeling and simulation upgrades such as Net Enabled Weapon Controller Interface Model interoperability software and equipment, Live Virtual Constructive developmental efforts, and Fusion research and integration testing. Funding included for H18 Operational Test of MSI/MSR improvements. ***FY 2024 Base Plans:*** Development and Integration of Advanced Tactical Data Fusion for H20 for F/A-18 & EA-18G as well as providing Next Generation Air Dominance (NGAD) risk reduction. This effort includes improvements to mission computer, JMPS UPC, and weapon system software SCS updates associated with each incremental Block (H build) and to include ongoing Software Modernization, Cyber protections, and Speed to Fleet requirements. Advances in Super Hornet Air and Surface Warfare will continue with ongoing integration of weapons and sensors into advanced fusion, Display Improvements to enhance air-to-air and air-to-surface situational					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 1662 / *F/A-18 Improvement*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
awareness and aircrew decision superiority, continued development of third party software applications and protocols for rapid fleet capability delivery, and Counter Electronic Attack enhancements to improve survivability and lethality. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease from FY 2023 to FY 2024 by $14.521 million due to completion of H18 test events.					
Title: Flight Plan Engineering / System Configuration Set Development and Integration	2.990	2.724	3.967	0.000	3.967
Articles:	-	-	-	-	-
Description: Continue F/A-18 E/F and EA-18G "Flight Plan" spiral capability development, which is critical to the baseline of the Super Hornet next generation mission system capability. Funding will support the development, test, and integration efforts required to maintain tactical relevance in support of the Naval Aviation Plan 2030. ***FY 2023 Plans:*** Continue Flight Plan Engineering efforts to include F/A-18E/F improvements necessary for Super Hornet relevance and tactical supremacy, Software Modernization and Cyber, Navy Integrated Fire Control-Counter Air system configuration set requirements to support Navy Integrated Air and Missile Defense capability requirements and enhanced F/A-18 Cooperative Engagement Capability. Continue to support Trade Studies in these areas, as well as explore new technologies in areas such as Artificial Intelligence. ***FY 2024 Base Plans:*** Continue Flight Plan Engineering efforts to include F/A-18E/F improvements necessary for Super Hornet relevance and tactical supremacy, Software Modernization and Cyber, Navy Integrated Fire Control-Counter Air system configuration set requirements to support Navy Integrated Air and Missile Defense capability requirements and enhanced F/A-18 Cooperative Engagement Capability. Continue to support Trade Studies expanding technology and integration options in these areas, as well as explore new technologies in areas such as Artificial Intelligence. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY 2023 to FY 2024 by $1.243 million due to flight plan development efforts.					
Title: F/A-18 E/F/G Network Cyber Defense	0.000	11.200	16.132	0.000	16.132

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Articles:	-	-	-	-	-
Description: This funding provides for the development of a hardware and software based solution into the Distributed Target Processor - Network (DTP-N) in order for the network cyber defense to provide the F/A-18 E/F and EA-18G with a capability to detect an intrusion and prevent avionics terminals on the data from being corrupted by malicious software and identify when the software is not operating normally. The capability determines intrusion via traffic analysis. Air crew are alerted to malicious behavior with forensic data for maintenance for post flight repair. The capability quarantines the intrusion for safe failure across data networks and aircraft. This capability provides positive reliable means to ensure mission aircraft systems integrity during a cyber-attack and thus prevents cyber events from reducing aircraft availability. ***FY 2023 Plans:*** For FY2023 Network Cyber Defense effort will mature the Intrusion Detection Software (IDS) to Technology Readiness Level (TRL) 6. In FY2023, begin the contract for the IDS TRL 6 as well as the integration into the Mission Computer. Begin NAWCAD PAX River software integration efforts on unique Cyber test tool development to accelerate project to Fleet introduction. ***FY 2024 Base Plans:*** FY2024 Network Cyber Defense will perform detailed design and development efforts with a ramp-up in hardware prototyping and integration. Begin coding target system software, developmental test plans and test tool development. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY 2023 to FY 2024 by $4.932 million is due to the start of Cyber software and Cyber integration test efforts.					
Title: Next Generation Mission Planning System (NGNMPS)	0.000	0.000	20.000	0.000	20.000
Articles:	-	-	-	-	-
Description: The Next Generation Naval Mission Planning System (NGNMPS) updates legacy Joint Mission Planning System (JMPS) into an integrated capability providing advanced multiple/dissimilar aircraft planning capabilities focused on emerging, high-threat mission areas (including complex, integrated kinetic/non-kinetic effects). Legacy Joint Mission Planning System-Maritime (JMPS-M) planning capabilities support individual aircraft and weapon initialization requirements. The emerging, near-peer threat environment is demanding					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 1662 / *F/A-18 Improvement*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
a much more capable system allowing a team of aircraft to cooperate effectively across multiple mission areas, domains, and security levels. The NGNMPS is the product of a Mid-Tier Acquisition, rapid prototyping effort which validates new concepts and design requirements necessary to support the emerging demanding environment. This issue sheet funds the ability to field the new, high-end capabilities within the current Air Wing construct. ***FY 2023 Plans:*** N/A ***FY 2024 Base Plans:*** Provide support to transition the Airborne Electronic Attack (AEA) Unique Planning Component (UPC) to NGNMPS. Capabilities to be migrated from the Joint Mission Planning (JMPS) to NGNMPS under this effort include the following: JMPS/Next Generation Open Mission Systems (NOMS) data transfer, Order of Battle/ map visuals, ALQ-218/receiver planning, ALQ-99, ALQ-249/jammer planning, mission phase planning, and the associated Developmental Test (DT)/Operational Test (OT) testing for verification and validation. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase in FY2024 funding of $20.000 million to begin the implementation of Next Generation Naval Mission Planning System (NGNMPS).					
Title: F/A-18 Beyond Line Of Sight (BLOS) Comms	0.000	27.900	38.332	0.000	38.332
Articles:	-	-	-	-	-
Description: This capability provides joint, multi-domain connectivity for the distributed battlespace Beyond Line Of Sight (BLOS) tactical communication and puts a common tactical picture into the hands of the pilot. The capability also provides a resilient, real-time gateway between the 4th and 5th generation tactical aircraft with datalinks at the tactical edge with assured C2 and targeting from national and other off board sensors. The data is provided through multiple data paths and supports Long Range Fires in critical environments. Beyond Line Of Site (BLOS) also provides tactical communications for joint, multi-domain connectivity in support of distributed battlespace. This incremental approach allows for rapid, Speed-to-the-Fleet capability insertion as technology and solutions are developed. ***FY 2023 Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Provide systems development BLOS/PACFLT upgrades for Increment 1. Solutions include new Receiver/ Transmitters (R/T), antennas and other resilient communications enablers. Provides aircraft SCS integration efforts to support Increment 1 testing. ***FY 2024 Base Plans:*** Provide systems development BLOS/PACFLT for Increment 1. Solutions include new Receiver/Transmitters (R/ T), antennas and other resilient communications enablers. Provides aircraft SCS integration efforts to support Increment 1 testing. Provide systems development for on-aircraft antenna and R/T integration for an increased resiliency of BLOS capability. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY 2023 to FY 2024 by $10.432 million for development and integration of on-aircraft antenna.					
Title: Live Virtual Constructive (LVC) Aircraft Integration	0.000	0.000	5.000	0.000	5.000
Articles:	-	-	-	-	-
Description: Aviation LVC addresses the capability gap for advanced, integrated training for the Great Powers Competition (GPC) high-end fight against a peer adversary. Live execution of the extremely complex GPC scenarios would require tremendous numbers of aircraft operating at ranges and classification levels that far exceed the size and capabilities of existing Tactical Training Ranges (TTR). LVC closes this capability gap with an integrated network of aircrew-operated simulators (Virtual) and computer-generated airborne and surface forces (Constructive) to augment the Live event. This effort will test integrated capabilities with advanced threat and weapon simulation systems, Virtual and Constructive inputs in the Live cockpit, Live and Constructive entities into the simulator cockpit, and modified Operational Flight Programs (OFP) on the F/A-18 and E/A-18G. The F/A-18 effort is associated with the LVC efforts in RDTEN 3093. ***FY 2023 Plans:*** N/A ***FY 2024 Base Plans:*** FY 2024 will commence testing of Live, Virtual, Constructive capability of the F/A-18 and EA-18G, including Tactical Combat Training System Increment II (TCTS II) development, and integration of Synthetic Inject to Live (SITL), ystem security modifications, and advanced integration with constructive inject systems, Navy Continuous Training Environment (NCTE), and other platforms. Additional capabilities tested include LVC					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
integration on the NCTE, using Next Generation Threat System (NGTS), and range live event display and debrief systems. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase in FY2024 funding of $5.000 million for Aviation LVC Live Aircraft Integration Phase 1 & Tactical Combat Training System (TCTS) II Acceleration.					
Title: Advanced Electronic Warfare (ADVEW) ***Articles:*** ***Description:*** This budget supports development and platform integration of a modernized, fully integrated, multi-spectral Electronic Warfare (EW) system to enhance platform survivability against near-peer threats. This new system called Advanced EW (ADVEW) replaces the outdated ALR-67 radar warning receiver (RWR) and the limited ALQ-214 self-protect jammer into a modern, combined EW suite providing automated EW processing in an Open System Architecture. The suite will enable both offensive and defensive capabilities for the F/A-18E/F, as well as interoperable EW effects across the Carrier Air Wing and joint forces. Funding will support multiple sensor enhancements to include the AN/APG-79 radar Wideband Receiver (WBR) upgrade providing instantaneous bandwidth and integration of EW signals into the ADVEW suite. When fielded in FY27, this system will provide all-aspect, high sensitivity detection of full spectrum complex/agile/cognitive Radio Frequency (RF) threats keeping the Super Hornet a highly capable strike fighter asset in the Great Power Competition through platform sundown in 2040. ***FY 2023 Plans:*** N/A ***FY 2024 Base Plans:*** Funding will support multiple contracting efforts to include support of a Rapid Prototyping development effort. Funding will provide for government modeling and simulation to validate system performance of vendor prototypes. It will also support development to integrate the radar into the new ADVEW system as well as the radar Wideband Receiver hardware upgrade. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:***	0.000 -	0.000 -	101.057 -	0.000 -	101.057 -

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Increase in FY2024 funding of $101.057 million for Advanced Electronic Warfare (ADVEW) as it transitions from PU: 2071 to PU: 1662.					
Accomplishments/Planned Programs Subtotals	134.252	173.710	323.420	0.000	323.420

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• APN/0525: *F-18 SERIES*	327.000	461.118	640.236	-	640.236	724.628	953.615	1,068.998	1,153.697	2,988.897	21,847.456
• APN/0145: *FA-18E/F*	977.161	671.065	41.329	-	41.329	28.671	50.898	0.000	0.000	0.000	54,084.845
• APN/0505: *F-18E/F and EA-18G Modernization and Sustainment*	445.721	552.849	605.416	-	605.416	531.235	573.367	592.884	771.385	5,544.231	10,003.493

Remarks

D. Acquisition Strategy

The F/A-18 Improvement program consists of extensive spiral development efforts mapped out in the capability-based approach F/A-18 E/F "Flight Plan". These efforts are critical to the baseline of the Super Hornet next generation mission system capability and maintaining tactical relevance in support of the Naval Aviation Plan 2030. The major programs within the F/A-18 Improvement project are based on multiple Weapon System Capabilities including: Net Centric Operations/Battle Space Management, Sensor Integration, Air to Ground and Maritime Attack, and Air to Air Attack. The major efforts included in this project are: Dual Mode Weapons integration; Nirvana (next increment of Common Tactical Picture (CTP)); continued advanced development and F/A-18E/F Flight Plan engineering and analysis; continued enhanced software capabilities development; and engineering support to perform technical evaluations, modeling and simulations, and investigative flight testing. Nirvana capability is being developed under the NAWCWD System Configuration Set (SCS) Cost Plus Fixed Fee contract. AUTOGCAS will provide the F/A-18 with an auto recovery capability that maneuvers the aircraft away from the ground through automatic throttle control, flying to a pre-defined waypoint and circling until pilot recovery in case of pilot incapacitation or Controlled Flight Into Terrain (CFIT) incidents. Including the development of an AUTOGCAS for the F/A-18E/F and EA-18G leveraging completed work from F/A-18A-D is scheduled to begin in FY22 as a logical extension of the DVMC-Upgrade (formerly known as Advanced Capability Display Computer - ACDC) using modifications to the Terrain Awareness and Warning System (TAWS) resident in the existing Digital Video Map Computer (DVMC) in fatal mishap prevention.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MSI/CTP Develop Sensor Integration	C/IDIQ	Boeing : St Louis, MO	44.476	9.157	Feb 2022	24.663	Feb 2023	20.730	Feb 2024	-		20.730	177.829	276.855	276.855
MSI/CTP - Develop Sensor Integration	WR	Raytheon : El Segundo, CA	0.000	6.079	Mar 2022	0.000		0.000		-		0.000	0.000	6.079	-
MSI/CTP Develop Sensor Integration	WR	NAWCWD : China Lake, CA	56.768	0.500	Nov 2021	12.066	Nov 2022	12.491	Nov 2023	-		12.491	181.109	262.934	-
MSI/CTP Development Support	WR	NSMA : Washingon, DC	3.500	2.000	Dec 2021	2.732	Dec 2022	2.781	Dec 2023	-		2.781	12.204	23.217	-
MSI/CTP Strike Accelerator ASUW ICP3	WR	NAWCWD : China Lake, CA	14.949	0.000		18.563	Nov 2022	3.071	Nov 2023	-		3.071	6.531	43.114	-
MSI/CTP Development Support	WR	NAWCAD : Pax River, MD	0.000	0.000		0.470	Nov 2022	0.280	Nov 2023	-		0.280	0.220	0.970	-
MSI/CTP - PMAT Minotaur Reach Edge (MRE)	C/CPFF	CACI, Inc : Reston, VA	1.031	2.680	Jun 2022	0.000		0.000		-		0.000	0.000	3.711	-
MSI/CTP - Software Architecture Demo (GIOS)	C/CPFF	CACI, Inc : Reston, VA	0.000	1.732	Jun 2022	0.000		0.000		-		0.000	0.000	1.732	-
USMC Upgrades - Software development & Integration	C/CPIF	Boeing : St Louis, MO	16.154	0.000		1.000	Jan 2023	0.000		-		0.000	0.000	17.154	17.154
USMC Upgrades - AUTOGCAS - Software development & Risk Reduction	WR	NAWCWD : China Lake, CA	7.855	1.340	Nov 2021	2.000	Nov 2022	0.914	Nov 2023	-		0.914	5.985	18.094	-
USMC Upgrades - AUTOGCAS	C/CPIF	Boeing : St Louis, MO	1.015	1.191	Jun 2022	0.000		11.025	Jun 2024	-		11.025	12.087	25.318	25.318
USMC Upgrades - AUTOGCAS - ATAWS software development	Various	PMA 209 Various : Various	3.607	0.000		0.000		0.000		-		0.000	0.000	3.607	-
USMC Data/Software Development	MIPR	DMEA : McLellan Park, CA	14.573	0.000		0.000		0.000		-		0.000	0.000	14.573	-
USMC Upgrades - TBD	C/CPFF	TBD : TBD	0.000	0.000		0.000		0.000		-		0.000	62.956	62.956	62.902
USMC Upgrades - Napie Pallet Mod	C/CPFF	CTsI : Lexington Park,MD	0.000	0.062	Jan 2022	0.000		0.000		-		0.000	0.000	0.062	0.062

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
USMC Upgrades - AUTOGCAS	WR	NAWCAD : Pax River, MD	0.000	8.549	Jan 2022	0.000		0.000		-		0.000	0.000	8.549	-
USMC Upgrades - Ordnance UUNS	WR	NAWCAD : Patuxent River, MD	0.000	0.375	Jun 2022	0.000		0.000		-		0.000	0.000	0.375	-
USMC Upgrades - AUTOGCAS - T	WR	FRC SW : North Island, CA	0.000	0.069	Jun 2022	0.000		0.000		-		0.000	0.000	0.069	-
USMC Upgrades - USMC UUNS Support	WR	NAWCWD : China Lake, CA	0.000	0.100	Jun 2022	0.000		0.000		-		0.000	0.000	0.100	-
USMC Upgrades - Telemetry Kits	MIPR	Eglin AFB : Eglin, FL	0.000	0.800	Mar 2023	0.000		0.000		-		0.000	0.000	0.800	-
USMC Upgrades - AMRAAM	MIPR	Eglin AFB : Eglin, FL	0.000	2.400	Mar 2023	0.000		0.000		-		0.000	0.000	2.400	-
DVMC-U (ACS) Improved Tactical Displays Development	C/CPIF	Boeing : St. Louis, MO	4.369	20.655	Jun 2022	27.586	Feb 2023	25.788	Feb 2024	-		25.788	124.201	202.599	202.599
DVMC-U Advance Capability Mission Computer (ACMC)	WR	NSMA : Washington, DC	3.100	0.000		0.000		0.000		-		0.000	0.000	3.100	-
DVMC-U Software Development	WR	NAWCWD : China Lake, CA	0.000	0.286	Nov 2021	4.731	Nov 2022	3.802	Nov 2023	-		3.802	211.886	220.705	-
Flight Plan - Development	C/CPFF	Bascom Hunter : Baton Rouge, LA	0.000	0.000		0.000		0.400	Jun 2024	-		0.400	0.000	0.400	0.400
Fligh Plan Development	C/CPFF	TBD : TBD	0.000	0.000		0.000		0.100	Jul 2024	-		0.100	3.500	3.600	3.600
Obsolescense Redesign (FCC)	C/IDIQ	Boeing : St. Louis, MO	0.000	0.000		7.919	Jul 2023	17.344	Jul 2024	-		17.344	28.726	53.989	53.989
Obsolescense Redesign - APN-245 MMA	WR	NAWCAD : St. Inigoes, MD	0.000	0.200	Apr 2022	0.000		0.000		-		0.000	0.000	0.200	-
Obsolescense Redesign - AN/ARA-63 Open Arch Landing Sys	C/CPFF	TBD : TBD	0.000	3.100	Aug 2022	0.000		0.000		-		0.000	0.000	3.100	3.100
Network Cyber Defense	C/IDIQ	Boeing : St. Louis, MO	0.000	0.000		5.215	Jan 2023	6.614	Jan 2024	-		6.614	8.970	20.799	20.799
Network Cyber Defense	C/IDIQ	NAWCWD : China Lake, CA	0.000	0.000		4.000	Jan 2023	3.818	Jan 2024	-		3.818	5.000	12.818	12.818

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
BLOS/PACFLT Development (Antenna)	C/CPFF	TBD : TBD	0.000	0.000		3.238	Jan 2023	5.390	Jan 2024	-		5.390	0.300	8.928	8.928
BLOS/PACFLT Development	C/FFP	Fuse : San Diego, CA	0.000	0.800	Jun 2022	2.800	Jan 2023	4.360	Jan 2024	-		4.360	0.300	8.260	8.260
BLOS/PACFLT Development (R/T)	C/CPFF	TBD : TBD	0.000	0.000		4.635	Jan 2023	8.268	Jan 2024	-		8.268	0.300	13.203	13.203
BLOS/PACFLT Development (Minotaur)	C/FFP	PMAT : Norfolk, VA	0.000	0.000		1.200	Jan 2023	1.060	Jan 2024	-		1.060	0.300	2.560	2.560
BLOS/PACFLT Development	C/IDIQ	Boeing : St. Louis, MO	0.000	0.000		3.142	Jan 2023	3.934	Jan 2024	-		3.934	0.200	7.276	7.276
LVC A/C Integration Phase 1 & TCTS II Acceleration	Various	TBD : TBD	0.000	0.000		0.000		3.001	Feb 2024	-		3.001	27.032	30.033	-
NGNMPS - Development	C/IDIQ	Boeing : St. Louis, MO	0.000	0.000		0.000		8.915	Dec 2023	-		8.915	21.579	30.494	30.494
NGNMPS - Development	WR	NAWCWD : Pt. Mugu, CA	0.000	0.000		0.000		6.565	Dec 2023	-		6.565	53.449	60.014	-
NGNMPS - Development	WR	NAWCWD : China Lake, CA	0.000	0.000		0.000		4.520	Dec 2023	-		4.520	10.972	15.492	-
ADVEW - Development	C/CPIF	Raytheon : El Segundo, CA	0.000	0.000		0.000		20.000	Jan 2024	-		20.000	20.151	40.151	40.151
ADVEW - Development	C/FPIF	Boeing : St. Louis, MO	0.000	0.000		0.000		2.300	Jan 2024	-		2.300	7.000	9.300	9.300
ADVEW - Development	C/CPFF	NSMA : Washington, DC	0.000	0.000		0.000		44.894	Dec 2023	-		44.894	114.712	159.606	159.606
Prior Year Prod Dev cost no longer funded in FYDP	Various	Various : Various	875.735	0.000		0.000		0.000		-		0.000	0.000	875.735	-
		Subtotal	1,047.132	62.075		125.960		222.365		-		222.365	1,097.499	2,555.031	N/A

Remarks

Increase from FY 2023 to FY 2024 for Live Virtual Constructive (LVC), Next Generation Mission Planning Systems (NGNMPS), Advanced Electronic Warfare (ADVEW), Digital Video Map Computer Upgrade (DVMC-U) and Flight Control Computer (FCC) primary hardware development efforts in FY2024.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / *F/A-18 Squadrons*	Project (Number/Name) 1662 / *F/A-18 Improvement*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MSI/CTP Development Support - 31C SCS	WR	NSMA : Washington, DC	12.313	0.000		1.800	Mar 2023	1.832	Mar 2024	-		1.832	15.766	31.711	-
MSI/CTP Government Developmental Engineering Support	WR	Pt. Mugu : Pt. Mugu, CA	0.852	0.028	Nov 2021	0.452	Nov 2022	0.493	Nov 2023	-		0.493	3.916	5.741	-
MSI/CTP Gov't Engineering Support	WR	NAWCAD : Pax River, MD	13.242	7.762	Nov 2021	5.501	Nov 2022	6.852	Nov 2023	-		6.852	47.760	81.117	-
MSI/CTP Gov't Engineering Support	WR	NAWCWD : China Lake	38.106	11.313	Nov 2021	2.480	Nov 2022	2.531	Nov 2023	-		2.531	21.976	76.406	-
MSI/CTP Gov't Engineering Support Strike Accelerator	WR	NAWCWD : China Lake	6.787	0.000		2.333	Nov 2022	1.531	Nov 2023	-		1.531	0.931	11.582	-
MSI/CTP BIT SAR	WR	NAWCWD : China Lake, CA	0.000	2.000	Mar 2022	0.000		0.000		-		0.000	0.000	2.000	-
MSI/CTP Engineering Support	MIPR	US Army : Aberdeen, MD	0.000	0.311	Dec 2022	0.000		0.318	Dec 2023	-		0.318	2.350	2.979	-
USMC Capability Upgrades /AUTOGCAS Gov't Engineering Support	C/BA	NAWCWD : China Lake	4.132	0.157	Nov 2021	0.670	Nov 2022	0.363	Nov 2023	-		0.363	0.242	5.564	-
USMC Data/Software Engineering	WR	DMEA : McLellan Park, CA	0.188	0.000		0.000		0.000		-		0.000	0.000	0.188	-
DVMC-U Gov't Engineering Support	WR	NAWCAD : Pax River, MD	0.000	0.944	Nov 2021	0.545	Nov 2022	0.556	Nov 2023	-		0.556	2.881	4.926	-
Flight Plan/SCS Engineering Support	WR	NAWCAD : Pax River, MD	9.709	0.000		0.000		0.500	Nov 2023	-		0.500	3.500	13.709	-
Flight Plan/SCS Engineering Support	WR	NAWCAD : China Lake, CA	8.145	1.382	Nov 2021	0.000		1.450	Nov 2023	-		1.450	11.250	22.227	-
Obsolescence Redesign	Various	Various : Various	2.106	0.108	Nov 2021	0.481	Nov 2022	0.490	Nov 2023	-		0.490	1.435	4.620	-
Network Cyber Defense Gov't Engineering Support	WR	NAWCAD : Pax River, MD	0.000	0.000		0.250	Nov 2022	0.450	Nov 2023	-		0.450	0.750	1.450	-
BLOS/PACFLT Engineering/Logistics Support	WR	NAWCWD : China Lake	0.000	28.833	Mar 2022	8.500	Nov 2022	9.800	Nov 2023	-		9.800	0.800	47.933	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / *F/A-18 Squadrons*	Project (Number/Name) 1662 / *F/A-18 Improvement*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
BLOS/PACFLT Egineering Support	WR	NAWCAD : Pax River, MD	0.000	0.000		1.000	Nov 2022	1.400	Nov 2023	-		1.400	0.000	2.400	-
BLOS/PACFLT Engineering Support	WR	ONR : Arlington, VA	0.000	0.959	Mar 2022	1.000	Oct 2022	1.600	Nov 2023	-		1.600	0.000	3.559	-
LVC A/C Integration Support	WR	NAWCAD : Pax River, MD	0.000	0.000		0.000		0.350	Nov 2023	-		0.350	2.350	2.700	-
LVC A/C Integration Support	WR	NAWCTSD : Orlando, FL	0.000	0.000		0.000		0.250	Nov 2023	-		0.250	1.350	1.600	-
LVC A/C Integration Support	WR	NAWCAD : Pt Mugu, CA	0.000	0.000		0.000		0.250	Nov 2023	-		0.250	2.050	2.300	-
ADVEW Support	WR	NAWCAD : China Lake, CA	0.000	0.000		0.000		5.000	Nov 2023	-		5.000	10.000	15.000	-
ADVEW Support	WR	NSMA : Washington, DC	0.000	0.000		0.000		18.000	Feb 2024	-		18.000	60.950	78.950	-
Prior Year Support costs no longer funded in FYDP	Various	Various : Various	3,127.950	0.000		0.000		0.000		-		0.000	0.000	3,127.950	-
		Subtotal	3,223.530	53.797		25.012		54.016		-		54.016	190.257	3,546.612	N/A

Remarks

Increase from FY 2023 to FY 2024 for Live Virtual Constructive (LVC), Beyond Line of Sight (BLOS) and Advanced Electronic Warfare (ADVEW).

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation (OT&E)	WR	NAWCAD : Pax River, MD	2.042	0.000		1.415	Nov 2022	0.000		-		0.000	12.292	15.749	-
Operational Test & Evaluation (OT&E)	WR	OPTEVFOR : Norfolk, VA	44.445	8.200	Dec 2021	7.727	Dec 2022	7.759	Dec 2023	-		7.759	62.881	131.012	-
Developmental Test & Evaluation (DT&E)	WR	NAWCAD : Pax River, MD	13.189	6.016	Mar 2022	1.578	Nov 2022	8.048	Nov 2023	-		8.048	33.721	62.552	-
Developmental Test & Evaluation (DT&E)	WR	NAWCWD : China Lake, CA	2.286	0.000		6.581	Nov 2022	25.149	Nov 2023	-		25.149	74.475	108.491	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 1662 / *F/A-18 Improvement*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	NAWCWD : Pt. Mugu, CA	0.000	2.425	Mar 2022	0.000		0.000		-		0.000	0.000	2.425	-
Developmental Test & Evaluation (DT&E)	Various	Various : Various	209.122	0.000		0.000		0.000		-		0.000	0.000	209.122	-
		Subtotal	271.084	16.641		17.301		40.956		-		40.956	183.369	529.351	N/A

Remarks

Increase from FY 2023 to FY 2024 for Live Virtual Constructive (LVC), Advanced Electronic Warfare (ADVEW) and Digital Video Map Computer Upgrade (DVMC-U) flight test.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MSI/CTP- Program Management Support	WR	NAWCAD : Pax River, MD	10.986	0.388	Nov 2021	0.815	Nov 2022	1.141	Nov 2023	-		1.141	9.668	22.998	-
MSI/CTP PMMAC CSS	C/CPFF	Tekla : Pax River, MD	0.000	0.189	Apr 2022	1.009	Apr 2023	1.239	Apr 2024	-		1.239	10.698	13.135	13.135
MSI/CTP Travel	Various	NAVAIR : Pax River, MD	6.707	0.496	Oct 2021	0.520	Nov 2022	0.531	Nov 2023	-		0.531	3.873	12.127	-
USMC Capability Upgrades Program Management Support	WR	NAWCAD : Pax River, MD	1.641	0.000		0.718	Nov 2022	0.006	Nov 2023	-		0.006	4.828	7.193	-
USMC PMMAC CSS	C/CPFF	Tekla : Pax River, MD	0.441	0.000		0.720	Apr 2023	0.734	Apr 2024	-		0.734	5.569	7.464	7.464
USMC Travel	Various	NAVAIR : Pax River, MD	0.122	0.065	Nov 2021	0.000		0.000		-		0.000	0.000	0.187	-
DVMC-U Program Management Support	WR	NAWCAD : Pax River, MD	0.191	0.000		0.198	Nov 2022	0.645	Nov 2023	-		0.645	4.891	5.925	-
DVMC-U PMMAC CSS	C/CPFF	Tekla : Pax River, MD	0.225	0.397	Apr 2022	0.234	Apr 2023	0.686	Apr 2024	-		0.686	5.198	6.740	6.740
DVMC-U Systems Engineering	C/CPFF	SAIC : Lexington Park, MD	0.000	0.204	Mar 2022	0.000		0.000		-		0.000	0.000	0.204	0.204

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / *F/A-18 Squadrons*	Project (Number/Name) 1662 / *F/A-18 Improvement*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DVMC-U Travel	Various	NAVAIR : Pax River, MD	0.000	0.000		0.000		0.018	Nov 2023	-		0.018	0.134	0.152	-
Flight Plan Engineering/ SCS Program Mgmt Support	WR	NAWCAD : Pax River, MD	46.806	0.000		0.435	Nov 2022	0.000		-		0.000	0.000	47.241	-
Flight Plan/SCS PMMAC CSS	C/CPFF	Tekla : Pax River, MD	0.838	0.000		0.438	Apr 2023	0.000		-		0.000	0.000	1.276	1.276
Network Cyber Defense Program Management	C/CPFF	MILCORP : Pax River, MD	0.000	0.000		0.250	Jan 2023	0.250	Jan 2024	-		0.250	0.750	1.250	1.250
BLOS/PACFLT Mgmt Support	C/CPFF	Tekla : Pax River, MD	0.000	0.000		0.100	Apr 2023	0.100	Apr 2024	-		0.100	0.100	0.300	0.300
LVC Aircraft Integration Mgmnt Support	C/CPFF	Tekla : Pax River, MD	0.000	0.000		0.000		0.250	Apr 2024	-		0.250	1.250	1.500	1.500
LVC Aircraft Integration Mgmnt Support	WR	NAWCAD : Pax River, MD	0.000	0.000		0.000		0.100	Nov 2023	-		0.100	0.500	0.600	-
LVC Aircraft Integration Mgmnt Support	WR	NAWCTSD : Orlando, FL	0.000	0.000		0.000		0.100	Nov 2023	-		0.100	0.500	0.600	-
LVC Aircraft Integration Mgmnt Support	WR	NAWCWD : China Lake, CA	0.000	0.000		0.000		0.100	Nov 2023	-		0.100	0.500	0.600	-
ADVEW Mgmnt Support	C/CPFF	Tekla : Pax River, MD	0.000	0.000		0.000		0.150	Apr 2024	-		0.150	0.468	0.618	0.618
ADVEW Mgmnt Support	Various	NAVAIR : Pax River, MD	0.000	0.000		0.000		0.033	Nov 2023	-		0.033	0.051	0.084	-
Prior Year Mgmnt cost no longer funded in FYDP	Various	Various : Various	150.114	0.000		0.000		0.000		-		0.000	0.000	150.114	-
		Subtotal	218.071	1.739		5.437		6.083		-		6.083	48.978	280.308	N/A

Remarks

Increase from FY 2023 to FY 2024 for Live Virtual Constructive (LVC) and Advanced Electronic Warfare (ADVEW) support services.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	4,759.817	134.252		173.710		323.420		-		323.420	1,520.103	6,911.302	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / *F/A-18 Squadrons*	Project (Number/Name) 1662 / *F/A-18 Improvement*	

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 1662 / *F/A-18 Improvement*

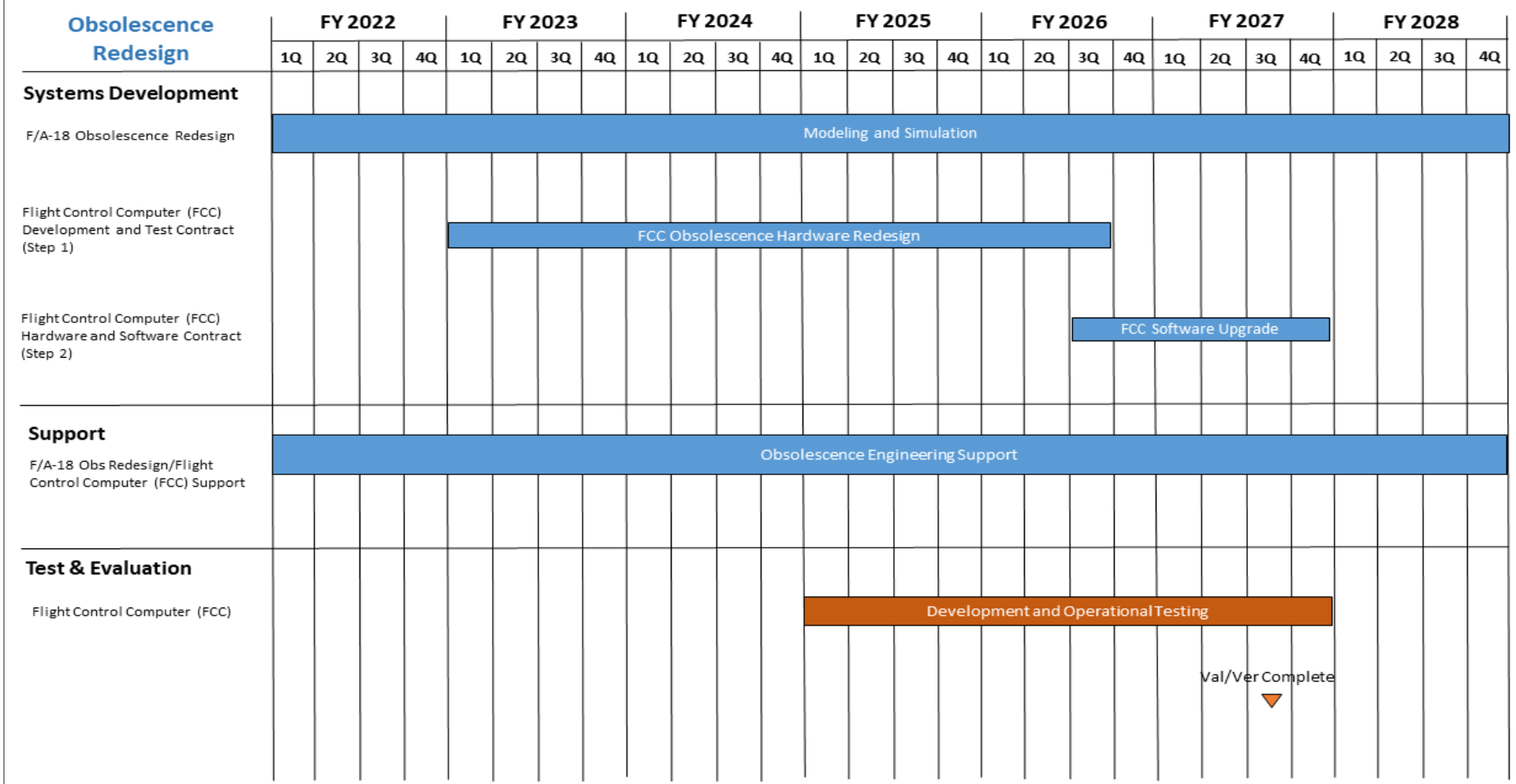

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 1662 / *F/A-18 Improvement*

Multi-System Integration (MSI)/ Common Tactical Picture (CTP)/Advanced Tactical Data Fusion

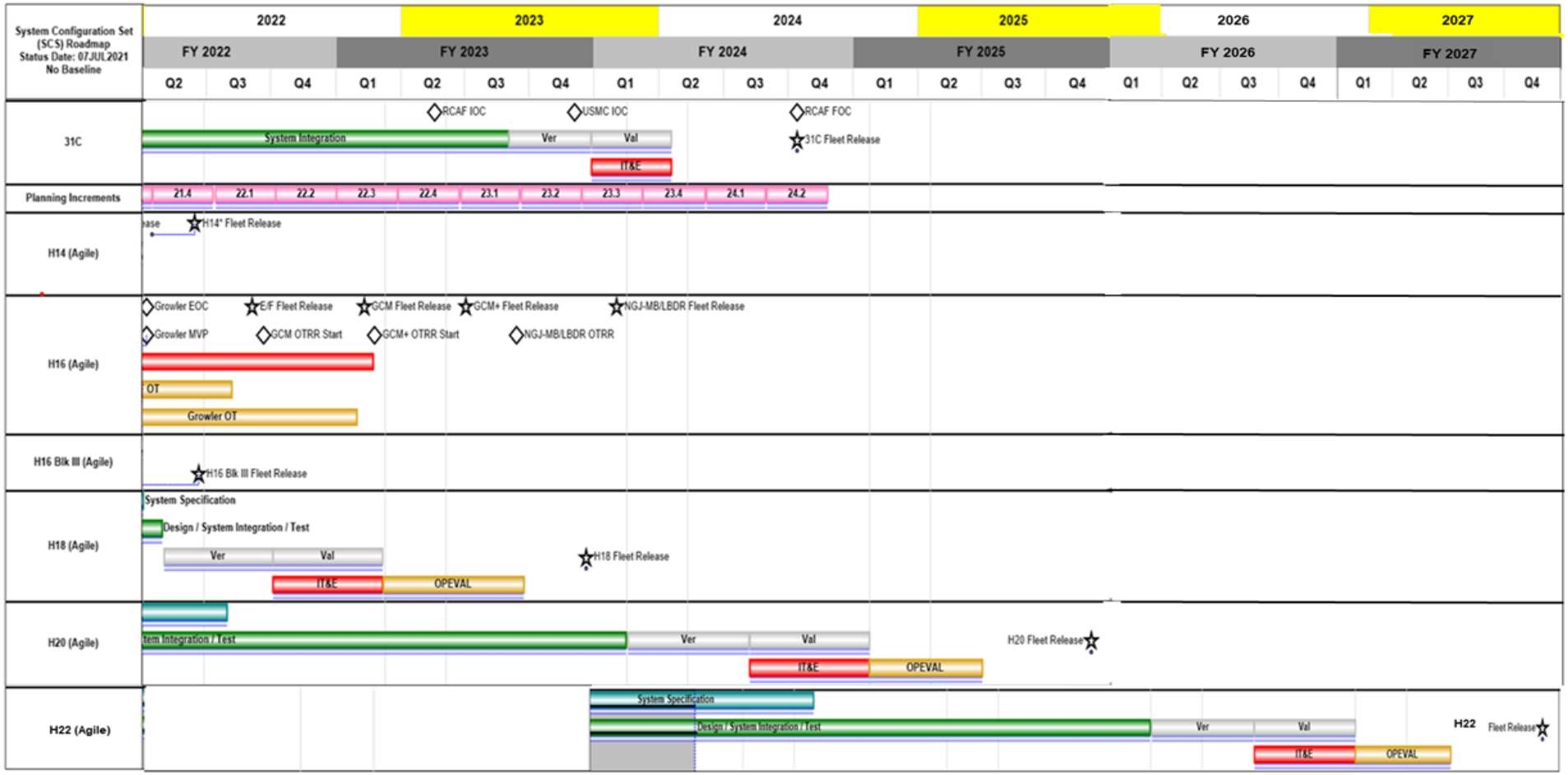

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 1662 / *F/A-18 Improvement*

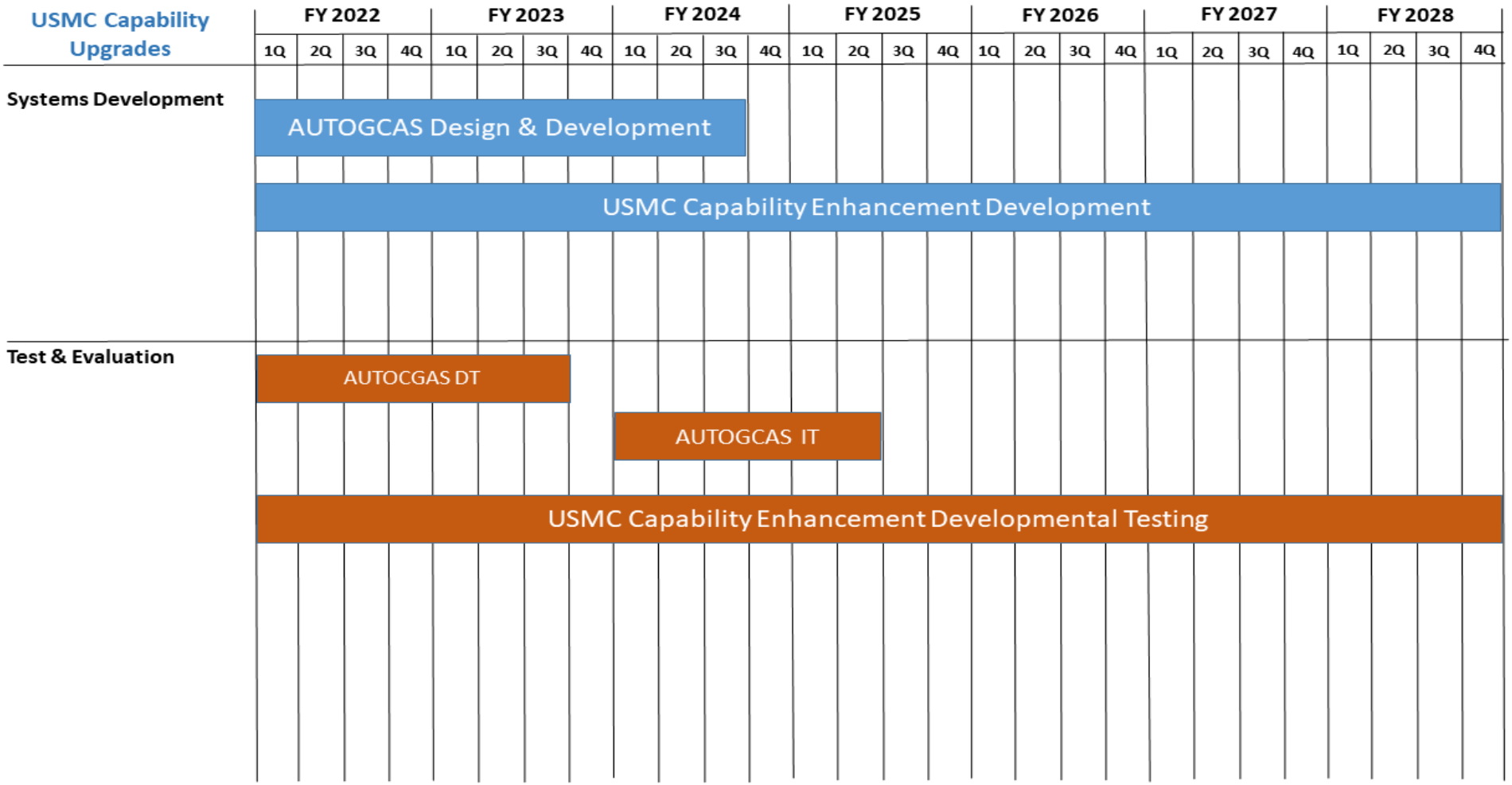

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 1662 / *F/A-18 Improvement*

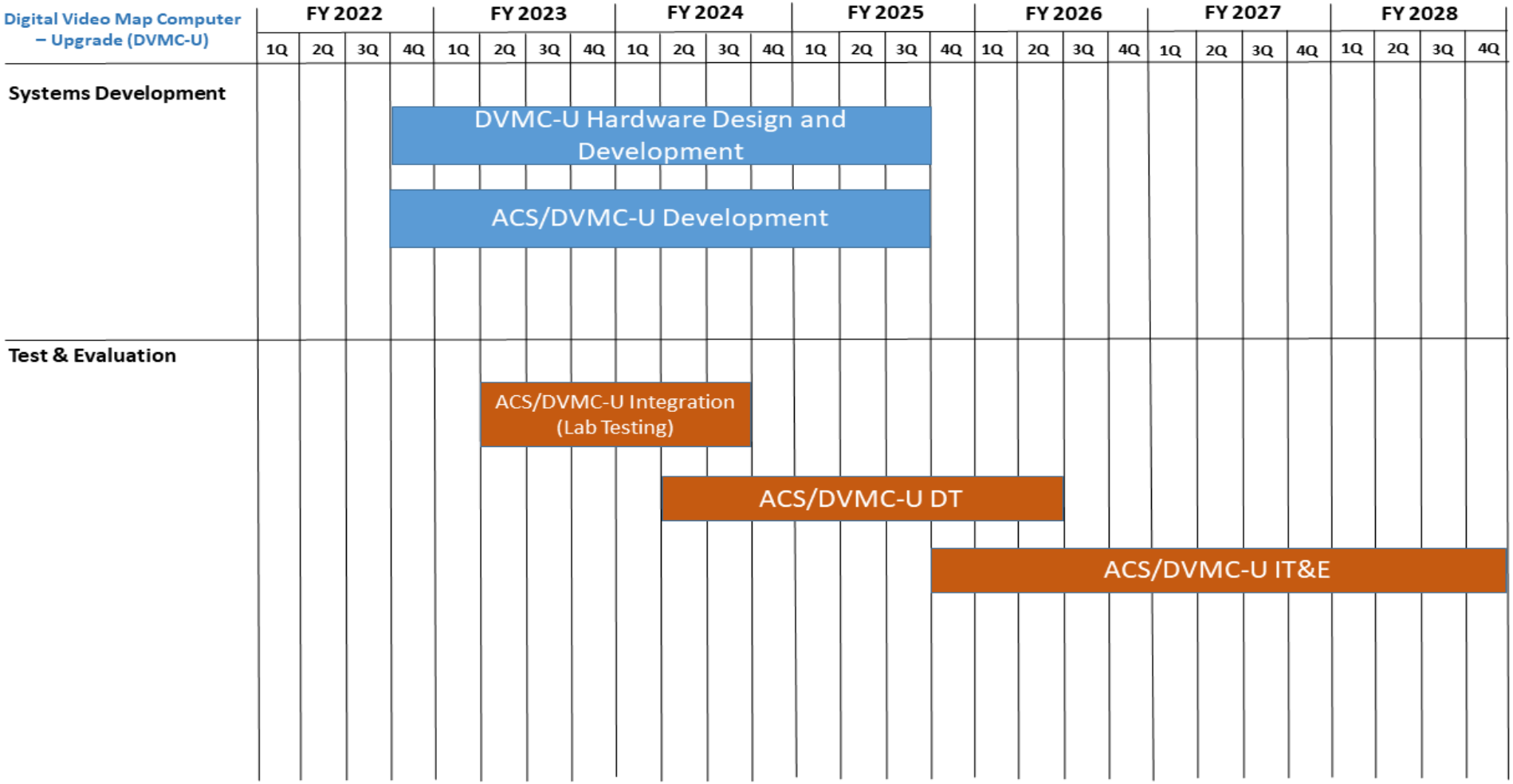

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 1662 / *F/A-18 Improvement*

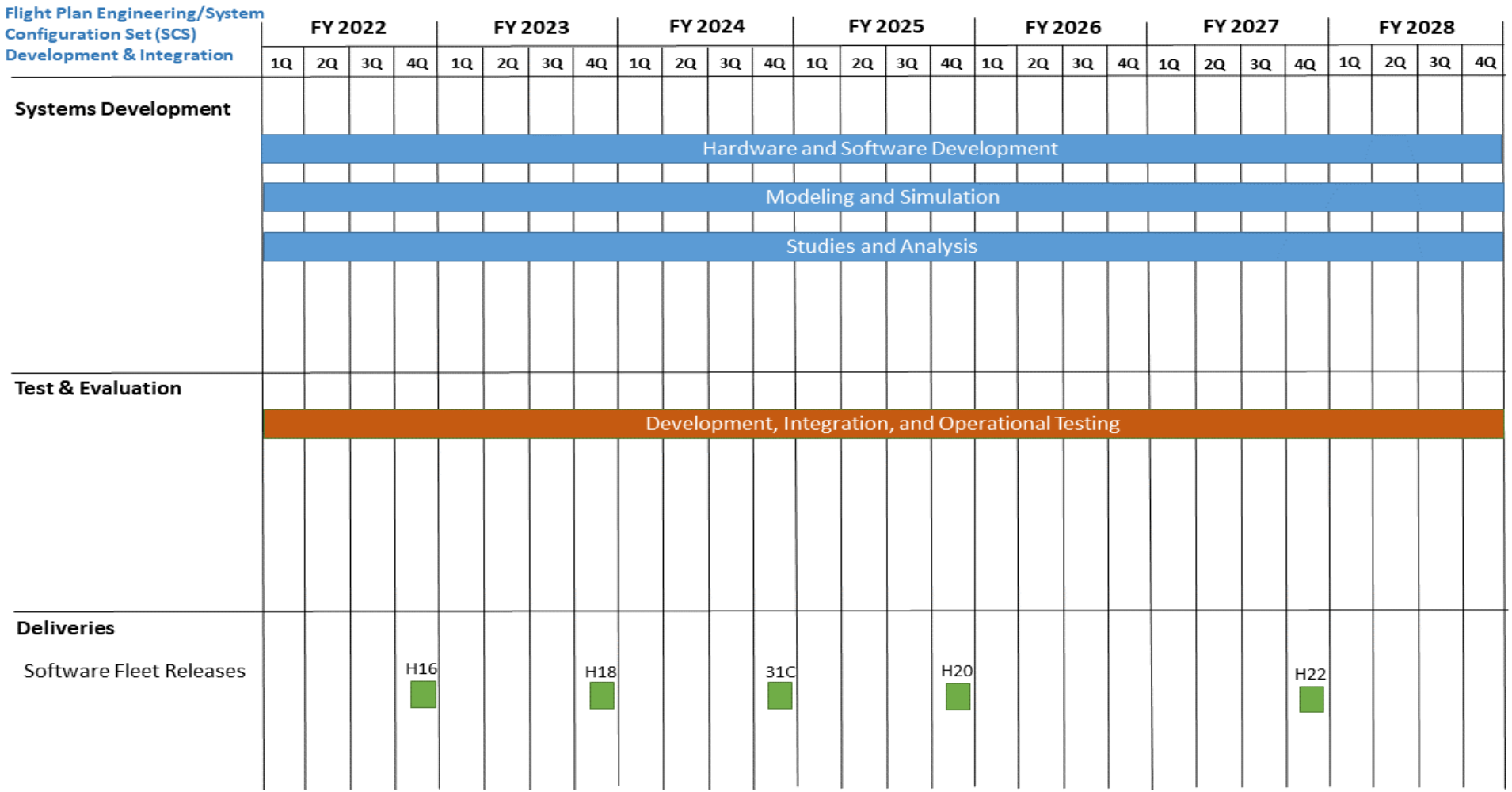

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 1662 / *F/A-18 Improvement*

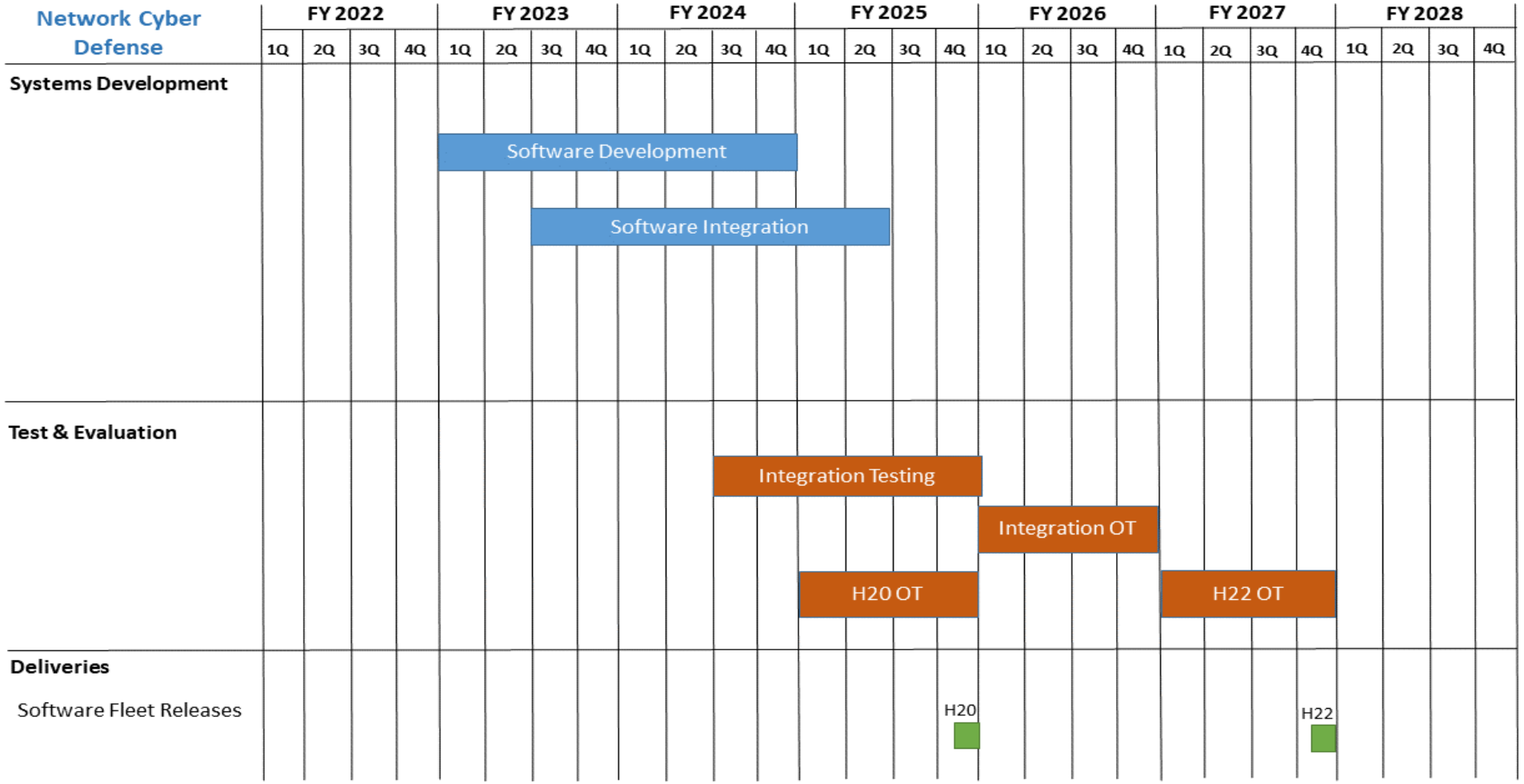

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 1662 / *F/A-18 Improvement*

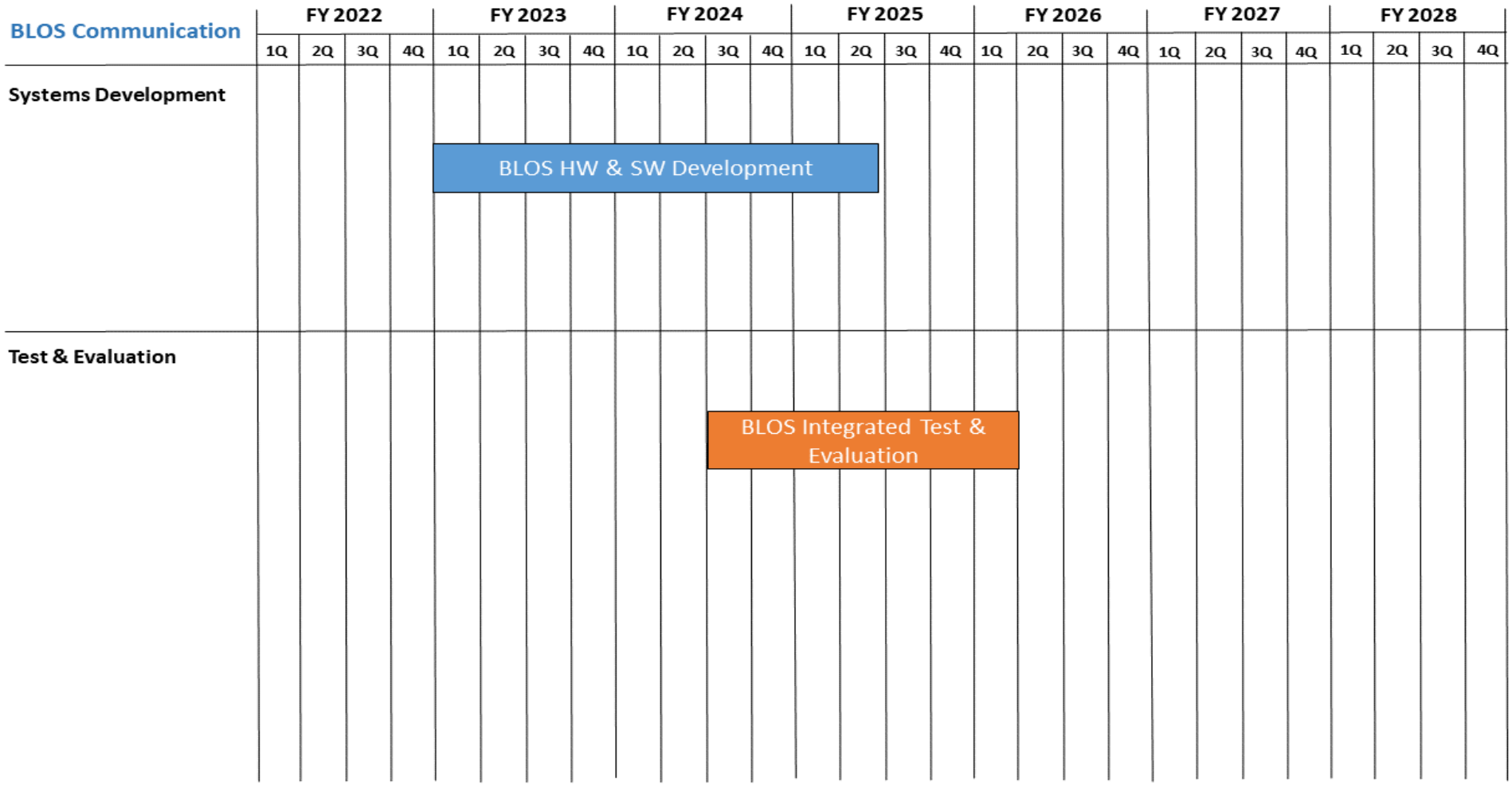

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 1662 / *F/A-18 Improvement*

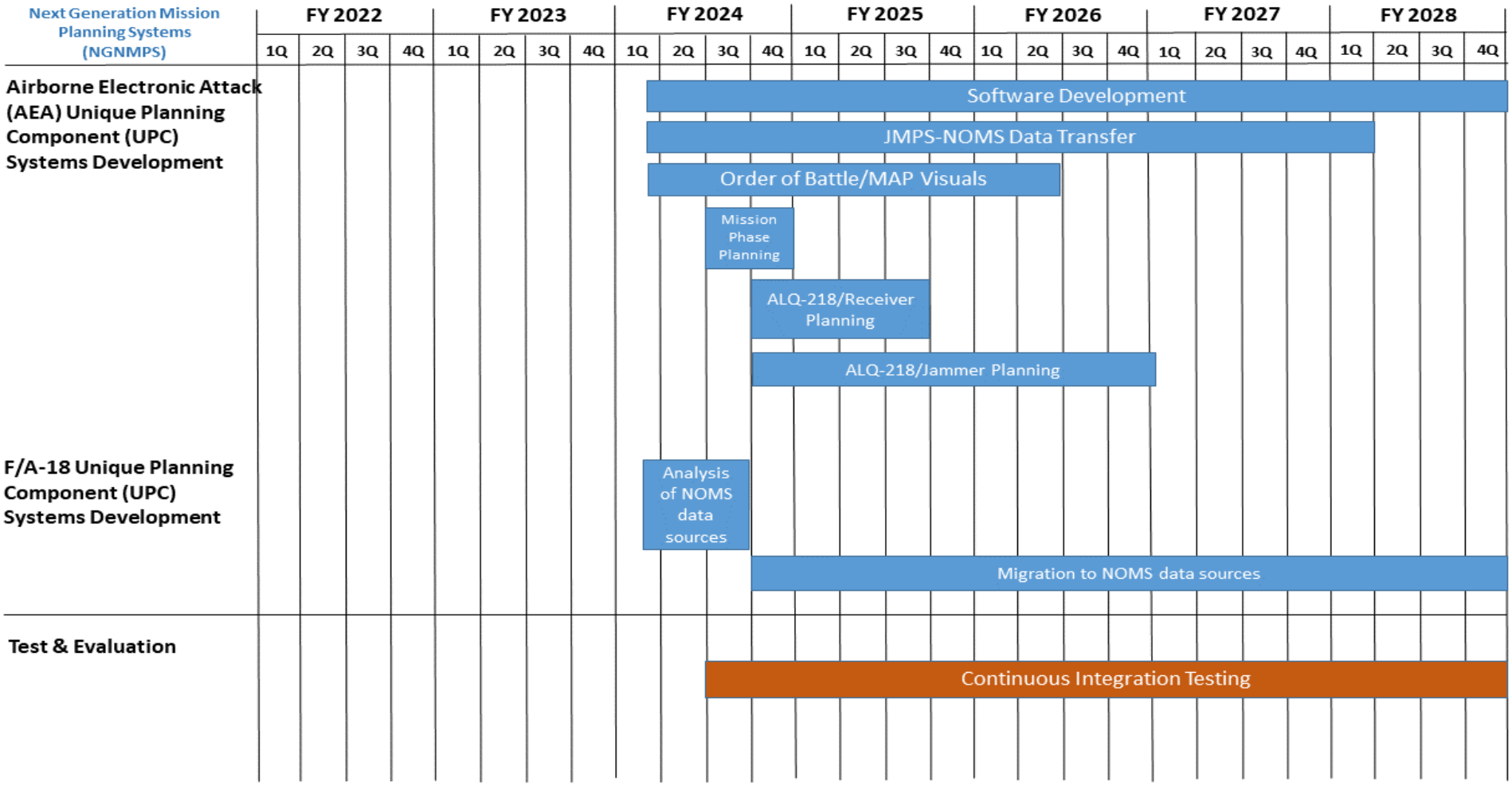

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 1662 / *F/A-18 Improvement*

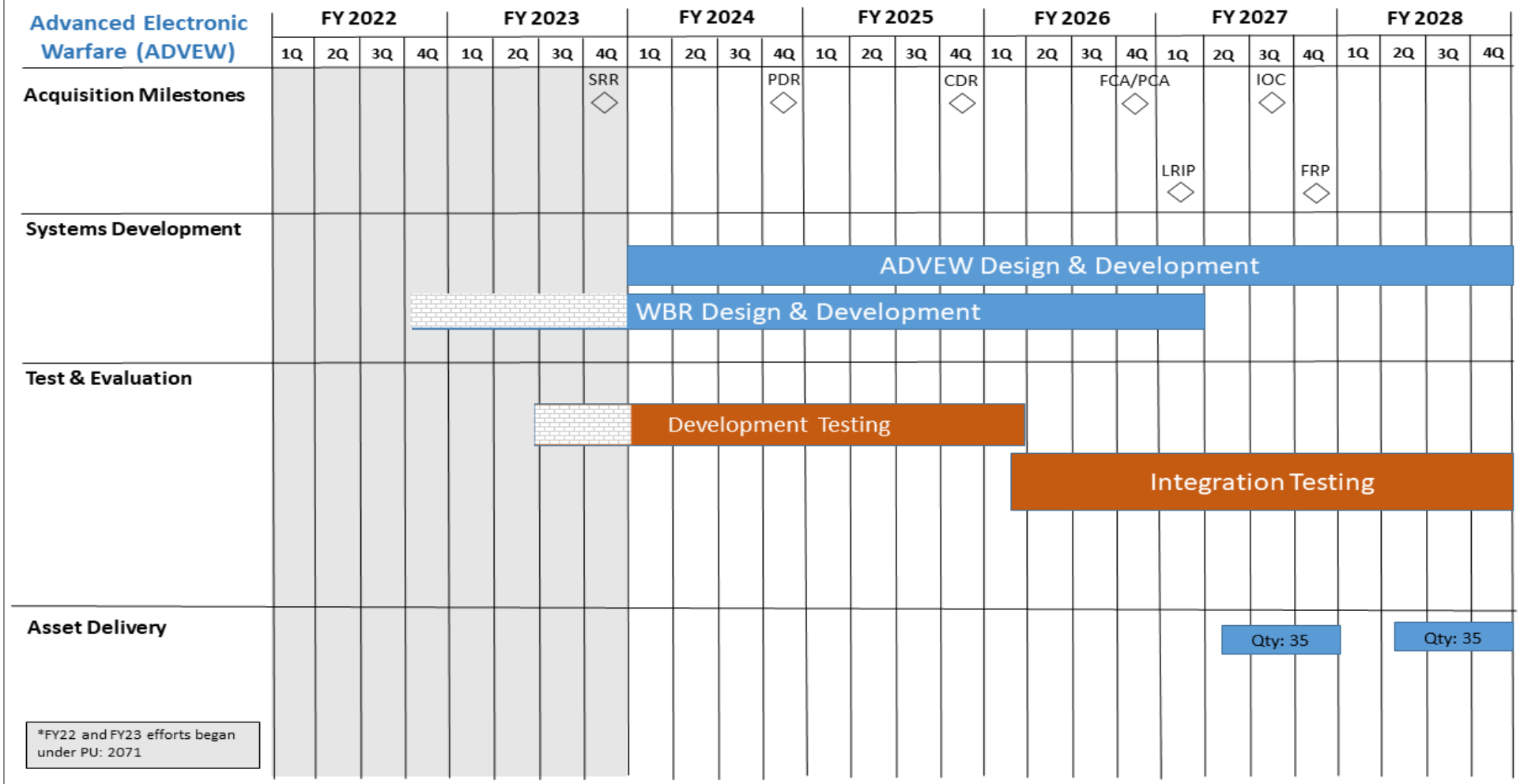

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 1662 / *F/A-18 Improvement*

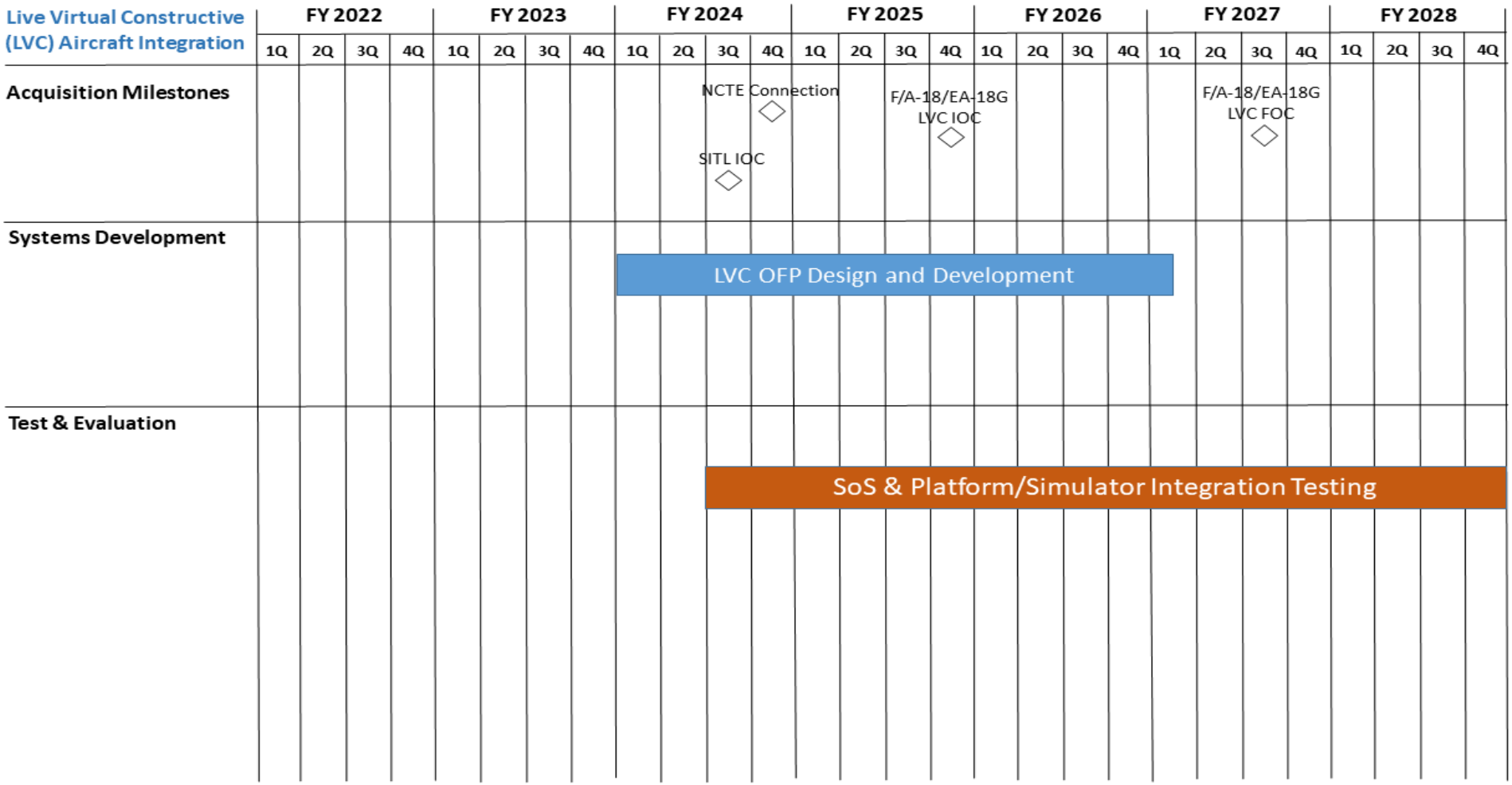

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 1662 / *F/A-18 Improvement*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Multi-System Integration / Common Tactical Picture				
Systems Development & Testing: 31C Development & Testing	1	2022	1	2024
Systems Development & Testing: H14 Agile Development & Testing	1	2022	2	2022
Systems Development & Testing: H16 Agile Development & Testing	1	2022	4	2022
Systems Development & Testing: H18 Agile Development & Testing	1	2022	3	2023
Systems Development & Testing: H20 Agile Development & Testing	1	2022	2	2025
Systems Development & Testing: H22 Agile Development & Testing	1	2024	4	2028
Flight Plan Engineering				
System Development: Hardware and Software Development	1	2022	4	2028
System Development: Modeling and Simulation	1	2022	4	2028
System Development: Studies and Analysis	1	2022	4	2028
Test and Evaluation: Developmental, Integration and Operational Testing	1	2022	4	2028
Deliveries: Software Fleet Release: H16 Fleet Release	4	2022	4	2022
Deliveries: Software Fleet Release: H18 Fleet Release	4	2023	4	2023
Deliveries: Software Fleet Release: 31C Fleet Release	4	2024	4	2024
Deliveries: Software Fleet Release: H20 Fleet Release	4	2025	4	2025
Deliveries: Software Fleet Release: H22 Fleet Release	4	2027	4	2027
Obsolescence Redesign				
System Development: F/A-18 Weapon System & Ancillary Equipment: Modeling and Simulation	1	2022	4	2028
System Development: Flight Control Computer (FCC): FCC Obsolescence Hardware Redesign	1	2023	3	2026
System Development: Flight Control Computer (FCC): FCC Software Upgrade	3	2026	4	2027

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 1662 / *F/A-18 Improvement*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Support: Obsolescence Engineering Support	1	2022	4	2028
Test and Evaluation: Development and Operational Testing	1	2025	4	2027
Test and Evaluation: FCC Val/Ver Complete	3	2027	3	2027
USMC Capability Upgrade				
AUTOGCAS Design and Development	1	2022	3	2024
USMC Capability Enhancement Development	1	2022	4	2028
AUTOGCAS DT	1	2022	3	2023
AUTOGCAS IT	1	2024	2	2025
USMC Capability Enhancement Development Testing	1	2022	4	2028
Digital Video Map Computer - Upgrade				
System Development: DVMC-U Hardware Design and Development	4	2022	3	2025
System Development: ACS Situational Awareness w/ DVMC-U Development	4	2022	3	2025
Test and Evaluation: ACS Situational Awareness w/ DVMC-U SCS Integration (Lab Testing)	2	2023	3	2024
Test and Evaluation: ACS Situational Awareness w/ DVMC-U DT	2	2024	2	2026
Test and Evaluation: ACS Situational Awareness w/ DVMC-U IT&E	4	2025	4	2028
Network Cyber Defense				
Systems Development: Software Development	1	2023	4	2024
Systems Development: Software Integration	3	2023	2	2025
Test & Evaluation: Integration Testing	3	2024	4	2025
Test & Evaluation: H20 OT	1	2025	4	2025
Test & Evaluation: Integration Operational Test	1	2026	4	2026
Test & Evaluation: H22 OT	1	2027	4	2027
BLOS Communication				
Systems Development: BLOS Hardware & Software Development	1	2023	2	2025
Test & Evaluation: BLOS Integrated Test & Evaluation	3	2024	1	2026

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 1662 / *F/A-18 Improvement*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Next Generation Mission Planning System (NGNMPS)				
Airborne Electronic Attack (AEA) Uniquuie Planning Componenet (UPC) Systems Development: Software Development	1	2024	4	2028
Airborne Electronic Attack (AEA) Uniquuie Planning Componenet (UPC) Systems Development: JMPS-NOMS Data Transfer	1	2024	1	2028
Airborne Electronic Attack (AEA) Uniquuie Planning Componenet (UPC) Systems Development: Order of Battle/MAP Visuals	1	2024	1	2028
Airborne Electronic Attack (AEA) Uniquuie Planning Componenet (UPC) Systems Development: Mission Phase Planning	3	2024	4	2024
Airborne Electronic Attack (AEA) Uniquuie Planning Componenet (UPC) Systems Development: ALQ-218/Receiver Planning	4	2024	3	2025
Airborne Electronic Attack (AEA) Uniquuie Planning Componenet (UPC) Systems Development: ALQ-218/Jammer Planning	4	2024	4	2026
F/A-18 Unique Planning Component (UPC) Systems Development: Analysis of NOMS data sources	1	2024	3	2024
F/A-18 Unique Planning Component (UPC) Systems Development: Migration of NOMS data sources	4	2022	4	2028
Test & Evaluation: Integration Testing	3	2024	4	2028
Advanced Electronic Warfare (ADVEW)				
Acquistion Milestones: SRR	4	2023	4	2023
Acquistion Milestones: PDR	4	2024	4	2024
Acquistion Milestones: CDR	4	2025	4	2025
Acquistion Milestones: FCA/PCA	4	2026	4	2026
Acquistion Milestones: LRIP	1	2027	1	2027
Acquistion Milestones: IOC	3	2027	3	2027
Acquistion Milestones: FRP	4	2027	4	2027
Systems Development: ADVEW Design & Development	1	2024	4	2028
Systems Development: WBR Design & Development	1	2023	1	2027

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 1662 / *F/A-18 Improvement*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Test & Evaluation: Development Testing	2	2023	1	2026
Test & Evaluation: Integration Testing	1	2026	4	2028
Asset Delivery: ADVEW Delivery 1 - Qty 35	2	2027	4	2027
Asset Delivery: ADVEW Delivery 2 - Qty 35	2	2028	4	2028
Live Virtual Contructive (LVC) Aircraft Integration				
Acquisition Milestones: SITL IOC	3	2024	3	2024
Acquisition Milestones: NCTE Connection	4	2024	4	2024
Acquisition Milestones: F/A-18/EA-18G LVC IOC	4	2025	4	2025
Acquisition Milestones: F/A-18/EA-18G LVC FOC	3	2027	3	2027
Systems Development: LVC OFP Design and Development	1	2024	1	2027
Systems Development: SoS & Platform/Simulator Integration Testing	3	2024	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / *F/A-18 Squadrons*	Project (Number/Name) 2065 / *F/A-18 Radar Upgrade*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2065: *F/A-18 Radar Upgrade*	768.422	7.540	11.246	8.683	-	8.683	10.884	11.806	11.005	11.226	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

F/A-18 Radio Detection and Ranging (RADAR) Upgrade: The F/A-18 RADAR Upgrade, Active Electronically Scanned Array (AESA) development program, which began in FY 1999, is the last of three pre-planned upgrades to the F/A-18 EF/EA-18G RADAR. The AESA system corrects operational test deficiencies noted in the AN/APG-73. It provides multi-target tracking, Synthetic Aperture RADAR (SAR) imagery, SAR Target Location Error (TLE), and improved spotlight map resolution. In addition, it provides greater lethality than previous F/A-18 RADARs by allowing full tactical support of existing and planned air-to-air (A/A) and air-to-ground (A/G) weapons and it significantly increases detection and tracking ranges. The AESA system provides greater survivability through self-protection and standoff jamming capabilities, while its greater range allows for reduced detection by enemy RADAR. The AN/APG-73 will be upgraded to AN/APG-79. This combat-proven AESA radar system substantially increases the power of the F/A-18E/F EA-18G from the front-end array to the back-end processor and operational software. This budget continues spiral capability development of AESA with increased efforts to address Phase II Operational Requirements Document requirements such as Counter-Electronic Attack (CEA) against multiple Radio Frequency Emitters, AESA Multi-Jammer Electronic Protection, Precision TLE Improvement, Monopulse and 5th/6th Channel development, and Air Combat Maneuvering/Short Range Search and Track development. This budget supports AN/APG-79 integration into the Advanced EW suite as a contributing wideband sensor. It also includes upgrades to RADAR Instrumentation, test and evaluation assets, threat assets, and upgraded modeling and simulation of both clean and Electronic Attack threat environments. This budget includes the overarching Anti-Surface Warfare (ASuW) software improvements, which includes Aided Target Recognition (AiTR), and Strike Accelerator/Kill Chain capabilities. This budget request supports development and testing of design modifications to address obsolescence issues with APG-65, APG-73 and APG-79 RADAR systems. USMC upgrades to the platform are being developed to include capability expansion of AESA Radar for F/A-18 A-D.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Distributed Targeting - Counter-Electronic Attack (CEA) Software Development, Developmental Testing, Operational Testing, & Integration	7.092	10.819	8.496	0.000	8.496
Articles:	-	-	-	-	-
Description: Funding provided for the support of hardware (HW) and software (SW) capabilities development, integration and associated testing for AESA, ASuW, Wideband Receiver and Strike Accelerator.					
FY 2023 Plans: This budget request supports development to provide new instantaneous bandwidth capability in the AN/APG-79 through software upgrades. It supports the incorporation of correction of deficiencies for Anti-Surface Warfare (ASuW) software improvements, which includes Aided Target Recognition (AiTR), and Strike Accelerator/					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / *F/A-18 Squadrons*	Project (Number/Name) 2065 / *F/A-18 Radar Upgrade*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Kill Chain capabilities. Funding also supports development and testing of design modifications to address cybersecurity enhancements. ***FY 2024 Base Plans:*** Continuation of AN/APG-79 software upgrades. Supporting the incorporation of correction of deficiencies for Anti-Surface Warfare (ASuW) software improvements, which includes Aided Target Recognition (AiTR), and Strike Accelerator/Kill Chain capabilities. Funding also supports development and testing of design modifications to address cybersecurity enhancements. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY2023 to FY2024 decrease of $2.323 million for Distributed Targeting engineering support.					
Title: F/A-18 RADAR Obsolescence Redesign	0.448	0.427	0.187	0.000	0.187
Articles:	-	-	-	-	-
Description: Funding provided for development and design modifications to address obsolescence issues in the RADAR. ***FY 2023 Plans:*** FY2023 funding supports the development and testing of design modifications to address obsolescence issues and minor modifications to software for fleet operations in the APG-79 RADAR systems. ***FY 2024 Base Plans:*** FY2024 funding supports the development and testing of design modifications to address obsolescence issues and minor modifications to software for fleet operations in the APG-79 RADAR systems. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease from FY2023 to FY2024 of $0.240 million due to the ramp-down of Radar obsolescence redesign efforts.					
Accomplishments/Planned Programs Subtotals	7.540	11.246	8.683	0.000	8.683

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 2065 / *F/A-18 Radar Upgrade*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• APN/0525: *F-18 Series Mod (OSIP 002-07)*	327.000	461.118	640.236	-	640.236	724.628	953.615	1,068.998	1,153.697	2,988.897	21,847.456
• APN/0145: *FA-18E/F*	977.161	671.065	41.329	-	41.329	28.671	50.898	0.000	0.000	0.000	54,084.845

Remarks

D. Acquisition Strategy

The AESA program continues developmental efforts following a successful Full Rate Production milestone decision, after completing a two-phase Acquisition approach during the FY 1999 through FY 2007 timeframe. This strategy continues utilization of reform initiatives such as: early partnering with industry; leveraging industry investment; optimizing use of Commercial Off-The Shelf software and Non-Developmental Item, using Cost as an Independent Variable, and Electronic Data Deliverables. Basic Ordering Agreement orders are in place for Boeing, the airframe prime manufacturer/integrator, and Raytheon, the Radio Detection and Ranging RADAR manufacturer, for focused risk reduction and sustainment prior to developmental activities.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / *F/A-18 Squadrons*	Project (Number/Name) 2065 / *F/A-18 Radar Upgrade*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Distributed Targeting Systems Engineering - Capabilities	WR	NAWCWD : China lake, CA	7.281	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Distributed Targeting Systems Engineering	WR	NAWCAD : Pax River, MD	12.378	0.000		0.946	Nov 2022	0.300	Nov 2023	-		0.300	0.000	13.624	-
Distributed Targeting Product Development Aided Target Recongnition	WR	NAWCWD CL : China lake, CA	2.364	0.400	Nov 2021	0.000		0.600	Nov 2023	-		0.600	0.000	3.364	-
Distributed Targeting - ASuW	C/CPFF	Boeing : St. Louis, MO	0.204	5.346	Feb 2022	0.000		0.000		-		0.000	0.000	5.550	5.550
Radar Advanced Development	WR	NSMA : Washington, DC	82.953	0.246	Nov 2021	5.845	Dec 2022	4.419	Dec 2023	-		4.419	35.151	128.614	-
Prior Year Prod Dev Cost no longer funded in FYDP	Various	Various : Various	474.094	0.000		0.000		0.000		-		0.000	0.000	474.094	-
		Subtotal	579.274	5.992		6.791		5.319		-		5.319	Continuing	Continuing	N/A

Remarks

Decrease from FY2023 to FY2024 for engineering efforts in Distributed Targeting and Radar Advanced Development efforts.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Distributed Targeting Software Development (Instrumentation)	WR	NAWCWD : China Lake, CA	45.949	0.000		0.165	Nov 2022	0.385	Nov 2023	-		0.385	0.913	47.412	-
Radar Advanced Development Chamber Support	WR	NSMA : Washington, DC	0.520	0.000		0.551	Dec 2022	0.355	Dec 2023	-		0.355	2.902	4.328	-
Distributed Targeting Gov't Engineering Support	WR	NAWCAD : PAX River, MD	3.554	0.844	Nov 2021	1.770	Nov 2022	1.176	Nov 2023	-		1.176	9.276	16.620	-
Prior Year Support cost no longer funded in the FYDP	Various	Various : Various	4.684	0.000		0.000		0.000		-		0.000	0.000	4.684	-
		Subtotal	54.707	0.844		2.486		1.916		-		1.916	13.091	73.044	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / *F/A-18 Squadrons*	Project (Number/Name) 2065 / *F/A-18 Radar Upgrade*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Decrease from FY2023 to FY2024 for Distributed Targeting systems engineering at NAWCAD, Pax River.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation (OT&E)	WR	NAWCWD : China Lake, CA	3.481	0.000		0.910	Nov 2022	0.603	Nov 2023	-		0.603	4.225	9.219	-
Operational Test & Evaluation (OT&E)	WR	NAWCAD : PAX River, MD	0.210	0.448	Nov 2021	0.223	Nov 2022	0.150	Nov 2023	-		0.150	0.781	1.812	-
Prior Year Operational Test & Evaluation Not Funded FYDP (PYOT&E)	Various	Various : Various	112.086	0.000		0.000		0.000		-		0.000	0.000	112.086	-
		Subtotal	115.777	0.448		1.133		0.753		-		0.753	5.006	123.117	N/A

Remarks

Decrease from FY2023 to FY2024 for operational testing of Distributed Targeting and Radar obsolescence.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Distributed Targeting CSS Program Management Support	C/CPFF	Various : Various	9.585	0.231	Dec 2021	0.526	Dec 2022	0.564	Dec 2023	-		0.564	2.276	13.182	13.082
Distributed Targeting Gov't Program Management Support	WR	NAWCAD : Pax River, MD	2.370	0.000		0.069	Nov 2022	0.069	Nov 2023	-		0.069	0.365	2.873	-
Distributed Targeting Travel	Various	NAVAIR : Pax River, MD	1.845	0.025	Oct 2021	0.037	Oct 2022	0.025	Oct 2023	-		0.025	0.209	2.141	-
Radar Obsol Redesign CSS Support	C/CPFF	Various : Various	3.513	0.000		0.169	Dec 2022	0.000		-		0.000	0.000	3.682	4.237

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / *F/A-18 Squadrons*	Project (Number/Name) 2065 / *F/A-18 Radar Upgrade*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Radar Obsol Redesign Gov't Program Management	WR	NAWCAD : Pax River, MD	1.202	0.000		0.023	Nov 2022	0.024	Nov 2023	-		0.024	0.128	1.377	-
Radar Obsol Redesign Travel	Various	NAVAIR : Pax River, MD	0.149	0.000		0.012	Oct 2022	0.013	Oct 2023	-		0.013	0.074	0.248	-
		Subtotal	18.664	0.256		0.836		0.695		-		0.695	3.052	23.503	N/A

Remarks

Decrease from FY2023 to FY2024 for program travel and various program management contractor support servies.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	768.422	7.540		11.246		8.683		-		8.683	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 2065 / *F/A-18 Radar Upgrade*

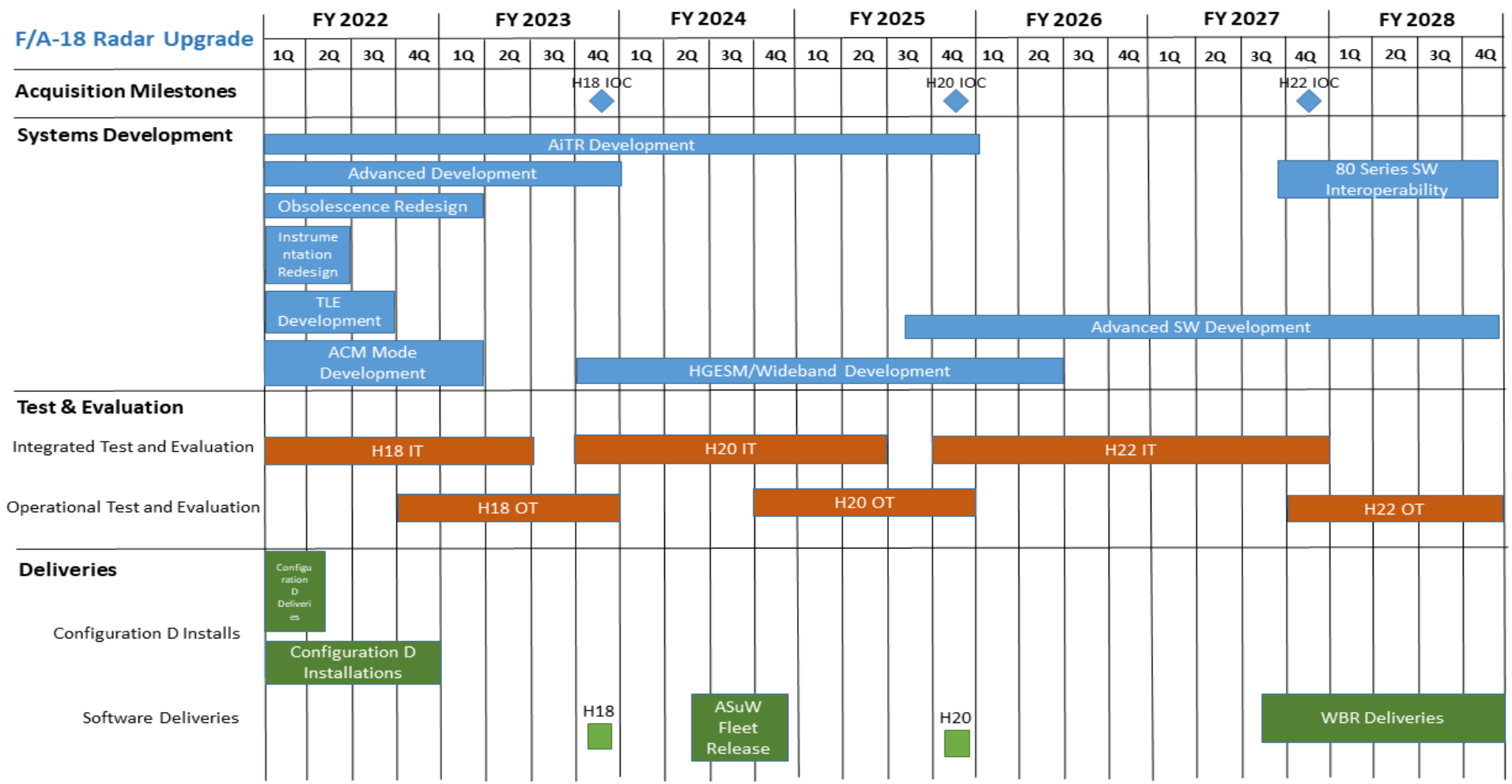

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 2065 / *F/A-18 Radar Upgrade*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
F/A-18 Radar Ugrade				
Acquisition Milestones: Milestones: H18 IOC	4	2023	4	2023
Acquisition Milestones: Milestones: H20 IOC	4	2025	4	2025
Acquisition Milestones: Milestones: H22 IOC	4	2027	4	2027
Systems Development: Hardware/Software Development: AiTR Development	1	2022	4	2025
Systems Development: Hardware/Software Development: 80 Series SW Interoperability	3	2027	4	2028
Systems Development: Hardware/Software Development: Advanced Development	1	2022	4	2023
Systems Development: Hardware/Software Development: Obsolescence Redesign Development & Testing	1	2022	1	2023
Systems Development: Hardware/Software Development: Instrumentation Development	1	2022	2	2022
Systems Development: Hardware/Software Development: TLE Development	1	2022	3	2022
Systems Development: Hardware/Software Development: Advanced SW Development	3	2025	4	2028
Systems Development: Hardware/Software Development: ACM Mode Development	1	2022	1	2023
Systems Development: Hardware/Software Development: HGESM/Wideband Development	4	2023	2	2026
Test & Evaluation: Integrated Test & Evaluation: H18 Integration Testing	1	2022	2	2023
Test & Evaluation: Integrated Test & Evaluation: H20 Integration Testing	4	2023	2	2025
Test & Evaluation: Integrated Test & Evaluation: H22 Integration Testing	4	2025	4	2027
Test & Evaluation: Operational Test & Evaluation: H18 Operational Testing	4	2022	4	2023
Test & Evaluation: Operational Test & Evaluation: H20 Operational Testing	4	2024	4	2025
Test & Evaluation: Operational Test & Evaluation: H22 Operational Testing	4	2027	4	2028
Production Milestones: Deliveries: Configuration D Deliveries	1	2022	2	2022

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 2065 / *F/A-18 Radar Upgrade*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Production Milestones: Deliveries: Configuration D Installations	1	2022	4	2022
Production Milestones: Deliveries: H18 FLEET RELEASE	4	2023	4	2023
Production Milestones: Deliveries: ASuW Fleet Release	2	2024	4	2024
Production Milestones: Deliveries: H20 FLEET RELEASE	4	2025	4	2025
Production Milestones: Deliveries: WBR Deliveries	3	2027	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / *F/A-18 Squadrons*	Project (Number/Name) 2071 / *F/A-18 Block III*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2071: *F/A-18 Block III*	245.086	37.840	33.282	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	316.208
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

F/A-18 Block III is a series of development efforts that are required to deliver necessary combat capabilities to meet the objectives outlined in the National Defense Strategy and provide aircraft lethality and kill chain effectiveness. Enhancements under development include: Advanced EW upgrades, improved radar cross section, AESA Radar upgrades, alternative fire control solutions, and other improvements that enhance aircraft survivability, lethality, sensor fusion, networking effectiveness, and targeting upgrades at the tactical leading edge in highly contested environments. F/A18 Block III is a follow-on to Block II upgrades and the combined impact of these upgrades will ensure that the numerically predominant strike-fighter aircraft in the USN inventory remains lethal and survivable into the 2030's.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: F/A-18 Block III	37.840	33.282	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: F/A-18 Block III is a series of development efforts that are required to deliver necessary combat capabilities to meet the objectives outlined in the National Defense Strategy and provide aircraft lethality and kill chain effectiveness. ***FY 2023 Plans:*** Funding provides for continued advanced engineering development, specifically the engineering and manufacturing development of survivability enhancements to include upgrades to the ALQ-214 jammer and ALR-76 Radar warning receiver, AN/APG-79 Radio Frequency (RF) data integration into EW systems, and centralized RF processing into mission computers. ***FY 2024 Base Plans:*** N/A ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease from FY2023 to FY2024 for $33.282 million due to realignment of requirements and funding to PU 1662 to continue Advanced Electronic Warfare (ADVEW).					
Accomplishments/Planned Programs Subtotals	37.840	33.282	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 2071 / *F/A-18 Block III*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• APN/0525: *F-18 Series*	327.000	461.118	640.236	-	640.236	724.628	953.615	1,068.998	1,153.697	2,988.897	21,847.456
• APN/0145: *FA-18E/F*	977.161	671.065	41.329	-	41.329	28.671	50.898	0.000	0.000	0.000	54,084.845
• APN/0505: *FA-18E/F & EA-18G Modernization & Sustainment*	445.721	552.849	605.416	-	605.416	531.235	573.367	592.884	771.385	5,544.231	10,003.493

Remarks

D. Acquisition Strategy

Block III capability upgrades will be incorporated into production line aircraft and retrofit through a series of Block III Engineering Change Proposals (ECPs). The ECPs will provide capability upgrades to Block II aircraft to give them Block III capabilities. Block II Fleet aircraft (Lots 26 and up) will receive capability upgrades when inducted for Service Life Modification (SLM) events.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 2071 / *F/A-18 Block III*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Block III Primary Development (CFT)	Various	Boeing : St Louis, MO	212.311	2.760	Sep 2022	0.000		0.000		-		0.000	0.000	215.071	215.071
Block III Primary Development	Various	Boeing : St Louis, MO	0.926	1.840	Dec 2021	12.163	Dec 2022	0.000		-		0.000	0.000	14.929	-
PACFLT TENTaCLE	C/CPFF	Fuse Integration : San Diego, CA	0.000	3.681	Mar 2022	0.000		0.000		-		0.000	0.000	3.681	-
PACFLT TENTaCLE	WR	NAWCWD : China Lake, CA	0.000	11.136	Mar 2022	0.000		0.000		-		0.000	0.000	11.136	-
Large Aperature (LA+)	C/CPFF	NGC : Baltimore, MD	0.000	8.882	Sep 2022	0.000		0.000		-		0.000	0.000	8.882	8.882
Large Aperature (LA+) SOO	C/CPFF	NGC : Baltimore, MD	0.000	0.271	May 2022	0.000		0.000		-		0.000	0.000	0.271	0.271
Block III ADVEW Primary Development	Various	NSMA : Various	0.000	0.000		9.810	Aug 2023	0.000		-		0.000	0.000	9.810	-
Block III ADVEW Primary Development	C/CPFF	GTRi : Lexington Park, MD	0.000	0.000		0.910	Jun 2023	0.000		-		0.000	0.000	0.910	0.910
Block III ADVEW Primary Development	C/CPAF	Raytheon : El Segundo, CA	0.000	0.000		7.200	Jun 2023	0.000		-		0.000	0.000	7.200	7.200
		Subtotal	213.237	28.570		30.083		0.000		-		0.000	0.000	271.890	N/A

Remarks

Decrease from FY2023 to FY2024 due to funding moving from PU 2071 to PU 1662 for execution.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support (AD)	WR	NAWCAD : Pax River, MD	16.550	0.026	Dec 2021	1.600	Dec 2022	0.000		-		0.000	0.000	18.176	-
Development Support (WD)	WR	NAWCWD : China Lake, CA	5.971	0.000		0.831	May 2023	0.000		-		0.000	0.000	6.802	-
BLK III Price Fighters	WR	NAVSUP : Philadelphia, PA	0.079	0.000		0.000		0.000		-		0.000	0.000	0.079	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / *F/A-18 Squadrons*	Project (Number/Name) 2071 / *F/A-18 Block III*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SAGE Simulation Study	MIPR	GSA FEDSIM : Washington DC	0.000	1.978	Jun 2022	0.000		0.000		-		0.000	0.000	1.978	-
Development Support	WR	NSMA : Various	0.000	0.000		0.018	May 2023	0.000		-		0.000	0.000	0.018	-
Development Support	WR	NAWCWD : Point Mugu, CA	0.000	0.000		0.297	Apr 2023	0.000		-		0.000	0.000	0.297	-
		Subtotal	22.600	2.004		2.746		0.000		-		0.000	0.000	27.350	N/A

Remarks

Decrease from FY2023 to FY2024 due to funding moving from PU 2071 to PU 1662 for execution.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	MIPR	NASA : Moffett Field, CA	4.317	0.000		0.000		0.000		-		0.000	0.000	4.317	-
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	MIPR	NASA : Langley, VA	0.937	0.000		0.000		0.000		-		0.000	0.000	0.937	-
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	WR	NAWCAD : Pax River, MD	2.364	0.000		0.387	Nov 2022	0.000		-		0.000	0.000	2.751	-
Developmental Test & Evaluation (DT&E)	WR	NAWCWD : China Lake, CA	0.000	6.964	Jan 2022	0.000		0.000		-		0.000	0.000	6.964	-
Developmental Test & Evaluation (DT&E)	WR	Booz Allen Hamilton : Lexington Park, MD	0.000	0.154	Jan 2022	0.000		0.000		-		0.000	0.000	0.154	-
		Subtotal	7.618	7.118		0.387		0.000		-		0.000	0.000	15.123	N/A

Remarks

Decrease from FY2023 to FY2024 due to funding moving from PU 2071 to PU 1662 for execution.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / *F/A-18 Squadrons*	Project (Number/Name) 2071 / *F/A-18 Block III*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Seaport CSS/PMMAC	C/CPFF	Tekla : Pax River, MD	1.344	0.148	Apr 2022	0.066	Apr 2023	0.000		-		0.000	0.000	1.558	1.558
Prior Year cost no longer in FYDP	Various	Various : Various	0.287	0.000		0.000		0.000		-		0.000	0.000	0.287	-
		Subtotal	1.631	0.148		0.066		0.000		-		0.000	0.000	1.845	N/A

Remarks

Decrease from FY2023 to FY2024 due to funding move from PU 2071 to PU 1662 for execution.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	245.086	37.840		33.282		0.000		-		0.000	0.000	316.208	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 2071 / *F/A-18 Block III*

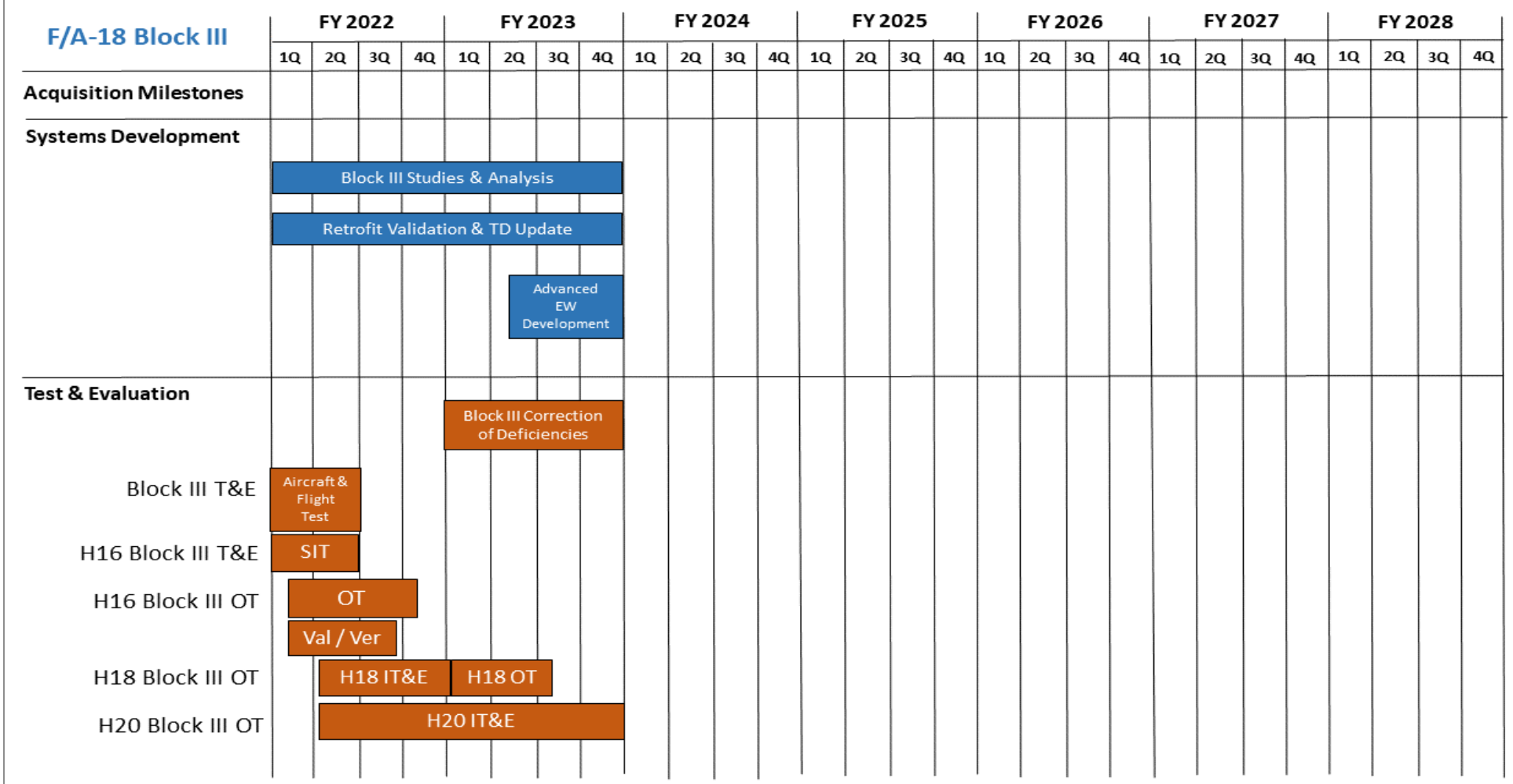

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 2071 / *F/A-18 Block III*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
F/A-18 Block III				
System Development: Block III Studies & Analysis	1	2022	4	2023
System Development: Retrofit Validation &TD Update	1	2022	4	2023
System Development: Block III Advanced Development Engineering	2	2023	4	2024
Test & Evaluation: Block III Correction of Deficiencies	1	2023	4	2023
Test & Evaluation: Block III Flight Test	1	2022	2	2022
Test & Evaluation: H16 Block III SIT	1	2022	2	2022
Test & Evaluation: H16 Block III OT	1	2022	4	2022
Test & Evaluation: H16 Block III Val/Ver	1	2022	3	2022
Test & Evaluation: H18 IT&E	2	2022	1	2023
Test & Evaluation: H18 OT	1	2023	3	2023
Test & Evaluation: H20 IT&E	2	2022	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / *F/A-18 Squadrons*	Project (Number/Name) 9099 / *Physiological Episodes*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
9099: *Physiological Episodes*	5.329	4.417	2.966	1.680	-	1.680	1.201	0.834	0.849	0.868	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Efforts funded under Project Unit 9099 were previously funded under Project Unit 1662 in FY2020 and prior.

A. Mission Description and Budget Item Justification

Funding provides for design, development, integration, and test of platform improvements for F/A-18A-F and EA-18G Weapon Systems, as determined through a Root Cause and Corrective Action (RCCA) process, to mitigate and reduce the occurrences of Physiological Episode (PE) in Naval Aviation.
Funds provided for a study of latent neurological effects of exposure to pressure fluctuations at altitude and determine if there are any indicators of neurological trauma following exposure.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Physiological Episode Mitigation	4.017	2.966	1.680	0.000	1.680
Articles:	-	-	-	-	-
Description: Funding provides for design, development, integration, and test of platform improvements for F/A-18A-F and EA-18G Weapon Systems, as determined through a Root Cause and Corrective Action (RCCA) process, to mitigate and reduce the occurrences of Physiological Episode (PE) in Naval Aviation.					
FY 2023 Plans: Completion of any directed studies from RCCA. Continued supports of the Hornet health Assessment and Readiness Tool (HhART), and development efforts for platform improvements in the F/A-18A-F and EA-18G Weapon Systems to include flight test. Continue required logistics and engineering support.					
FY 2024 Base Plans: Completion of RCCA investigation efforts and any directed studies from RCCA. Continued supports of the Hornet health Assessment and Readiness Tool (HhART), and development efforts for platform improvements in the F/A-18A-F and EA-18G Weapon Systems to include flight test. Continue required logistics and engineering support.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / *F/A-18 Squadrons*	Project (Number/Name) 9099 / *Physiological Episodes*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Decrease from FY2023 to FY2024 of $1.286 million is due to the completion of directed studies for RCCA.					
Title: Physiological Episode Studies & Analysis	0.400	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2023 Plans: N/A					
FY 2024 Base Plans: N/A					
FY 2024 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	4.417	2.966	1.680	0.000	1.680

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• APN/0525: *F-18 SERIES*	327.000	461.118	640.236	-	640.236	724.628	953.615	1,068.998	1,153.697	2,988.897	21,847.456

Remarks

D. Acquisition Strategy

The F/A-18 Physiological Episode PU consists of efforts in support of finalizing the Root Cause and Corrective Action Investigation process, as well as any additional design, development, integration, and testing that will be required to mitigate and reduce the occurrence of Physiological Episodes (PE).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / *F/A-18 Squadrons*	Project (Number/Name) 9099 / *Physiological Episodes*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PE Data Software Study	WR	NAWCTSD Orlando : Orlando, FL	2.617	3.496	Nov 2021	1.687	Nov 2022	1.103	Nov 2023	-		1.103	Continuing	Continuing	Continuing
		Subtotal	2.617	3.496		1.687		1.103		-		1.103	Continuing	Continuing	N/A

Remarks

Decrease from FY 2023 to FY 2024 for due to completion of directed studies for RCCA.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PE Developmental Engineering Support	Various	Various : Various	0.000	0.000	Nov 2021	0.000		0.000		-		0.000	0.000	0.000	-
PE Gov't Engineering Support	WR	NAWCAD : Pax River, MD	1.727	0.179	Nov 2021	0.375	Nov 2022	0.161	Nov 2023	-		0.161	0.178	2.620	-
Physiological Episodes Studies and Analysis	WR	NAMRU-D : Dayton, OH	0.000	0.400	Feb 2022	0.000		0.000		-		0.000	0.000	0.400	-
		Subtotal	1.727	0.579		0.375		0.161		-		0.161	0.178	3.020	N/A

Remarks

Decrease from FY 2023 to FY 2024 in government engineering support due to planned completion of Root Cause and Corrective Action (RCCA) engineering investigation efforts.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	NSWC : Panama City, FL	0.125	0.000		0.000		0.000		-		0.000	0.000	0.125	-
Developmental Test & Evaluation (DT&E)	C/CPFF	BUMED : Silver Spring, VA	0.512	0.000		0.000		0.000		-		0.000	0.000	0.512	-
Developmental Test & Evaluation (DT&E)	WR	NAWCAD : Pax River, MD	0.000	0.000	Nov 2021	0.473	Nov 2022	0.185	Nov 2023	-		0.185	0.197	0.855	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / *F/A-18 Squadrons*	Project (Number/Name) 9099 / *Physiological Episodes*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	0.637	0.000		0.473		0.185		-		0.185	0.197	1.492	N/A

Remarks

Decrease from FY 2023 to FY 2024 in Developmental Test and Evaluation due to the planned completion of Root Cause and Corrective Action (RCCA) investigation test efforts at NAWCAD, Pax River.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PE Program Management Support	WR	NAWCAD : Pax River, MD	0.329	0.000		0.069	Nov 2022	0.114	Nov 2023	-		0.114	0.077	0.589	-
PE Seaport CSS	C/CPFF	Wyle Lab : Pax River, MD	0.000	0.329	Dec 2021	0.000		0.000		-		0.000	0.000	0.329	0.328
PE PMMAC CSS	C/CPFF	Tekla : Pax River, MD	0.000	0.000		0.337	Apr 2023	0.092	Apr 2024	-		0.092	0.051	0.480	0.480
PE Travel	Various	NAVAIR : Pax River, MD	0.019	0.013	Oct 2021	0.025	Oct 2022	0.025	Oct 2023	-		0.025	0.050	0.132	-
		Subtotal	0.348	0.342		0.431		0.231		-		0.231	0.178	1.530	N/A

Remarks

Decrease from FY2023 to FY2024 in program office support needed for physiological episodes.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	5.329	4.417		2.966		1.680		-		1.680	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 9099 / *Physiological Episodes*

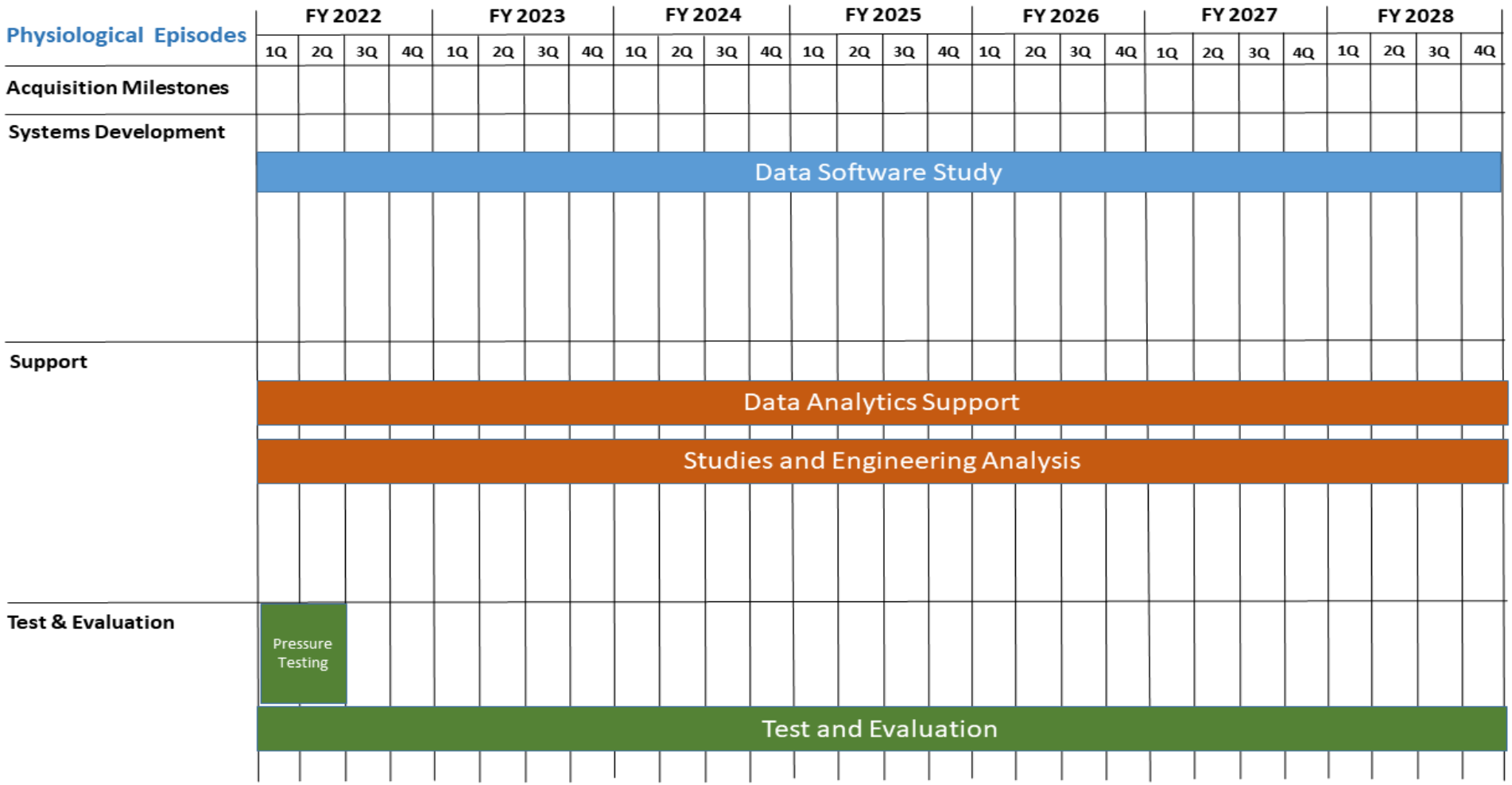

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 9099 / *Physiological Episodes*

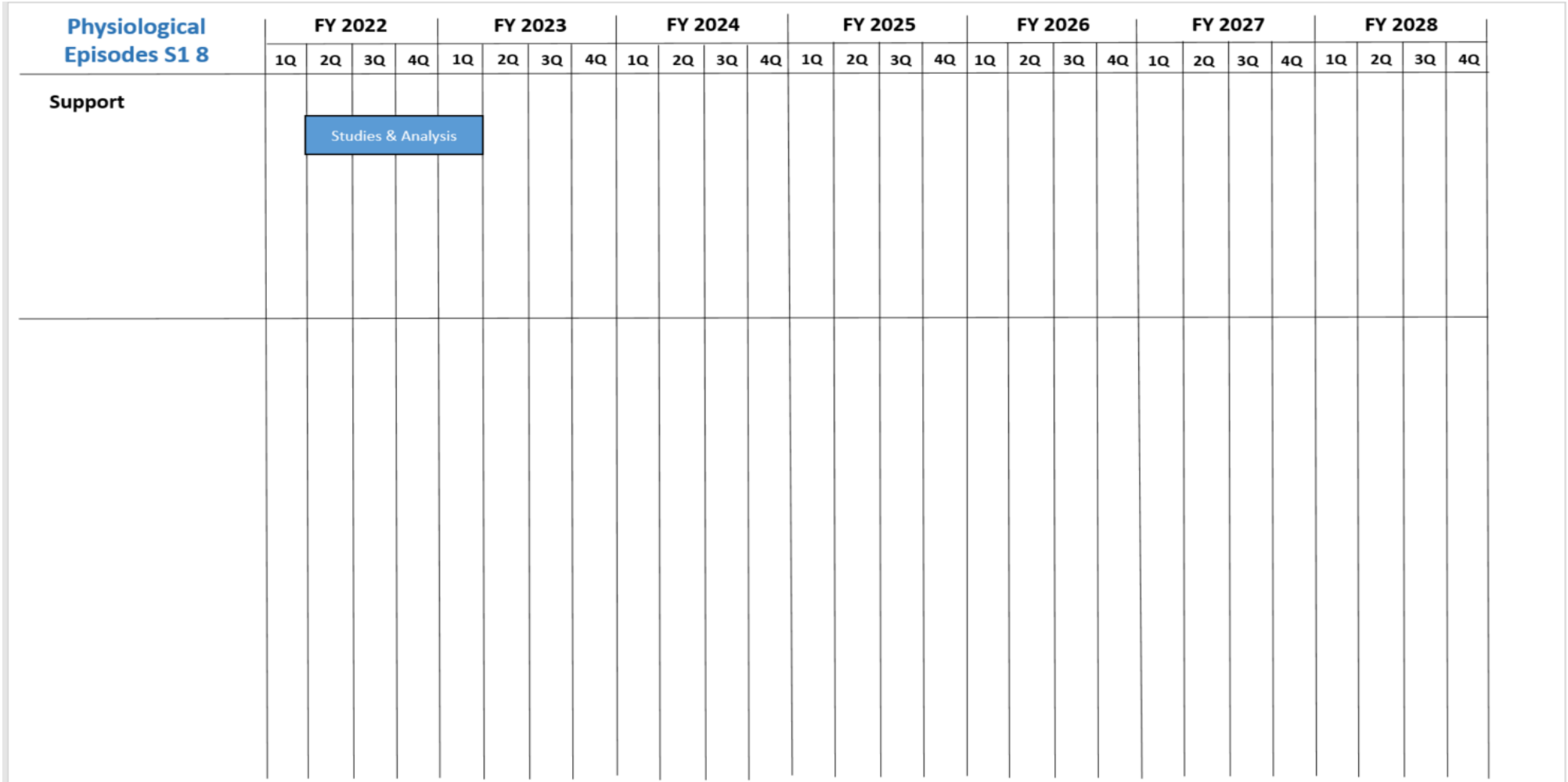

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 9099 / *Physiological Episodes*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Physiological Episodes Mitigation				
System Development: Data Software Study	1	2022	4	2028
Support: Office of Naval Research Data Analytics Support	1	2022	4	2028
Support: Physiological Episodes Studies and Analysis Engineering	1	2022	4	2028
Test and Evaluation: Pressure Testing	1	2022	2	2022
Test and Evaluation: Physiological Episode Test and Evaluation	1	2022	4	2028
Physiological Episodes Studies and Analysis: Studies & Analysis	2	2022	1	2023

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy										Date: March 2023		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0204136N / *F/A-18 Squadrons*				Project (Number/Name) 9999 / *Congressional Adds*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
9999: *Congressional Adds*	26.082	28.961	14.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	69.043
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Noise Reduction: Research, Development, Test and Evaluation (RDT&E) funding to support the redesign of Chevron seals to reduce engine exhaust plume noise. Numerous solutions have been evaluated. Chevron seals were determined to be the favorable solution for the F/A-18 and EA-18G. Previous testing of F414 chevrons demonstrated satisfactory noise reduction up to 80% power, but did not satisfy noise reduction requirements at full power. A possible cause of this problem has been identified. There are re-design options available to sustain noise reduction up to full power. Additional development and test will be required to finalize the Chevron design to achieve the desired noise reduction at all power levels. The subject funding will support the final design qualification efforts and ECP development of the downselected design. Other design options that will be explored are Contoured Inserts (COINs) that have had previous design work funded through ONR. Engine sets may be procured for follow on ground testing and evaluation.

Beacon Obsolescence Research: Research, Development, Test and Evaluation (RDT&E) funding to support APN-245 Automatic Carrier Landing System (ACLS) redesign needed due to obsolescence. The ACLS Radar Beacon enables long-range acquisition and precision guidance of F-18 to the carrier deck in all-weather conditions by providing a high-power, fixed, point-source radar return that eliminates radar scintillation noise.

Fifth Generation Sensor Fusion Study: Research, Development, Test and Evaluation (RDT&E) funding to support the maturation of the SLATE (Secure LVC Advanced Training Environment) technologies through an Advanced Technology Demonstration (ATD) effort. The ATD is expected to inform US Navy Programs of Record (POR) regarding technical and operational requirements for usable LVC (Live, Virtual, Constructive) capabilities and Joint Service PORs options for support to the warfighter.

Growler Noise Mitigation: Research, Development, Test and Evaluation (RDT&E) funding to support reduction of F414 noise by 3dB with no measurable impact to engine thrust.

Training Technology: Research Development Test & Evaluation (RDT&E) funding to facilitate the transition of DoD Joint Interoperable Effects Based Training enabled by Synthetic Inject To Live; Live Virtual Constructive (LVC) recently demonstrated during the Secure LVC Advanced Training Environment flight events at Pax River, MD. More specifically, these funds provide F-35 Sensor Fusion Study Phase II; the Coalition Cross Domain Solution (Encrypted LVC Integrated Training Environment - ELITE); which is the number one Coalition Warfighting Project for INDOPACOM with Royal Australian Air Force (RAAF). It also provides the Secure Live-Virtual-Constructive (LVC) Advanced Training Environment (SLATE) team's transition support into Tactical Combat Training System (TCTS) II PoR.

Civil Instrument Landing System: Research Development Test & Evaluation (RDT&E) funding provided to investigate alternatives to integrate Civilian Instrument Landing System or a Precision Approach Landing System into the F/A-18E/F and EA-18G aircraft. This capability is not available in the F/A-18E/Fs and it is limited to select EA-18Gs.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 9999 / *Congressional Adds*

Solid State Light Off Detector: Research Development Test & Evaluation (RDT&E) funding to explore design concepts to implement a solid state light-off detector in an F414 application. The program will identify concepts to explore in addition to a qualification and implementation plan to field the design into F414 Fleet assets.

Neural Network Algorithms on Advanced Processors: Research Development Test & Evaluation (RDT&E) Neural Network Algorithms funding on advanced processors will enable artificial intelligence and machine learning algorithm support for tactical decision making at increased speed and reduced aircrew workload in support of advance warfighting capabilities of the F/A-18 and EA-18G platforms. Neural network algorithms on advanced processors will be integrated into legacy processing systems with growth reserves that allows for capability upgrades without future hardware redesign during upgrades.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023
Congressional Add: Noise reduction research ***FY 2022 Accomplishments:*** N/A ***FY 2023 Plans:*** N/A	3.861	4.000
Congressional Add: Training technology ***FY 2022 Accomplishments:*** N/A ***FY 2023 Plans:*** N/A	9.654	0.000
Congressional Add: Civil instrument landing system ***FY 2022 Accomplishments:*** N/A ***FY 2023 Plans:*** N/A	2.896	0.000
Congressional Add: Solid state light off detector ***FY 2022 Accomplishments:*** N/A ***FY 2023 Plans:*** N/A	7.723	0.000
Congressional Add: Neural network algorithms on advanced processors ***FY 2022 Accomplishments:*** N/A ***FY 2023 Plans:*** N/A	4.827	0.000
Congressional Add: Advanced beacon landing system upgrade ***FY 2022 Accomplishments:*** N/A ***FY 2023 Plans:*** N/A	0.000	10.000
Congressional Adds Subtotals	28.961	14.000

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 9999 / *Congressional Adds*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 9999 / *Congressional Adds*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Beacon Obsolescence Research	C/CPFF	SNC : Lakehurst,NJ	2.646	0.000		0.000		0.000		-		0.000	0.000	2.646	2.646
Growler Noise Mitigation (Tollgate 3-6)	WR	NAVFAC : Norfolk, VA	0.500	0.000		0.000		0.000		-		0.000	0.000	0.500	0.500
Growler Noise Mitigation (Tollgate 6-9)	C/CPFF	GE Aviation : Lynn, Massachusetts	1.761	0.000		0.000		0.000		-		0.000	0.000	1.761	1.761
5th Gen Sensor Fusion	C/CPFF	Boeing : St. Louis, MO	2.387	0.000		0.000		0.000		-		0.000	0.000	2.387	2.387
5th Gen Sensor Fusion	C/CPFF	Cubic : Orlando, FL	3.838	0.000		0.000		0.000		-		0.000	0.000	3.838	3.838
5th Gen Sensor Fusion	C/CPFF	GTRi : Atlanta, GA	0.500	0.000		0.000		0.000		-		0.000	0.000	0.500	0.500
Noise Reduction	C/CPFF	GE Aviation : Lynn, Massachusettes	0.000	2.000	Aug 2022	0.000		0.000		-		0.000	0.000	2.000	2.000
Training Technology	C/CPFF	Boeing : St. Louis, MO	0.000	0.244	Jun 2022	0.000		0.000		-		0.000	0.000	0.244	0.244
Training Technology	C/CPFF	Collins Aerospace : California, MD	0.000	2.870	Jul 2022	0.000		0.000		-		0.000	0.000	2.870	-
Training Technology	C/CPFF	ACC FedLab : Hampton, VA	0.000	3.985	Aug 2022	0.000		0.000		-		0.000	0.000	3.985	-
Civil Instrument Landing System	C/CPFF	TBD : TBD	0.000	2.397	Aug 2022	0.000		0.000		-		0.000	0.000	2.397	2.397
Solid State Light Off Detector	C/CPFF	TBD : TBD	0.000	3.723	Aug 2022	0.000		0.000		-		0.000	0.000	3.723	4.000
Neural Network Algorithms	C/CPFF	TBD : TBD	0.000	4.000	Oct 2022	0.000		0.000		-		0.000	0.000	4.000	4.000
Noise Reduction	C/CPFF	GE Aviation : Lynn, Massachusetts	0.000	0.000		3.500	Aug 2023	0.000		-		0.000	0.000	3.500	3.500
Advanced Beacon Landing System Upgrade	C/CPFF	SNC : Lakehurst, NJ	0.000	0.000		6.976	May 2024	0.000		-		0.000	0.000	6.976	-
Advanced Beacon Landing System Upgrade	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.668	Dec 2023	0.000		-		0.000	0.000	0.668	-
Prior Year Prod Dev no longer funded in FYDP	Various	Various : Various	10.913	0.000		0.000		0.000		-		0.000	0.000	10.913	-
		Subtotal	22.545	19.219		11.144		0.000		-		0.000	0.000	52.908	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / *F/A-18 Squadrons*	Project (Number/Name) 9999 / *Congressional Adds*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
5th Gen Sensor Fusion	MIPR	MIT : Lexington, MA	0.120	0.000		0.000		0.000		-		0.000	0.000	0.120	-
5th Gen Sensor Fusion	C/CPFF	2 Circle : Arlington, VA	0.800	0.000		0.000		0.000		-		0.000	0.000	0.800	0.800
Training Technology	C/CPFF	Cubic : Orlando, FL	0.000	0.225	May 2022	0.000		0.000		-		0.000	0.000	0.225	0.225
Training Technology	WR	NSMA : Washington, DC	0.000	0.670	May 2022	0.000		0.000		-		0.000	0.000	0.670	0.670
Training Technology	C/CPFF	FTI : Washington DC	0.000	0.760	May 2022	0.000		0.000		-		0.000	0.000	0.760	0.760
Civil Instrument Landing System	WR	TBD : TBD	0.000	0.500	Aug 2022	0.000		0.000		-		0.000	0.000	0.500	-
Solid State Light Off Detector	WR	TBD : TBD	0.000	1.000	Aug 2022	0.000		0.000		-		0.000	0.000	1.000	-
Neural Network Algorithms	WR	NAWCAD : Patuxent River, MD	0.000	0.827	Jun 2022	0.000		0.000		-		0.000	0.000	0.827	-
Noise Reduction	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.500	Apr 2023	0.000		-		0.000	0.000	0.500	-
Prior Year Support no longer funded in FYDP	Various	Various : Various	0.200	0.000		0.000		0.000		-		0.000	0.000	0.200	-
		Subtotal	1.120	3.982		0.500		0.000		-		0.000	0.000	5.602	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	WR	NAWCAD : Patuxent River,MD	0.250	0.000		0.000		0.000		-		0.000	0.000	0.250	-
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	WR	NAWCAD : Patuxent River, MD	2.167	0.000		0.000		0.000		-		0.000	0.000	2.167	-
Developmental Test & Evaluation (DT&E)	WR	NAWCAD : Patuxent River, MD	0.000	5.760	Sep 2022	0.000		0.000		-		0.000	0.000	5.760	-
Developmental Test & Evaluation (DT&E)	C/CPFF	JF Taylor : Lexington Park, MD	0.000	0.000		2.356	Sep 2023	0.000		-		0.000	0.000	2.356	2.356

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204136N / *F/A-18 Squadrons*	Project (Number/Name) 9999 / *Congressional Adds*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	2.417	5.760		2.356		0.000		-		0.000	0.000	10.533	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	26.082	28.961		14.000		0.000		-		0.000	0.000	69.043	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 9999 / *Congressional Adds*

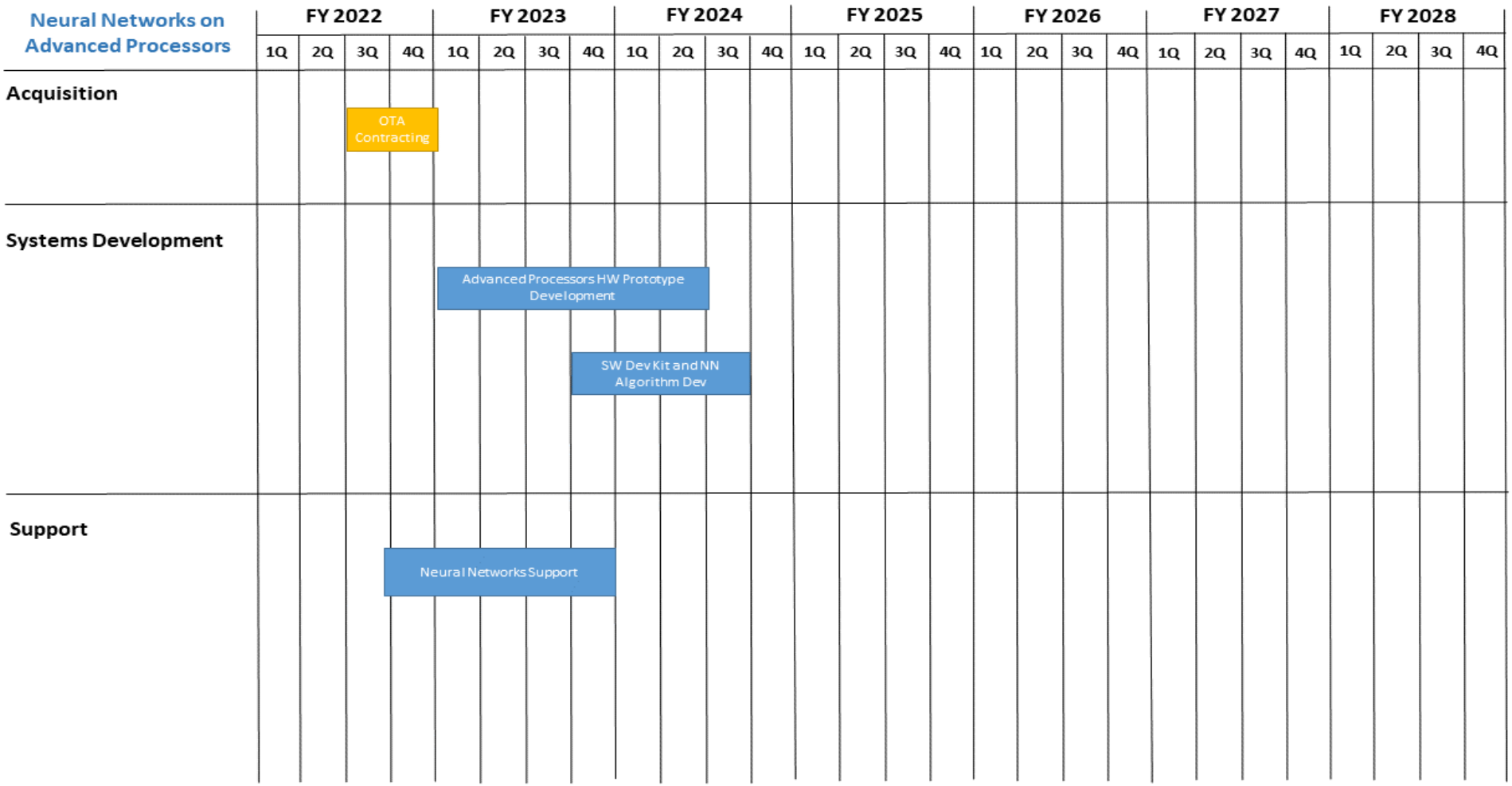

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 9999 / *Congressional Adds*

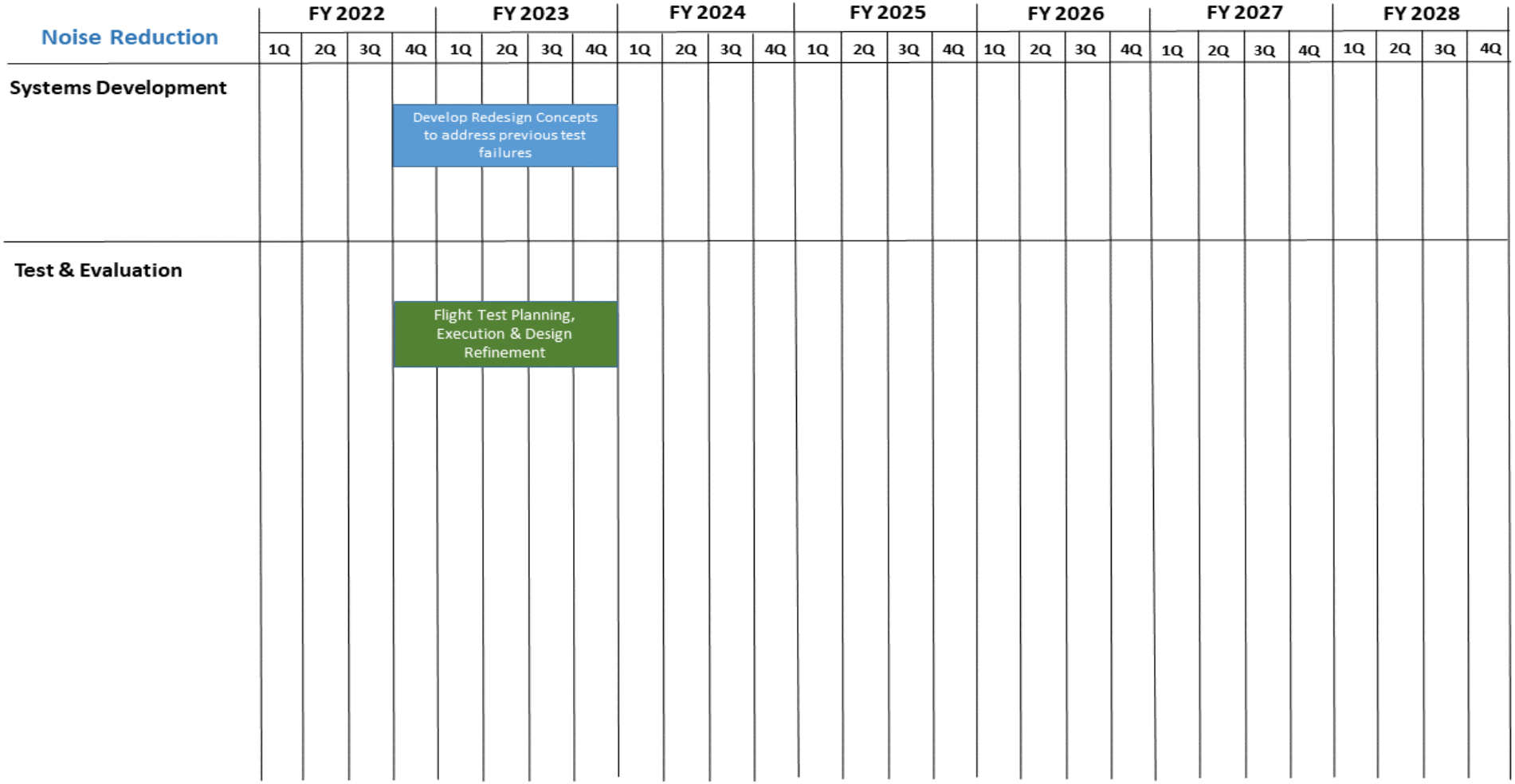

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 9999 / *Congressional Adds*

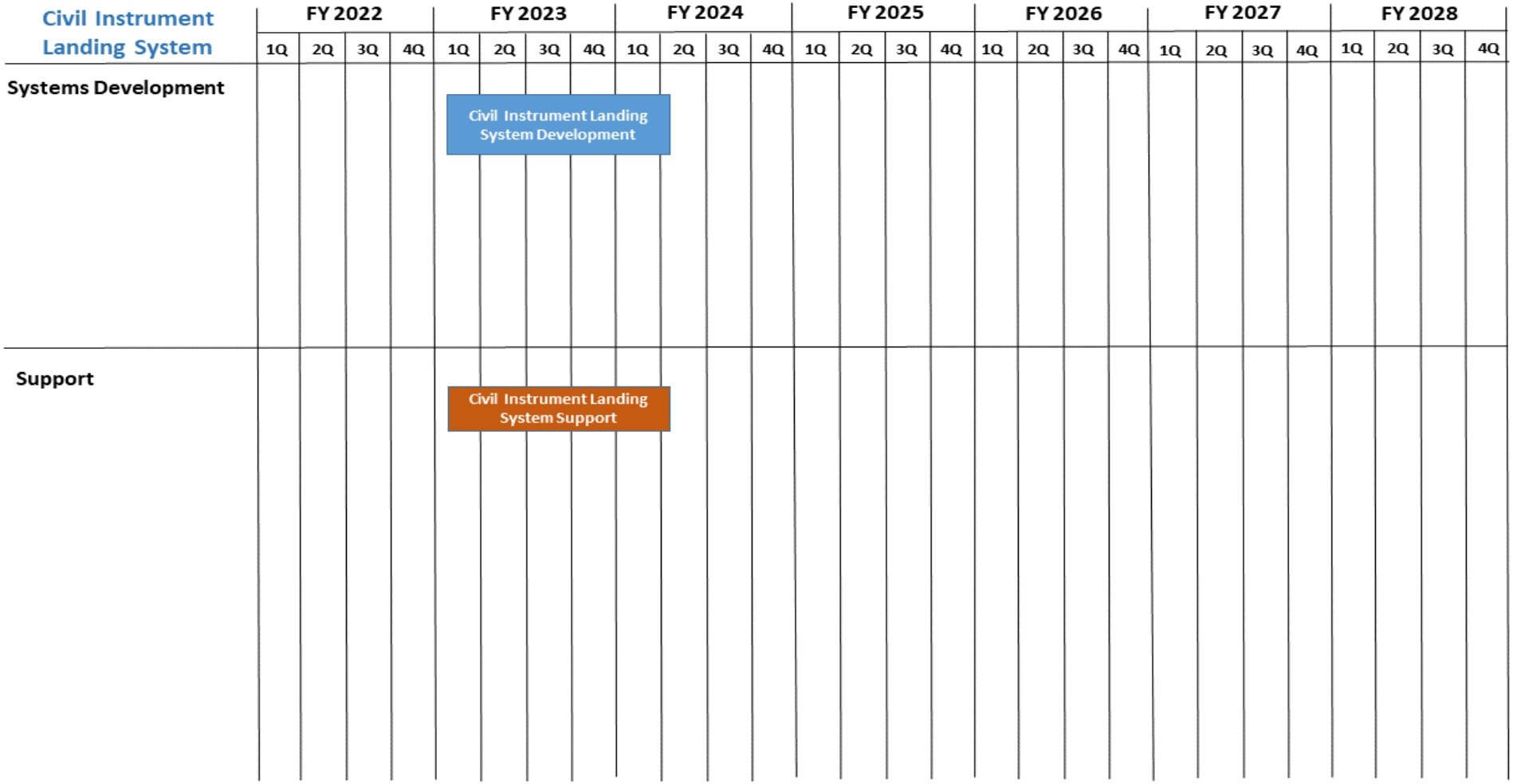

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 9999 / *Congressional Adds*

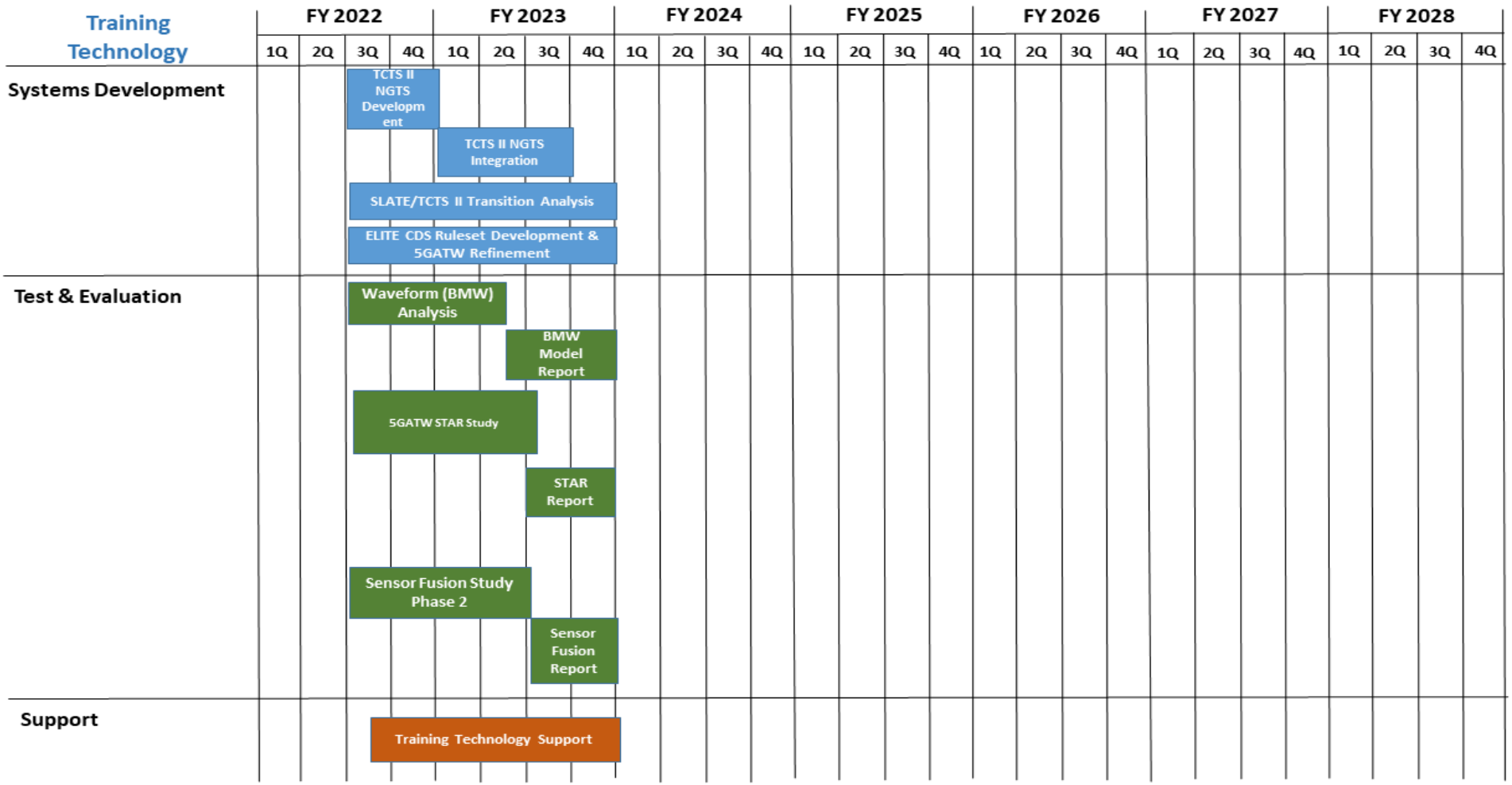

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 9999 / *Congressional Adds*

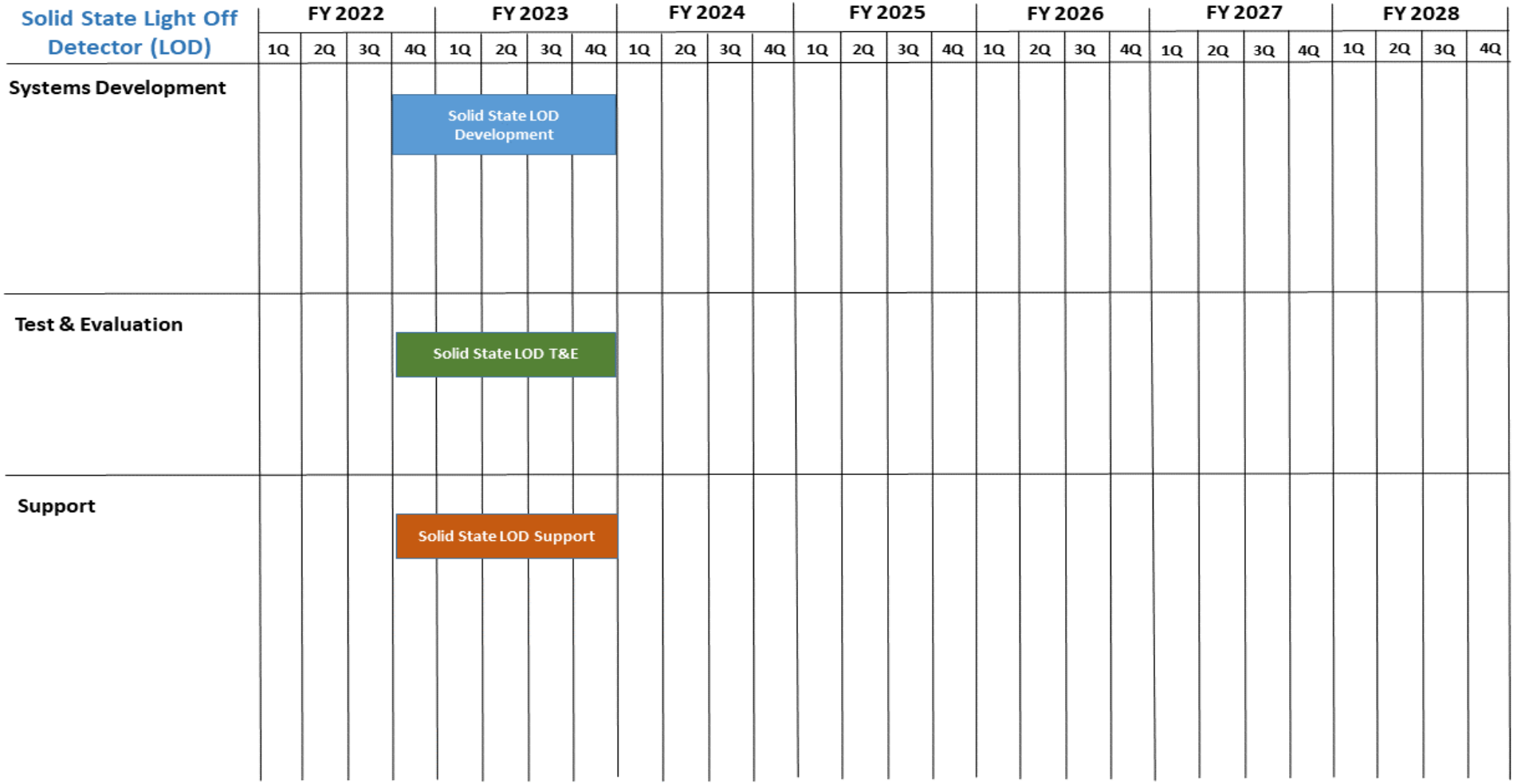

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 9999 / *Congressional Adds*

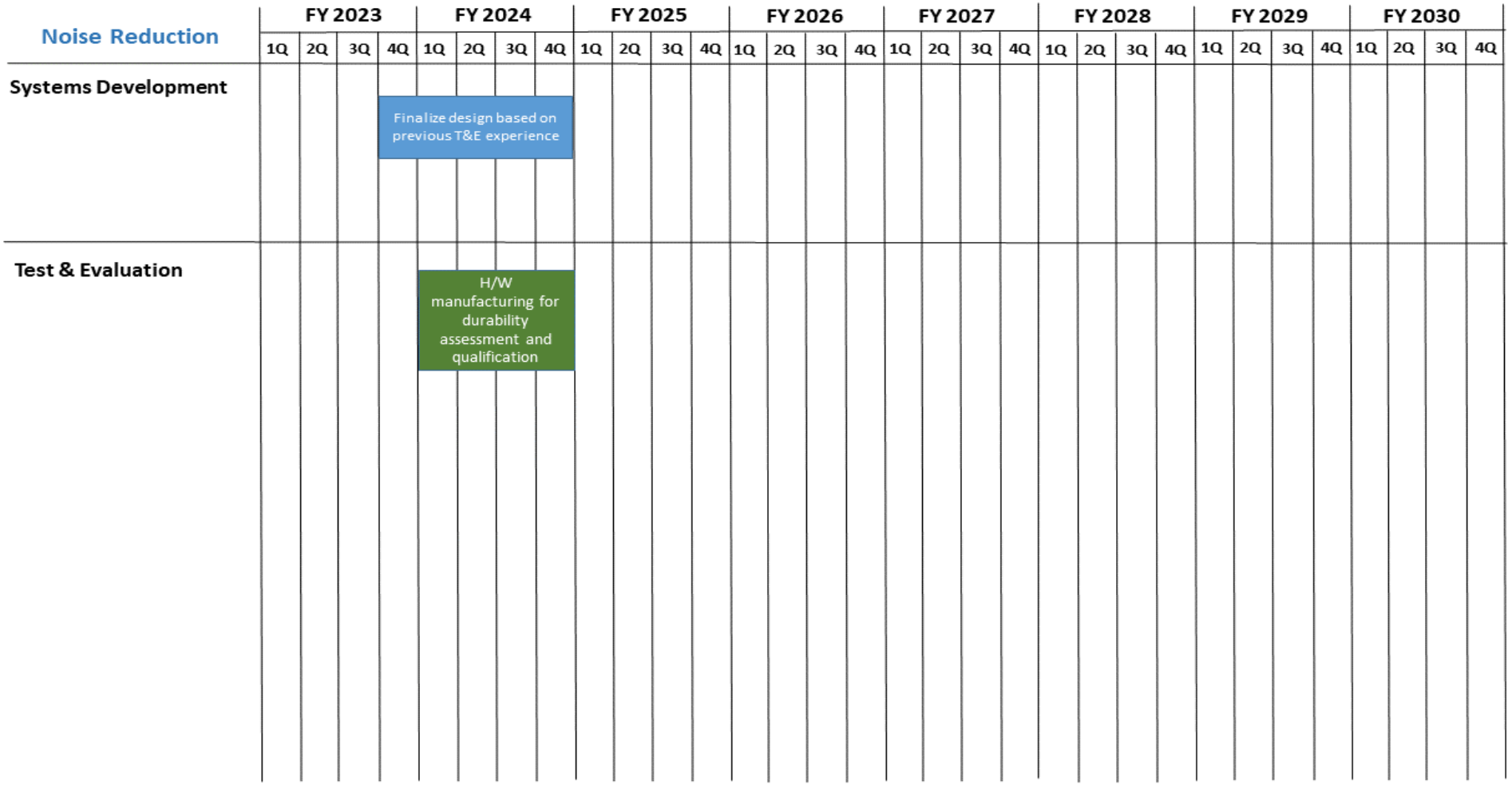

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 9999 / *Congressional Adds*

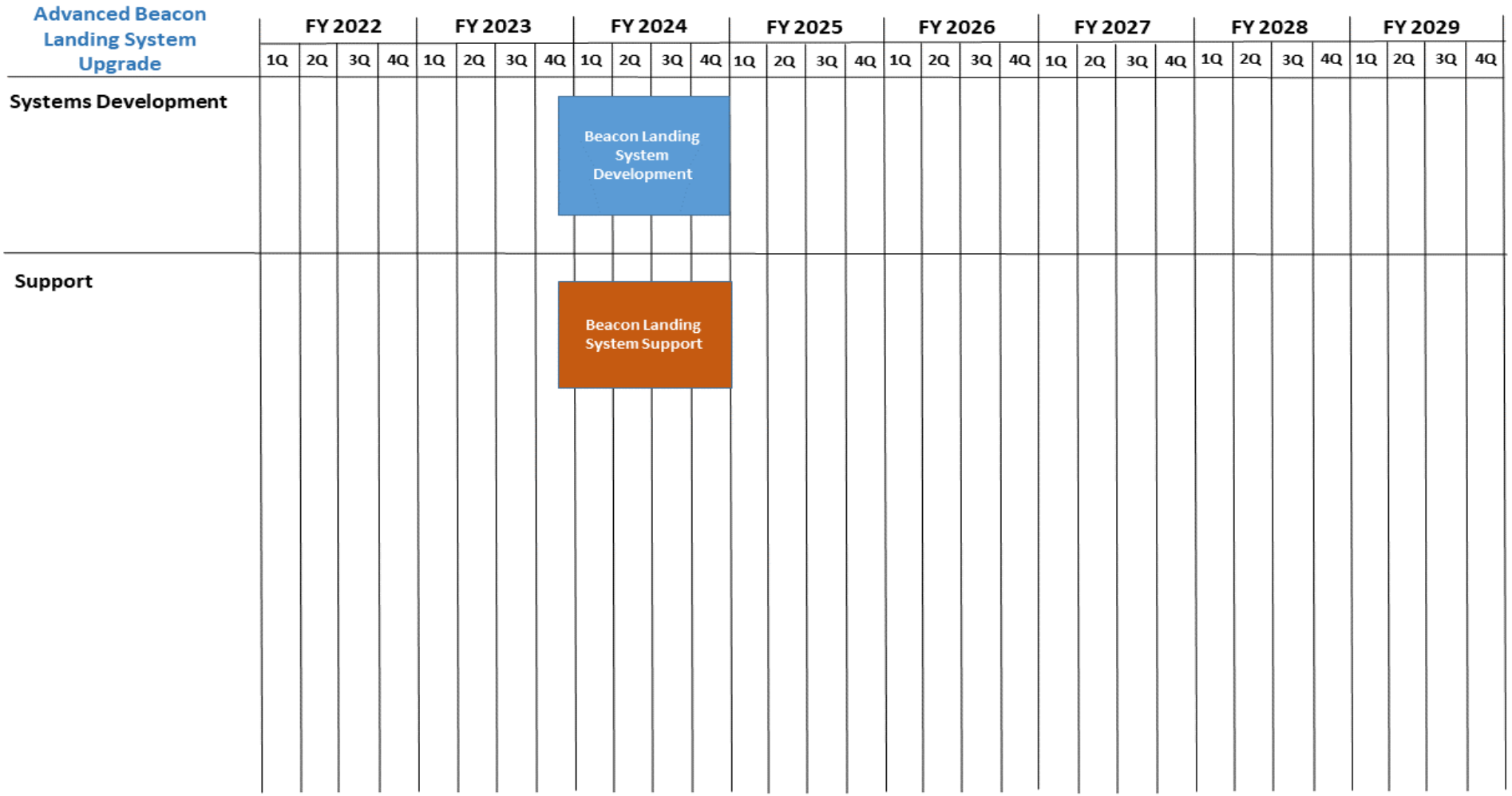

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 9999 / *Congressional Adds*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Training Technology				
TCTS II NGTS Development	3	2022	4	2022
TCTS II NGTS Integration	1	2023	3	2023
SLATE/TCTS II Tranisition Analysis	3	2022	4	2023
ELITE CDS Ruleset Dev & 5GATW Refinement	3	2022	4	2023
Waveform (BMW) Analysis	3	2022	2	2023
BMW Model Report	2	2023	4	2023
5GATW Star Study	3	2022	3	2023
STAR Report	3	2023	4	2023
Sensor Fusion Study Phase 2	3	2022	2	2023
Sensor Fusion Study Demo	3	2023	4	2023
Training Technology Support	3	2022	4	2023
Neural Network on Advanced Processors				
Other Transactional Authority (OTA) Contract	3	2022	4	2022
Advanced Processors HW Development	1	2023	2	2024
SW Development Kit and NN Alogroithm Dev	4	2023	3	2024
Neural Network Algorithms Support	3	2022	4	2023
Civil Instrument Landing System				
Civil Instrument Landing System Development	1	2023	4	2023
Civil Instrument Landing System Support	1	2023	4	2023
Noise Reduction (FY22 Congressional Add)				
Noise Reduction Development	4	2022	4	2023
Noise Reduction T&E	4	2022	4	2023

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204136N / *F/A-18 Squadrons*	**Project (Number/Name)** 9999 / *Congressional Adds*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Solid State Light Off Detector				
Solid State Light Off Detector Development	4	2022	4	2023
Solid State Light Off Detector T&E	4	2022	4	2023
Solid State Light Off Detector Support	4	2022	4	2022
Noise Reduction (FY23 Congressional Add)				
Noise Reduction Development (FY23)	4	2023	4	2024
Noise Reduction T&E (FY23)	4	2023	4	2024
Advanced Beacon Landing System Upgrade				
Adv Beacon Landing System Upgrade Development	4	2023	4	2024
Adv Beacon Landing System Upgrade Support	4	2023	4	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy												Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0204228N *I (U)SURFACE SUPPORT*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	156.112	13.195	12.197	8.619	-	8.619	10.702	8.834	8.900	9.309	Continuing	Continuing
3311: *Navigation Systems*	156.112	13.195	12.197	8.619	-	8.619	10.702	8.834	8.900	9.309	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Surface Support RDT&E funding will be used for the research, design, development, integration testing, and documentation of the Inertial Navigation System (INS) AN/WSN-12 for all Navy ships and submarines. The INS provides mission critical ship position and attitude data to shipboard sensors (such as radars), combat and weapon systems. The INS uses data from the Global Positioning System (GPS) to periodically update (i.e., reset) its position and internal clock. The INS is the ship's primary position source in the absence of GPS, and it consists of an Inertial Sensor Module (ISM) and a Navigation Processing Module (NPM) that will provide a significant improvement with respect to attitude and velocity data over previous INS. RDT&E funding will support continued system design to create a baseline for Pre-Production Units (PPU), Low Rate Initial Production (LRIP), and Full Rate Production (FRP).

To increase overall Navy cybersecurity efficiency, starting in FY24, the cybersecurity work associated with the Afloat Navigation Cyber Hardening, Observation, and Response (ANCHOR) program will be executed by Situational Awareness Boundary Enforcement and Response (SABER). SABER is the research, design, development, testing, and installation of Cybersecurity solutions for installed integrated computer networks to include shipboard Hull Mechanical and Electrical (HM&E), Navigation Systems, Combat Systems, Fire Control, Sonar, Radar, Communications and other shipboard computerized control systems for all afloat U.S. Navy platforms.

Time and Frequency Distribution System-Replacement (TFDS-R) funding will be used for the research, development, documentation, and integration testing for the submarine TFDS-R system. TFDS is a Commercial Off the Shelf (COTS) timing system utilizing the precision source signals of GPS to discipline two redundant Rubidium clocks to Universal Coordinated Time (UTC). TFDS provides common time to submarine equipment that utilizes clocking pulses or sinusoidal waveforms for proper operation and maintains accurate time in the event of loss of GPS input (holdover). TFDS uses multiple input power sources for redundancy and provides a built in battery backup. TFDS generates and distributes Precision Time and Timing Interval (PTTI) reference signals to support C4I capabilities needed for Joint, Naval and Allied missions.

Military GPS User Equipment (MGUE) will provide assured Positioning, Navigation, and Timing (PNT) in a GPS degraded environment. Funding will be used for the development of interface and performance requirements, shipboard system architecture definition, and MGUE integration.

Submarine Speed Sensors will provide investigation, development, testing and integration of new Own-Ship Speed sensors to address new capabilities, reduce detection, and improve reliability.

Assured Positioning, Navigation, and Timing (APNT) funding will be used for Alternate GPS-independent sources of Positioning, Velocity, Attitude, and Timing (PVAT) data required to provide fire control solutions, ensure safety of navigation, and support aircraft and combat operations in a GPS degraded/denied environment. This

effort provides a secure navigation method using the navigation resources being developed by Office of Naval research (ONR) Future Naval Capabilities (FNC) activity and Small Business Innovation Research (SBIR).

Automated Celestial Navigation System (ACNS) funding will be used for the research, development, Engineering Development Model (EDM), documentation and integration testing of the celestial navigation solution for the NoGAPSS navigation implementation on the fleet. Efforts will leverage ONR celestial navigation research into a reproducible ruggedized system fully integrated into the navigation suite.

After review, the Navigation as a Service (NaaS) initiative was defunded in FY23 due to higher priority Navy needs.

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	13.733	12.197	20.301	-	20.301
Current President's Budget	13.195	12.197	8.619	-	8.619
Total Adjustments	-0.538	0.000	-11.682	-	-11.682
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.538	0.000			
• Program Adjustments	0.000	0.000	-11.987	-	-11.987
• Rate/Misc Adjustments	0.000	0.000	0.305	-	0.305

Change Summary Explanation

The FY 2024 funding request was reduced by $11.987 million primarily due to divestment of $38.9M RDTEN across the FYDP for NAV Cybersecurity, APNT, and NaaS.

R-4 PROGRAM SCHEDULE CHANGES:
AN/WSN-12: The development and testing timeline as well as the subsequent production timelines have been updated in FY22-FY25 to reflect the latest program status.

Cybersecurity: Based on the divestment of funding starting in FY24, the schedule has been updated to complete the R&D effort by FY23.

TFDS: The schedule has been updated to reflect the lack of funding (RDTEN and OPN) starting in FY23.

ACNS: The schedule has been updated based on the latest development and testing status which also reflects ship installation moving from Q4 FY24 to Q1 FY25

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0204228N *I (U)SURFACE SUPPORT*

APNT: The schedule reflects the divestment of funding starting in FY24.

NaaS: The schedule reflects the divestment of funding starting in FY23.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0204228N / *(U)SURFACE SUPPORT*				Project (Number/Name) 3311 / *Navigation Systems*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
3311: *Navigation Systems*	156.112	13.195	12.197	8.619	-	8.619	10.702	8.834	8.900	9.309	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

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To increase overall Navy cybersecurity efficiency, starting in FY24, the cybersecurity work associated with the Afloat Navigation Cyber Hardening, Observation, and Response (ANCHOR) program will be executed by Situational Awareness Boundary Enforcement and Response (SABER). SABER is the research, design, development, testing, and installation of Cybersecurity solutions for installed integrated computer networks to include shipboard Hull Mechanical and Electrical (HM&E), Navigation Systems, Combat Systems, Fire Control, Sonar, Radar, Communications and other shipboard computerized control systems for all afloat U.S. Navy platforms.

Time and Frequency Distribution System-Replacement (TFDS-R) funding will be used for the research, development, documentation, and integration testing for the submarine TFDS-R system. TFDS is a Commercial Off the Shelf (COTS) timing system utilizing the precision source signals of GPS to discipline two redundant Rubidium clocks to Universal Coordinated Time (UTC). TFDS provides common time to submarine equipment that utilizes clocking pulses or sinusoidal waveforms for proper operation and maintains accurate time in the event of loss of GPS input (holdover). TFDS uses multiple input power sources for redundancy and provides a built in battery backup. TFDS generates and distributes Precision Time and Timing Interval (PTTI) reference signals to support C4I capabilities needed for Joint, Naval and Allied missions.

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204228N / *(U)SURFACE SUPPORT*	**Project (Number/Name)** 3311 / *Navigation Systems*

Automated Celestial Navigation System (ACNS) funding will be used for the research, development, Engineering Development Model (EDM), documentation and integration testing of the celestial navigation solution for the NoGAPSS navigation implementation on the fleet. Efforts will leverage ONR celestial navigation research into a reproducible ruggedized system fully integrated into the navigation suite.

After review, the Navigation as a Service (NaaS) initiative was defunded in FY23 due to higher priority Navy needs

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: AN/WSN-12 Inertial Navigation System - Replacement (INS-R)	2.462	2.372	3.000	0.000	3.000
Articles:	-	-	-	-	-
FY 2023 Plans: Complete AN/WSN-12 development Complete AN/WSN-12 testing Conduct Production Readiness Review (PRR) Complete ISM FRP Complete NPM LRIP Begin AN/WSN-12 follow-on development					
FY 2024 Base Plans: Continue NPM production Continue AN/WSN-12 follow-on development					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: $0.628M increase due to AN/WSN-12 follow-on development efforts.					
Title: Cybersecurity	1.500	0.672	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2023 Plans: Complete NAV Enclave Cross Domain Solution (CDS) Phase II Complete ANCHOR increment I development					
FY 2024 Base Plans: N/A					
FY 2024 OCO Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204228N / *(U)SURFACE SUPPORT*	Project (Number/Name) 3311 / *Navigation Systems*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** $0.672 decrease due to funding realignment for Cybersecurity starting in FY24					
Title: Time Frequency Distribution System (TFDS) Replacement	0.500	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2023 Plans: TFDS EQT to be completed in FY23 ***FY 2024 Base Plans:*** None ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** No change					
Title: Military GPS User Equipment (MGUE)	3.556	0.800	1.724	0.000	1.724
Articles:	-	-	-	-	-
FY 2023 Plans: Conduct TI-22 early integration and testing ***FY 2024 Base Plans:*** Complete TI-22 early integration and testing ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** $0.924M increase due to continuation of M-code integration and testing					
Title: Submarine Speed Sensors (SSS)	0.900	0.400	0.400	0.000	0.400
Articles:	-	-	-	-	-
FY 2023 Plans: Complete TEMPALT update Complete EQT Continue Indicator Transmitter Tech Refresh					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204228N / *(U)SURFACE SUPPORT*	**Project (Number/Name)** 3311 / *Navigation Systems*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Begin new speed sensor research ***FY 2024 Base Plans:*** Continue new speed sensor research Complete Indicator Transmitter Tech Refresh ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** No change in funding					
Title: Assured Positioning, Navigation, and Timing (APNT) ***Articles:*** ***FY 2023 Plans:*** Integrate ACNS with GPS Based Positioning, Navigation, and Timing Service (GPNTS) in accordance with ACNS Top Level Requirements Document ***FY 2024 Base Plans:*** N/A ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** $1.150M decrease due to realignment by sponsor for APNT starting in FY24	3.200 -	1.150 -	0.000 -	0.000 -	0.000 -
Title: Automated Celestial Navigation System (ACNS) ***Articles:*** ***FY 2023 Plans:*** Complete system development Continue testing and evaluation ***FY 2024 Base Plans:*** Complete system testing and evaluation ***FY 2024 OCO Plans:***	0.372 -	6.256 -	2.707 -	0.000 -	2.707 -

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204228N / *(U)SURFACE SUPPORT*	**Project (Number/Name)** 3311 / *Navigation Systems*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** $3.549M decrease due to final phase of development efforts					
Title: Navigation as a Service (NaaS) / Computing Infrastructure (formerly Navigation Suite) ***Articles:*** ***FY 2023 Plans:*** After review, the Navigation as a Service (NaaS) initiative was defunded in FY22 due to higher priority Navy needs ***FY 2024 Base Plans:*** None ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** N/A	0.500 -	0.000 -	0.000 -	0.000 -	0.000 -
Title: Navigation Support ***Articles:*** ***FY 2023 Plans:*** Provide engineering, logistics, and programmatic support for AN/WSN-12, Cybersecurity, MGUE, SSS, ACNS, and APNT ***FY 2024 Base Plans:*** Provide engineering, logistics, and programmatic support for AN/WSN-12, MGUE, and SSS including system integration, testing, and evaluation at multiple land-based and shipboard sites ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** $0.241M increase to support various Navigation development efforts including system integration, testing, and evaluation at multiple land-based and shipboard sites	0.205 -	0.547 -	0.788 -	0.000 -	0.788 -
Accomplishments/Planned Programs Subtotals	13.195	12.197	8.619	0.000	8.619

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204228N / *(U)SURFACE SUPPORT*	**Project (Number/Name)** 3311 / *Navigation Systems*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• OPN/0670: *Other Navigation*	72.300	87.800	110.286	-	110.286	91.772	100.724	84.649	87.303	Continuing	Continuing

Remarks

D. Acquisition Strategy

AN/WSN-12 Inertial Sensor Module (ISM) CPIF/CPFF/FFP contract competitively awarded in FY 2016. Contract includes options for conducting R&D milestones, manufacture of Engineering Development Models (EDM) and Pre-Production Units (PPU), and manufacture of Low Rate Initial Production (LRIP) and Full Rate Production (FRP).

Assured Positioning, Navigation, and Timing (APNT) has added new program milestones to list future developmental efforts to provide alternate sources of PNT data in a GPS
degraded/denied environment.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204228N / *(U)SURFACE SUPPORT*	Project (Number/Name) 3311 / *Navigation Systems*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering/ Design	WR	SPAWAR Atlantic : Little Creek, VA	25.795	2.248	Oct 2021	1.250	Oct 2022	1.402	Oct 2023	-		1.402	Continuing	Continuing	Continuing
Systems Engineering/ Design	WR	SPAWAR Pacific : San Diego, CA	1.875	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering/ Design	C/CPFF	WR Systems : Norfolk, VA	23.127	4.908	Oct 2021	6.379	Oct 2022	2.574	Oct 2023	-		2.574	Continuing	Continuing	Continuing
Systems Engineering/ Design	C/CPFF	Penn State/ARL : Warminster, PA	5.168	0.150	Oct 2021	0.100	Oct 2022	0.200	Oct 2023	-		0.200	Continuing	Continuing	Continuing
Systems Engineering/ Design	WR	NSWC Dahlgren : Dahlgren, VA	6.959	3.000	Oct 2021	1.279	Oct 2022	0.933	Oct 2023	-		0.933	Continuing	Continuing	Continuing
Systems Engineering/ Design	WR	NSWC Dam Neck : Dam Neck, VA	0.340	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering/ Design	WR	NSWC PHD : Port Hueneme, CA	0.122	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering/ Design	WR	NUWC Newport : Newport, RI	1.080	0.300	Oct 2021	0.150	Oct 2022	0.200	Oct 2023	-		0.200	Continuing	Continuing	Continuing
Systems Engineering/ Design	C/CPFF	Old Dominion University : Suffolk, VA	0.450	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering/ Design	C/CPFF	Northrop Grumman : Charlottesville, VA	46.022	0.212	Oct 2021	0.300	Oct 2022	0.800	Oct 2023	-		0.800	Continuing	Continuing	Continuing
Systems Engineering/ Design	WR	SPAWAR Atlantic : Charleston, SC	1.530	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering/ Design	WR	NSWC Philadelphia : Philadelphia, PA	1.537	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering/ Design	C/CPFF	Electric Boat : Groton, CA	0.953	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering/ Design	C/CPFF	John Hopkins, APL : Laurel, MD	23.427	1.800	Oct 2021	0.643	Oct 2022	0.100	Oct 2023	-		0.100	Continuing	Continuing	Continuing
Systems Engineering/ Design	C/CPFF	Draper : Cambridge, MA	7.811	0.372	Oct 2021	1.549	Oct 2022	1.957	Oct 2023	-		1.957	Continuing	Continuing	Continuing
Systems Engineering/ Design	WR	NSWC Crane : Crane, IN	0.121	0.000		0.000		0.000		-		0.000	0.000	0.121	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204228N / *(U)SURFACE SUPPORT*	Project (Number/Name) 3311 / *Navigation Systems*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering/ Design	WR	Submarine Special Projects : Washington, DC	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Systems Engineering/ Design	MIPR	COMOPTEVFOR : Norfolk, VA	0.021	0.000		0.000		0.200	Oct 2023	-		0.200	0.000	0.221	-
Systems Engineering/ Design	WR	SPAWAR 5.0 : San Diego, CA	0.093	0.000		0.000		0.000		-		0.000	0.000	0.093	-
Systems Engineering/ Design	TBD	Carnegie Mellon : Not Specified	0.400	0.000		0.000		0.000		-		0.000	0.000	0.400	-
		Subtotal	146.831	12.990		11.650		8.366		-		8.366	Continuing	Continuing	N/A

Remarks

The decrease in Product Development Contracts from FY23 to FY24 is due to the significant divestment of RDTEN funding for Cybersecurity, APNT, and NaaS ($11.987M) in FY24.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	C/CPFF	Various : Not Specified	9.281	0.205	Oct 2021	0.547	Oct 2022	0.253	Oct 2023	-		0.253	Continuing	Continuing	Continuing
		Subtotal	9.281	0.205		0.547		0.253		-		0.253	Continuing	Continuing	N/A

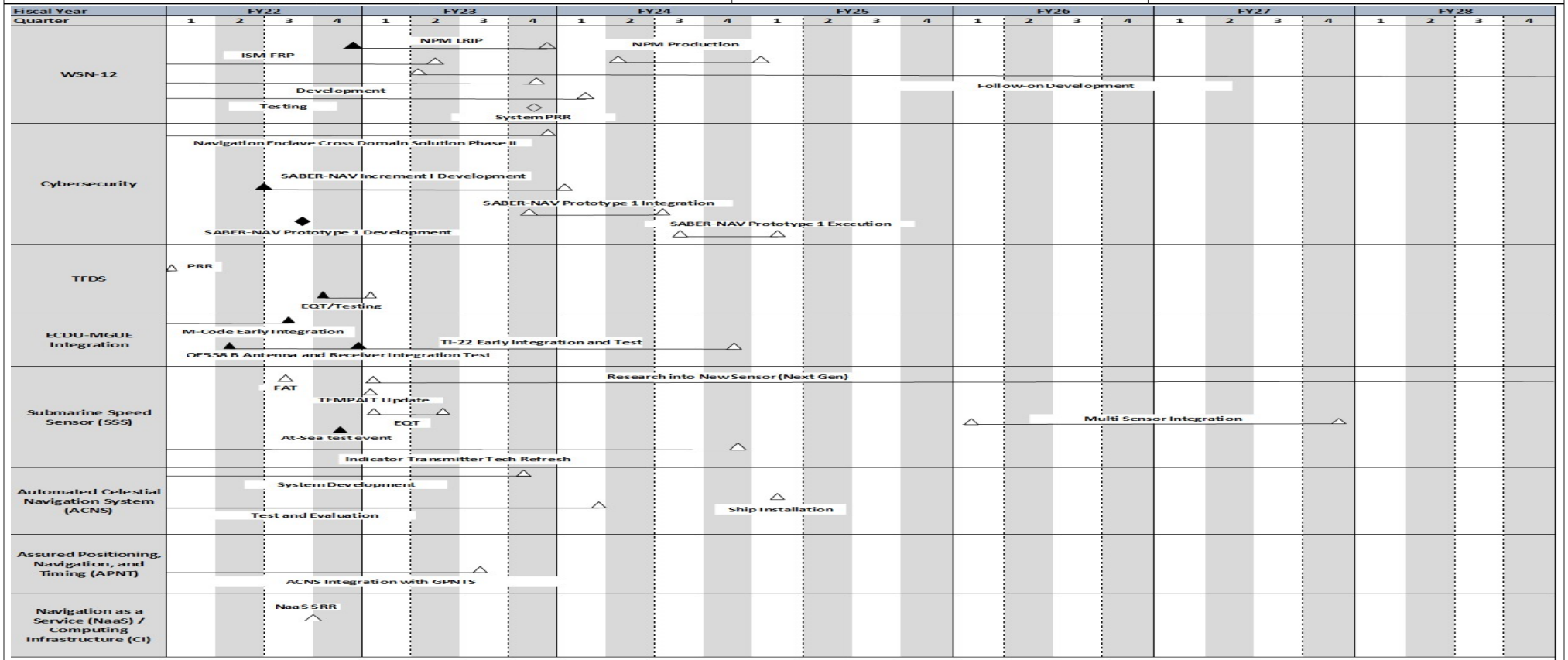
Remarks

The decrease in Program Management Support contract from FY23 to FY24 is due to completion of the initial development efforts for AN/WSN-12 and ACNS in FY23

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	156.112	13.195		12.197		8.619		-		8.619	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204228N / *(U)SURFACE SUPPORT*	**Project (Number/Name)** 3311 / *Navigation Systems*



Acronym List:
- ACNS: Automated Celestial Navigation System
- AoA: Analysis of Alternatives
- APNT: Assured Position, Navigation and Timing
- BDC: Boundary Defense Capability
- CDR: Critical Design Review
- CDS: Cross Domain Solution
- CPD: Capability Production Document
- DOTC: Defense Ordnance Technology Consortium
- ECDU: Enhanced Control Display Unit
- EDM: Eningeering Development Model
- EQT: Environment Qualification Test
- FRP: Full Rate Production
- FAT: Factory Acceptance Test
- FOT&E: Follow-on Test and Evaluation
- HAE2: Host Application Equipment
- HW: Hardware
- ILA: Integrated Logistics Assessment
- IOT&E: Initial Operational Test and Evaluation
- ISM: Inertial Sensor Module
- LRIP: Low Rate Initial Production
- M-Code: Military Code
- NPM: Navigation Processor Module
- OTRR: Operational Test Readiness Review
- OTA: Other Transaction Agreement
- PDR: Preliminary Design Review
- PPU: Pre-Production Unit
- PRR: Production Readiness Review
- SCDU: Secondary Control Display Unit
- SRR: System Requirements Review
- SW: Software
- SSDS: Ship Self Defense System
- TEMP: Test and Evaluation Master Plan
- TFDS-R: Time Frequency Distribution System Replacement
- TRD: Technical Requirements Document

△ Planned Event Completion
▲ Actual Event Completion
◇ Critical Milestone
◆ Actual Milestone Completion

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204228N / *(U)SURFACE SUPPORT*	**Project (Number/Name)** 3311 / *Navigation Systems*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
3311 RDTE				
AN/WSN-12: ISM Production: AN/WSN-12 ISM FRP	1	2022	2	2023
AN/WSN-12: NPM Production: AN/WSN-12 NPM LRIP	4	2022	4	2023
AN/WSN-12: NPM Production: AN/WSN-12 NPM Production	2	2024	1	2025
AN/WSN-12: AN/WSN-12 Development	1	2022	4	2023
AN/WSN-12: AN/WSN-12 Testing	1	2022	1	2024
AN/WSN-12: AN/WSN-12 System PRR	4	2023	4	2023
AN/WSN-12: AN/WSN-12 Follow-on Development	2	2023	4	2028
Cybersecurity: Cybersecurity Navigation Enclave Cross Domain Solution Phase II	1	2022	4	2023
Cybersecurity: Cybersecurity SABER-NAV Increment I Development	2	2022	1	2024
Cybersecurity: Cybersecurity SABER-NAV Prototype 1 Development	3	2022	3	2022
Cybersecurity: Cybersecurity SABER-NAV Prototype 1 Integration	4	2023	3	2024
Cybersecurity: Cybersecurity SABER-NAV Prototype 1 Execution	3	2024	1	2025
TFDS: TFDS-R EQT/Testing	4	2022	1	2023
TFDS: TFDS-R PRR	1	2022	1	2022
MGUE: MGUE M-Code Integration	1	2022	3	2022
MGUE: MGUE OE538B Antenna and Receiver Integration Test	2	2022	4	2022
MGUE: MGUE TI-22 Early Integration and Test	4	2022	1	2025
SSS: SSS TEMPALT Update	1	2023	1	2023
SSS: SSS At-Sea Test Event	4	2022	4	2022
SSS: SSS FAT	3	2022	3	2022
SSS: SSS EQT	1	2023	2	2023
SSS: SSS Research New Sensor	1	2023	4	2028

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204228N / *(U)SURFACE SUPPORT*	**Project (Number/Name)** 3311 / *Navigation Systems*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
SSS: SSS Indicator-Transmitter Tech Refresh	1	2022	4	2024
SSS: SSS Multi Sensor Integration	1	2026	4	2027
ACNS: ACNS System Development	1	2022	4	2023
ACNS: ACNS System Test and Evaluation	1	2022	1	2024
ACNS: ACNS Ship Installation	1	2025	1	2025
APNT: ACNS Integration with GPNTS	1	2022	3	2023
NaaS: NaaS SRR	4	2022	4	2022

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy												Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0204229N *I Tomahawk Mssn Planning Ctr*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	3,995.899	129.919	122.719	122.834	-	122.834	160.049	80.581	49.808	40.813	Continuing	Continuing
0545: *TOMAHAWK*	3,314.276	0.000	0.000	0.000	-	0.000	36.038	5.300	0.000	0.000	0.000	3,355.614
4032: *NAV/COMMS*	9.259	0.000	0.000	2.969	-	2.969	21.060	14.000	8.000	1.500	Continuing	Continuing
4033: *M-Code*	63.906	11.147	8.059	26.301	-	26.301	4.443	3.272	0.052	0.054	Continuing	Continuing
4034: *Maritime Strike*	467.916	73.679	75.101	54.371	-	54.371	70.411	30.137	19.487	19.878	Continuing	Continuing
4035: *JMEWS*	88.446	36.825	22.616	22.012	-	22.012	9.736	9.387	3.207	0.169	Continuing	Continuing
4036: *TTWCS TMPC PPPI*	52.096	8.268	16.943	17.181	-	17.181	18.361	18.485	19.062	19.212	Continuing	Continuing

A. Mission Description and Budget Item Justification

Funds support development of the Tomahawk Weapons System (TWS) encompassing Tactical Tomahawk upgrades including baseline improvements into the Block V missile All-Up Round (AUR), Tactical Tomahawk Weapons Controls System (TTWCS), Theater Mission Planning Center (TMPC) upgrades and other missile system improvements to maintain pace with threats. The TWS provides a long range cruise missile attack capability against fixed and mobile targets. Tomahawk is capable of being deployed from both submarines and surface ships and significantly increases the total capability of joint forces.

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 (FRP) and anticipate funding in the current or subsequent fiscal year.

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	132.181	132.719	72.666	-	72.666
Current President's Budget	129.919	122.719	122.834	-	122.834
Total Adjustments	-2.262	-10.000	50.168	-	50.168
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-10.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	1.813	0.000			
• SBIR/STTR Transfer	-4.074	0.000			
• Program Adjustments	0.000	0.000	49.453	-	49.453
• Rate/Misc Adjustments	-0.001	0.000	0.715	-	0.715

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0204229N *I Tomahawk Mssn Planning Ctr*

Change Summary Explanation

Financial: Overall funding increase driven by multiple factors; added funding for PU 4032 NAV/COMMS, funding increase in M-Code driven by delay in receipt of ASIC chips from USAF shifting costs into FY 2024 and decrease in MST funding is primarily due to reductions in software and hardware development as the program approaches IOC.

PU 4032: Added funding in FY 2024 - FY 2028 for NAV/COMMS.

Schedule:
PU 4032:
New schedule for FY 2024 - FY 2028

PU 4034:
Flight Readiness Review updated name to be Flight Test Readiness Review (FTRR) and dates went from 1Q 2023 to 3Q 2023
Ready for Quick Reaction Assessment renamed to be ITRR
KP Initial Fielding renamed to be Fleet Release
MS C updated from 1Q 2025 to 4Q 2024
MST Seeker Kit LRP 3 Contract Award from 1Q 2023 to 3Q 2023
Add MST Seeker Kit LRP 4 Contract Award
MST Seeker Kit FRP 1 Contract Award 1Q 2024 to 2Q 2026
SPIL Designed & Dev updated from 1Q 2022- 1Q 2023 to 1Q 2022-3Q 2024
SPIL QRA Runs updated to be SPIL Development Runs 3Q 2024-4Q 2024 to 3Q 2024-3Q 2024
Add SPIL Runs for Record (RfR) 3Q 2024-1Q 2025
Add SoSTE Update & Analysis from 1Q 2021 4Q 2022 to 1Q 2021- 3Q 2024
SoSTE Development Runs updated to be FOT&E Development Runs updated from 4Q 2021-2Q 2024 to 3Q 2024-3Q 2024
Updated SoSTE QRA Runs to be FOT&E Runs for Record (RfR) and dates updated from 3Q 2023-4Q 2024 to 3Q 2024-1Q 2025
Add Mission Base Capability Testing (MBCT) 1
Add Mission Base Capability Testing (MBCT) 2
She-Hulk from 3Q 2023 to 2Q 2024
Thor from 2Q 2024 to 4Q 2024
SEMS Builds for final DT/QRA from 1Q 2024-2Q 2024 to 3Q 2024-4Q 2024
Remove FOT&E and replaced to reflect four independent test events: FOT&E 1, FOT&E 2, FOT&E 3, FOT&E 4
Remove IOT&E due to MST being an ACAT I subprogram
Component & SKR Level Qual Testing updated from 2Q 2021-2Q 2023 to 3Q 2023-2Q 2024
Missile Level Qual Testing updated from 4Q 2022-4Q 2023 to 3Q 2023-4Q 2024

SW & Sim Dev & Test updated from 1Q 2021-1Q 2024 to 1Q 2021-3Q 2024
Add Ultra Upgrade
REMOVE TTWCS v5.6.1.X: and sub-components
LRP 1 SKR Del updated from 1Q 2024-1Q 2024 to 1Q 2024-2Q 2024
LRP 3 SKR Del update from 2Q 2024- 2Q 2025 to 4Q 2024-4Q 2025

PU 4035:
JMEWS Milestone C moved from 3Q FY 2024 to 2Q FY 2025
JMEWS Recert Cut-In moved 4Q FY 2025 to 3Q FY 2026
JMEWS EMD Contract extended to 2Q FY 2025
JMEWS Transition to Production moved from 1Q FY 2024 through 1Q FY 2025 to 3Q FY 2024 through 3Q FY 2025
JMEWS CA LRIP 1 moved from 3Q FY 2024 to 2Q FY 2025
JMEWS LRIP 1 Deliveries moved from 3Q FY 2025 through 3Q FY 2026 to 2Q FY 2026 through 2Q FY 2027
JMEWS CA LRIP 2 moved from 2Q FY 2025 to 2Q FY 2026
JMEWS LRIP 2 Deliveries moved from 3Q FY 2026 through 3Q FY 2027 to 2Q FY 2027 through 2Q FY 2028
JMEWS SVR moved from 1Q FY 2024 to 4Q FY 2024
JMEWS PRR moved from 3Q FY 2024 to 1Q FY 2025

PU 4036:
TMPC 7.0 IOC moved from 4Q FY 2023 to 4Q FY 2024
TMPC 7.0 PAT & DT/OT split to Land Attack PAT DT/OT & Maritime PAT DT/OT
TMPC 7.0 Land Attack PAT DT/OT added to 4Q FY 2022 to 2Q FY 2024
TMPC 7.0 Maritime PAT DT/OT added to 3Q FY 2023 to 1Q FY 2025
TMPC 8.0 JMEWS PDR moved from 4Q FY 2023 to 3Q FY 2023
TMPC 8.0 JMEWS OTRR moved from 1Q FY 2026 to 3Q FY 2026
Removed TTWCS v5.6.1.x IOC and replaced to reflect three milestones:
TTWCS v5.6.1.0 Fleet Release (Land Attack) 2Q 2024
TTWCS v5.6.1.1 Fleet Release (MST) 1Q 2025
TTWCS v5.6.1.x Fleet Release (MCODE) 4Q 2025
TTWCS v7.X IOC renamed to TTWCS v7.X Fleet Release and moved from 1Q 2027 to 4Q 2027
TTWCS v7.X Design from 4Q 2022-2Q 2023 to 3Q 2023-1Q 2024
TTWCS v7.X SW Dev & Integration from 4Q 2022-3Q 2026 to 2Q 2024-4Q 2025

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0204229N *I Tomahawk Mssn Planning Ctr*

TACTOM Preplanned Product Improvement (P3I) Cyber Improvements from 1Q 2023-4Q 2027 to 1Q 2023-4Q 2028
TTWCS v5.6.1.X DT/OT from 1Q 2022-2Q 2025 to 1Q 2022- 3Q 2024
Added TTWCS 5.6.1 FB 4Q 2024-2Q 2025
TTWCS v7.X DT/OT from 1Q 2023-2Q 2026 to 1Q 2024-3Q 2026
JMEWS OT added in 4Q FY 2026

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204229N / *Tomahawk Mssn Planning Ctr*	Project (Number/Name) 0545 / *TOMAHAWK*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
0545: *TOMAHAWK*	3,314.276	0.000	0.000	0.000	-	0.000	36.038	5.300	0.000	0.000	0.000	3,355.614
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Tomahawk Weapons System (TWS) provides a deep strike land attack capability (Tomahawk Land Attack Missile (TLAM)), and can be launched from both surface ships (RGM) and submarines (UGM) via the Tactical Tomahawk Weapons Control System (TTWCS). The Guidance Electronics Unit - Redesign (GEU-R) provides centralized housing of the electronic cards for navigation, guidance, flight control, pyro & power control, mission control (MC), and secondary power and manages all missile monitoring and control functions (navigation, communications, guidance, speed, attitude, health, component power application timing/activation of discrete events).

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204229N / *Tomahawk Mssn Planning Ctr*	Project (Number/Name) 4032 / *NAV/COMMS*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
4032: *NAV/COMMS*	9.259	0.000	0.000	2.969	-	2.969	21.060	14.000	8.000	1.500	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

This project is a FY 2024 New Start due to not having funding since FY 2021.

A. Mission Description and Budget Item Justification

TACTOM missile Navigation and Communications (NAV/COMMS) capability consists of a government furnished TACTOM radio, a government furnished crypto unit, and NAV/COMM specific test equipment. This capability enables the Tomahawk Weapon System (TWS) to utilize an Advanced Communications Architecture (ACA) network for secure tactical communications. The Tomahawk Weapons System (TWS) provides a deep strike land attack capability (Tomahawk Land Attack Missile (TLAM)) and can be launched from both surface ships (RGM) and submarines (UGM) via the Tactical Tomahawk Weapons Control System (TTWCS). The ACA Phase II will provide additional capability. Details available at a higher classification. The TACTOM Block V Integrated Single Box Solution (ISBS) radio redesign provides improved Communication (Comms) through the use of an improved software that will expand the platform's capabilities and avoids component obsolescence. The ISBS radio is utilized to send in-flight retargeting commands, employ "loiter" tactic, and transmit health and status.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: NAV/COMMS	0.000	0.000	2.969	0.000	2.969
Articles:	-	-	-	-	-
FY 2023 Plans: N/A					
FY 2024 Base Plans: NAV/COMMS planned activities for Phase II include procurement of equipment needed for research, development and testing. Additionally, funds will be used to plan and prepare for developmental and operational testing needed in FY 2025 - FY 2028. Radio redesign will allow for improved software that will expand the platform's capabilities, and design out obsolescent parts.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: FY 2024 funding supports continuing Nav/Comms efforts previously funded in FY 2019 thru FY 2021.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	2.969	0.000	2.969

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning C tr*	**Project (Number/Name)** 4032 / *NAV/COMMS*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• WPN 2101: *Tomahawk*	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	85.434
• WPN 2301: *Tomahawk Mods*	35.160	59.672	97.268	-	97.268	108.400	114.418	111.004	71.343	293.807	929.535

Remarks

Other Program Funding Summary for WPN BLI 2301 does not include funding for the Tomahawk Recertification program as there is no RDTEN funding associated with that program.

D. Acquisition Strategy

The Advanced Communication Architecture acquisition strategy in FY 2024 will aim to increase the new Phase II technology readiness level, redesign the ISBS radio, integrate it within the platform, and plan developmental tests. This work will prepare the technology for operational tests and qualification within the weapon system and network.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning C tr*	**Project (Number/Name)** 4032 / *NAV/COMMS*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development Prior Year Activity	Various	Various : Various	1.773	0.000		0.000		0.000		-		0.000	0.000	1.773	-
NAV/COMMS Improvements	C/CPFF	Raytheon : Tuscon, AZ	0.000	0.000		0.000		1.419	Jun 2024	-		1.419	Continuing	Continuing	Continuing
NAV/COMMS Improvements	C/FFP	GCI : Reston, VA	0.000	0.000		0.000		0.900	Jan 2024	-		0.900	Continuing	Continuing	Continuing
NAV/COMMS Improvements	C/FFP	TBD : TBD	0.000	0.000		0.000		0.450	Jan 2024	-		0.450	Continuing	Continuing	Continuing
NAV/COMMS Improvements	WR	NAWC-AD : Patuxent River, MD	0.000	0.000		0.000		0.200	Jan 2024	-		0.200	0.000	0.200	-
		Subtotal	1.773	0.000		0.000		2.969		-		2.969	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Support Prior Year Activity	Various	Various : Various	5.614	0.000		0.000		0.000		-		0.000	0.000	5.614	-
		Subtotal	5.614	0.000		0.000		0.000		-		0.000	0.000	5.614	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation (OT&E)	Various	Various : Various	1.872	0.000		0.000		0.000		-		0.000	0.000	1.872	-
		Subtotal	1.872	0.000		0.000		0.000		-		0.000	0.000	1.872	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	9.259	0.000		0.000		2.969		-		2.969	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204229N / *Tomahawk Mssn Planning Ctr*	Project (Number/Name) 4032 / *NAV/COMMS*	

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning C tr*	**Project (Number/Name)** 4032 / *NAV/COMMS*

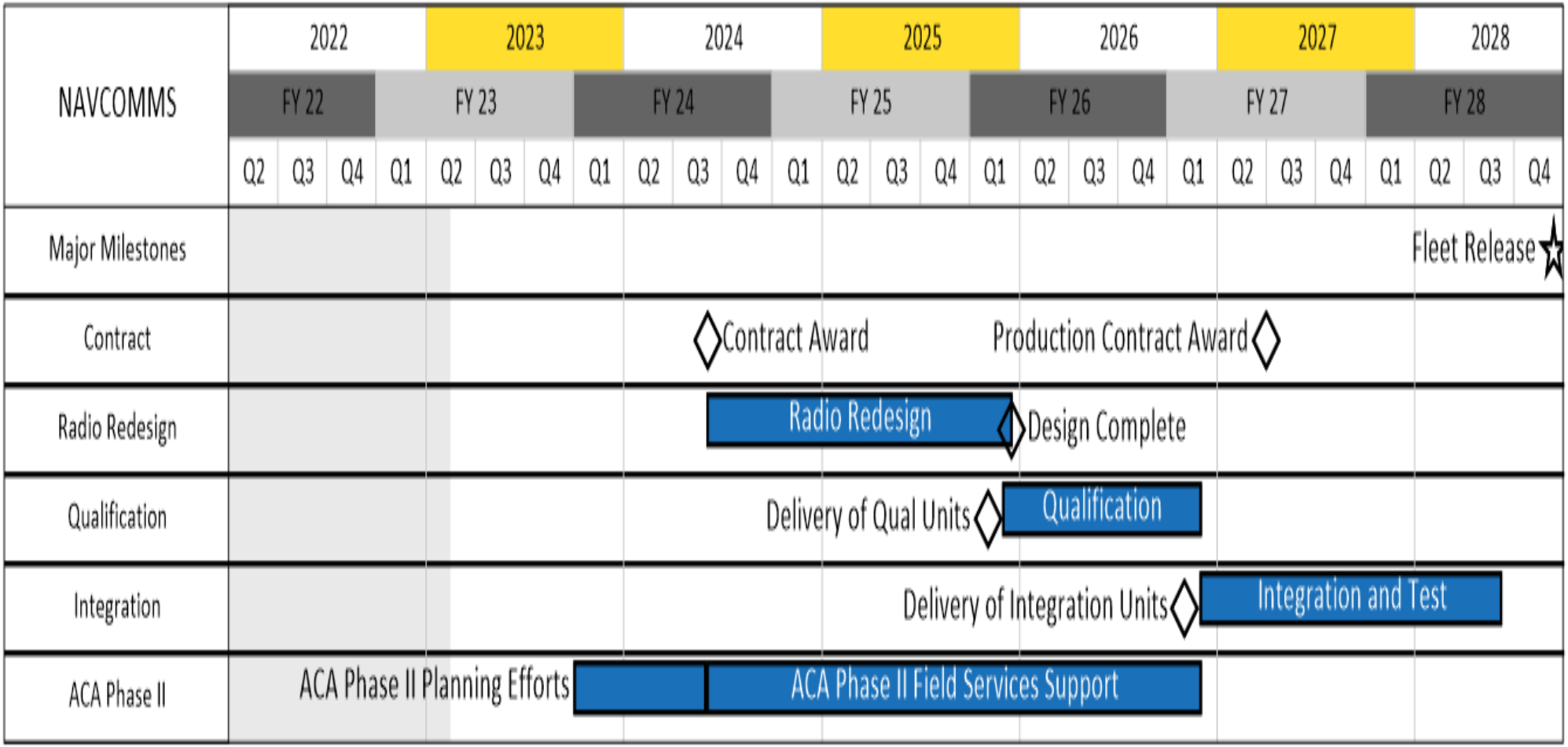


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning C tr*	**Project (Number/Name)** 4032 / *NAV/COMMS*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
NAV/COMMS				
Acquisition Milestones: Milestones: Fleet Release	4	2028	4	2028
Acquisition Milestones: Milestones: Contract Award	3	2024	3	2024
Acquisition Milestones: Milestones: Production Contract Award	2	2027	2	2027
Acquisition Milestones: Milestones: Design Complete	1	2026	1	2026
Acquisition Milestones: Milestones: Delivery of Qual Units	1	2026	1	2026
Acquisition Milestones: Milestones: Delivery of Integration Units	1	2027	1	2027

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204229N / *Tomahawk Mssn Planning Ctr*	Project (Number/Name) 4033 / *M-Code*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
4033: *M-Code*	63.906	11.147	8.059	26.301	-	26.301	4.443	3.272	0.052	0.054	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The M-Code (ACAT IVT) Increment I program upgrades the Tactical Tomahawk to the next generation Global Positioning System (GPS) satellite constellation required to maintain GPS-provided position, navigation, and timing (PNT) for the missiles and is planned for Milestone C production decision in FY 2025 and Fleet Release in FY 2026. The M-Code mandate and Public Law restricts the purchase of only M-Code-capable GPS User Equipment (MGUE) after FY 2017 unless a waiver is granted by the Secretary of Defense.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: M-Code	11.147	8.059	26.301	0.000	26.301
Articles:	-	-	-	-	-
FY 2023 Plans: M-Code planned activities include continuation of EMD. EMD efforts include hardware and software development, integration, and testing of an M-Code capable Tactical Tomahawk (TACTOM) Anti-Jam GPS Receiver.					
FY 2024 Base Plans: M-Code planned activities include continuation of EMD. EMD efforts include hardware and software integration, testing, qualification, and achieve Security Approval of an M-Code capable Tactical Tomahawk (TACTOM) Anti-Jam GPS Receiver (AGR).					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: Increase in funding from FY 2023 to FY 2024 driven 12-month delay in receipt of the M-Code Common Architecture for Assured PNT (CAAP) Application Specific Integrated Circuit (ASIC) chip from USAF. Delayed efforts drive significantly increased costs into FY 2024 and include the planned USN AGR subsystem integration, test, qualification, and security approval efforts required to meet the OSD Mandate for M-Code.					
Accomplishments/Planned Programs Subtotals	11.147	8.059	26.301	0.000	26.301

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning C tr*	**Project (Number/Name)** 4033 / *M-Code*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• WPN 2301: *Tomahawk Mods*	0.000	0.000	0.000	-	0.000	26.162	27.805	27.029	14.598	82.668	178.262

Remarks

Other Program Funding Summary for WPN BLI 2301 does not include funding for the Tomahawk Recertification program as there is no RDTEN funding associated with that program.

D. Acquisition Strategy

The M-Code (ACAT IV) Increment I acquisition strategy includes the development, integration, test, qualification and production of a new GPS receiver which will satisfy Public Law 111-383, sec 913 compliance. Development includes the Tactical Tomahawk M-Code program co-developing the Common Architecture for Assured PNT (CAAP) high anti-jam M-Code Application Specific Integrated Circuit (ASIC) with USAF Small Diameter Bomb (SDB)-II Program Office. M-Code capability enables the missile to maintain GPS integrity in an enhanced spoofing environment. M-Code Milestone B occurred in FY 2019, Milestone C is planned for FY 2025, and the capability will Fleet Release in FY 2026. The M-Code program includes upgrades to the All-Up Round (AUR) missile, Tactical Tomahawk Weapons Control System (TTWCS) v5.x, Submarine Combat & Control System (CCS), and also requires upgrade to the Theater Mission Planning Center (TMPC) program (under PU 4036).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning C tr*	**Project (Number/Name)** 4033 / *M-Code*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
M-Code-AUR	SS/CPFF	Raytheon : Tuscon, AZ	38.730	5.269	Nov 2021	4.262	Nov 2022	22.713	Nov 2023	-		22.713	Continuing	Continuing	Continuing
M-Code - AUR	SS/FFP	Raytheon : Raytheon, AZ/SAS:	9.000	0.000		0.000		0.000		-		0.000	0.000	9.000	-
M-Code - TTWCS	SS/CPFF	LMVF : Valley Forge, PA	0.246	0.000		0.000		0.000		-		0.000	0.000	0.246	-
M-Code - TTWCS	SS/CPFF	LMBM : Baltimore, MD	0.371	0.000		0.000		0.000		-		0.000	0.000	0.371	-
M-Code - TTWCS	SS/CPFF	BAE Systems : San Diego, CA	0.065	0.000		0.000		0.000		-		0.000	0.000	0.065	-
M-Code - AUR	SS/CPFF	UARC APL : Laurel, MD	4.517	1.387	Dec 2021	1.255	Oct 2022	1.045	Oct 2023	-		1.045	1.744	9.948	-
		Subtotal	52.929	6.656		5.517		23.758		-		23.758	Continuing	Continuing	N/A

Remarks

M-Code Product Development funds to Raytheon: Tucson, AZ provide for hardware and software integration, testing, qualification, and achieve Security Approval of an M-Code capable Tactical Tomahawk (TACTOM) Anti-Jam GPS Receiver.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
M-Code Development Support	WR	NAWC-WD : China Lake, CA	0.523	0.166	Nov 2021	0.262	Nov 2022	0.222	Nov 2023	-		0.222	0.150	1.323	-
M-Code Development Support	WR	NAWC-AD : Patuxent River, MD	1.642	1.083	Nov 2021	0.563	Nov 2022	0.550	Nov 2023	-		0.550	0.512	4.350	-
M-Code Development Support	WR	NUWC-NPT : Newport, RI	0.901	0.175	Nov 2021	0.257	Nov 2022	0.227	Nov 2023	-		0.227	0.315	1.875	-
M-Code Development Support	WR	NSWC-IH : Indian Head, MD	0.825	0.191	Nov 2021	0.180	Nov 2022	0.192	Nov 2023	-		0.192	0.250	1.638	-
M-Code/TTWCS Development Spt	WR	NSWC-DD : Dahlgren, VA	1.666	2.226	Nov 2021	0.785	Nov 2022	0.850	Nov 2023	-		0.850	0.000	5.527	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning C tr*	**Project (Number/Name)** 4033 / *M-Code*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
M-Code Development Support	SS/CPFF	Various : Various	0.101	0.000		0.000		0.000		-		0.000	0.000	0.101	-
M-Code NWCF Surcharge	WR	NAWC-WD : China Lake, CA	4.630	0.000		0.000		0.000		-		0.000	0.000	4.630	-
		Subtotal	10.288	3.841		2.047		2.041		-		2.041	1.227	19.444	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	NAWC-AD : Patuxent River	0.113	0.138	Jun 2022	0.165	Jun 2023	0.165	Jun 2024	-		0.165	0.322	0.903	-
Developmental Test & Evaluation (DT&E)	WR	NUWC-NPT : Newport, RI	0.000	0.325	Nov 2021	0.143	Nov 2022	0.150	Nov 2023	-		0.150	0.299	0.917	-
		Subtotal	0.113	0.463		0.308		0.315		-		0.315	0.621	1.820	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
M-Code	WR	NAWC-AD : Patuxent River	0.576	0.187	Jun 2022	0.187	Jun 2023	0.187	Jun 2024	-		0.187	0.364	1.501	-
		Subtotal	0.576	0.187		0.187		0.187		-		0.187	0.364	1.501	N/A

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	63.906	11.147		8.059		26.301		-		26.301	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning C tr*	**Project (Number/Name)** 4033 / *M-Code*

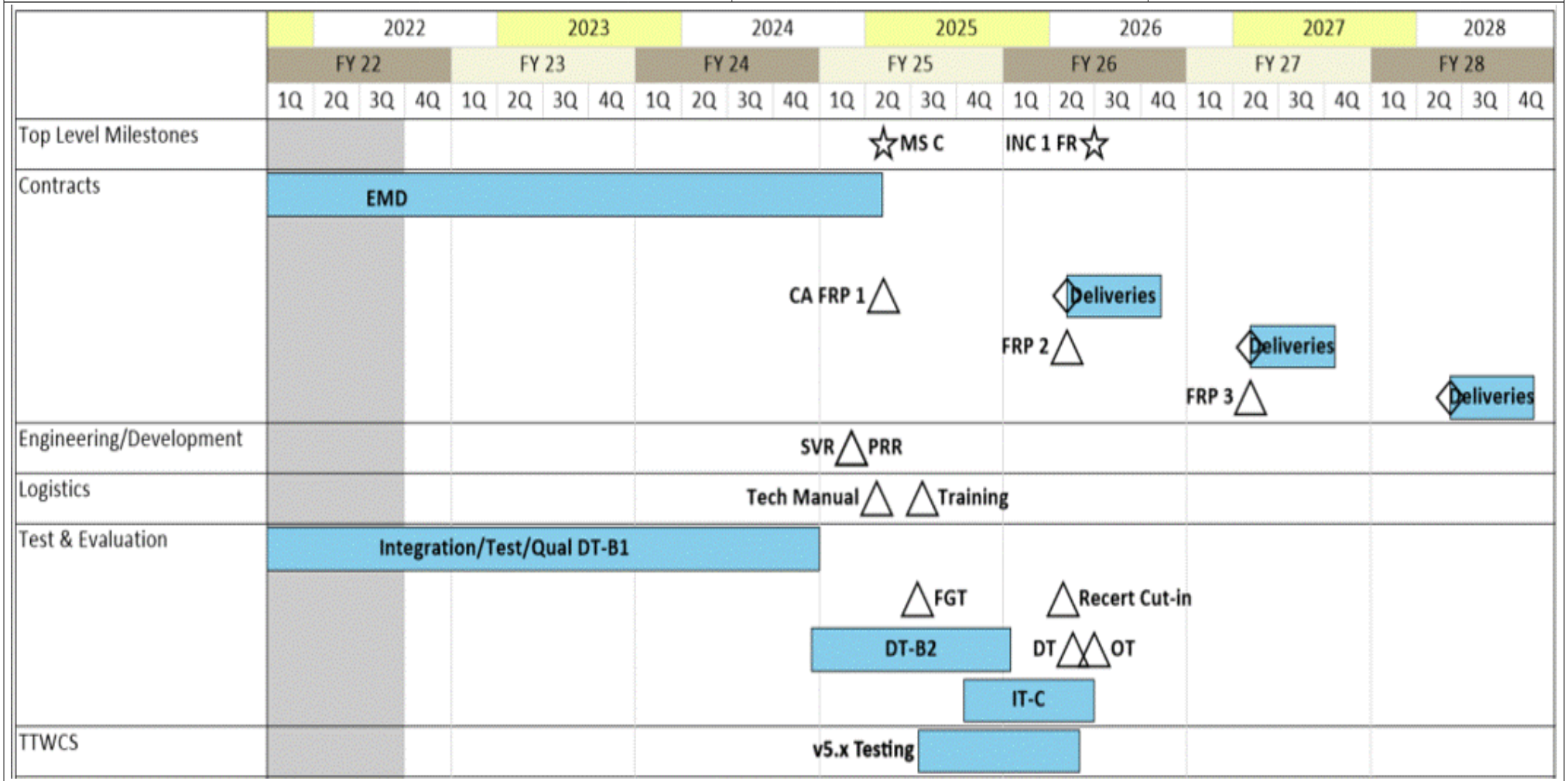


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning C tr*	**Project (Number/Name)** 4033 / *M-Code*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
M-CODE				
Acquisition Milestones: Milestones: Milestone C	2	2025	2	2025
Systems Development: Test and Evaluation: M-Code Integrated Test (IT-C)	4	2025	2	2026
Systems Development: Test and Evaluation: M-Code Inc I Fleet Release	2	2026	2	2026
Production Milestones: Contract Awards: M-Code FRP Lot-1	2	2025	2	2025
Production Milestones: Contract Awards: M-Code FRP Lot-2	2	2026	2	2026
Production Milestones: Contract Awards: M-Code FRP Lot-3	2	2027	2	2027

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204229N / *Tomahawk Mssn Planning Ctr*	Project (Number/Name) 4034 / *Maritime Strike*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
4034: *Maritime Strike*	467.916	73.679	75.101	54.371	-	54.371	70.411	30.137	19.487	19.878	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Maritime Strike Tomahawk (MST) modernization effort provides the capability to hit moving maritime targets through mid-course guidance via a third party or seeker mode, to a terminal seeker engagement. MST began transitioning to a Program of Record in FY 2022 and is estimated to complete transitioning to an ACAT I subprogram in FY 2023. Milestone C planned for FY 2024 and IOC is planned in FY 2025. Program of Record will consist of a period of initial and follow-on operational test and evaluation, seeker software algorithm updates, and commensurate Weapons Control System (WCS) and Theater Mission Planning Center (TMPC) software updates.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Maritime Strike Tomahawk	73.679	75.101	54.371	0.000	54.371
Articles:	-	-	-	-	-
FY 2023 Plans: Continuation of activities in support of Maritime Strike Tomahawk (MST). MST will continue test efforts in FY 2023 including captive flight testing of seeker assembly and missile test flights from ground launcher apparatus to assess seeker performance and further mature OES 5 software and associated algorithms. These events are expected to result in discovery of required software fixes that will be included in OES 6 software builds. The program will also continue build-up, check-out, and lab test of MST test missiles for surface and subsurface test events to be conducted in FY 2024. Engagement planning and coordination with other stakeholders and agencies that require MST support will continue in FY 2023. Modeling and Simulation (M&S) activity in laboratories will continue in FY 2023 to include validation and verification runs in the System of Systems Test Environment (SoSTE) Lab and the Signal Processor in the Loop (SPIL) environment to verify and begin validation of mission performance. Additional shipping and handling safety analyses will be conducted and further recommendations implemented. TTWCS will continue system integration testing of version 5.6.1.X software build after Global Command and Control System interfaces have completed necessary fixes that were discovered in FY 2022. The testing will continue on system segments and address weapons control software fixes and debugging through the planned corrective build. The program will continue MST training curriculum and logistics product development for the Fleet user, conduct test ship crew training activities for version 5.6.1.X, and continue test ship installation activities, which will be in concert with test ship availability.					
FY 2024 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning C tr*	**Project (Number/Name)** 4034 / *Maritime Strike*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Continuation of activities in support of Maritime Strike Tomahawk (MST). MST will continue test efforts in FY 2024 including finishing missile level qualification testing, final missile flight tests from ground launcher apparatus to assess improvements made to seeker performance from the FY 2023 test events, and further mature OES 6 software and associated algorithms. The program will also continue build-up, check-out, and lab test of MST test missiles for surface and subsurface test events to be conducted in FY 2024 and FY 2025. Engagement planning and coordination with other stakeholders and agencies that require MST support will continue in FY 2024. Modeling and Simulation (M&S) activity in laboratories will continue in FY 2024 to include validation and verification runs in the System of Systems Test Environment (SoSTE) Lab and the Signal Processor in the Loop (SPIL) environment to verify and complete validation of mission performance. TTWCS will complete system integration testing of version 5.6.1.X software build after Global Command and Control System interfaces have completed necessary fixes that were discovered in FY 2023. The testing will complete on system segments and address weapons control software fixes and debugging through the planned corrective build. The program will continue MST training curriculum and logistics product development for the Fleet user, conduct test ship crew training activities for version 5.6.1.X, and continue surface (and subsurface) installation activities, which will be in concert with test ship availability in order to support final shipboard testing in FY 2024 and FY 2025. The program will complete development of documentation and planning to support MS-C in FY 2024 and begin initial engineering to support post MS-C Program of Record activities. The program will begin required engineering, integration, and testing to support an upgrade to the seeker processor. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The decrease from FY 2023 to FY 2024 is primarily due to reductions in software and hardware development as the program approaches IOC.					
Accomplishments/Planned Programs Subtotals	73.679	75.101	54.371	0.000	54.371

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• WPN 6120: *Spares and Repair Parts*	1.093	2.364	1.913	-	1.913	1.440	1.936	1.950	1.989	Continuing	Continuing
• WPN 2301: *Tomahawk Mods*	44.470	117.468	121.352	-	121.352	83.903	83.621	84.423	87.897	2,600.319	3,243.048

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning C tr*	**Project (Number/Name)** 4034 / *Maritime Strike*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost

Remarks

Other Program Funding Summaries for WPN BLIs 2301 and 6120 do not include funding for the Tomahawk Recertification program as there is no RDTEN funding associated with that program.

D. Acquisition Strategy

Maritime Strike Tomahawk (MST) will enable surface warfare engagement capability from U.S. Navy Guided Missile Cruiser (CG), Guided Missile Destroyer (DDG), and Nuclear Powered Fast Attack Submarine (SSN) platforms. The MST program includes upgrades to the All-Up Round (AUR) missile, the Tactical Tomahawk Weapons Control System (TTWCS) and also required upgrades to the Theater Mission Planning Center (TMPC) programs (under PU 4036). MST was designated a DoDI 5000.02 Rapid Deployment Capability (RDC) by the Assistant Secretary of the Navy (Research, Development, and Acquisition) (ASN (RDA)) in Oct 2016. Milestone decision authority ensures program accountability through knowledge points which inform progress on critical design, production readiness, system test readiness, flight readiness, operational test readiness and fielding decision. To facilitate rapid fleet fielding, hardware design was phased to the beginning of the program. Technical Data package for seeker production units completed in 3Q FY 2020 at Knowledge Point 3 which supported procurement in FY 2021. Seeker software development will continue with initial Engineering Design Models. Initial Operational Capability (IOC) will occur in FY 2025 following operational test. This strategy affords the program flexibility in achieving a threshold capability in a timely manner. MST is estimated to complete transitioning to an ACAT I subprogram in FY 2023 and will conduct MS-C in FY 2024. Program of Record will consist of a period of initial and follow-on operational test and evaluation, seeker software algorithm updates, and commensurate Weapons Control System (WCS) and Theater Mission Planning Center (TMPC) software updates.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning C tr*	**Project (Number/Name)** 4034 / *Maritime Strike*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Maritime Strike - AUR	SS/CPIF	Raytheon : Tucson, AZ	345.360	56.522	Oct 2021	49.611	Dec 2022	33.266	Dec 2023	-		33.266	Continuing	Continuing	Continuing
Maritime Strike - AUR	WR	NAWCWD : China Lake, CA	20.062	3.995	Nov 2021	5.688	Nov 2022	1.670	Nov 2023	-		1.670	Continuing	Continuing	Continuing
Maritime Strike- TTWCS	SS/CPFF	LMVF : Valley Forge, PA	10.952	1.130	Apr 2022	1.051	Dec 2022	1.643	Dec 2023	-		1.643	0.000	14.776	12.252
Maritime Strike- TTWCS	WR	NSWC-DD : Dahlgren, VA	10.333	2.178	Oct 2021	3.512	Nov 2022	2.725	Nov 2023	-		2.725	Continuing	Continuing	Continuing
Maritime Strike- TTWCS	WR	NUWC-DN : Newport, RI	3.472	1.720	Nov 2021	1.020	Nov 2022	1.260	Nov 2023	-		1.260	Continuing	Continuing	Continuing
Maritime Strike - AUR	MIPR	NRO : Chantilly, VA	3.608	0.000		0.000		0.000		-		0.000	0.000	3.608	3.608
Maritime Strike - AUR	SS/CPFF	UARC APL : Laurel, MD	1.509	0.356	Mar 2022	0.452	Apr 2023	0.498	Apr 2024	-		0.498	0.000	2.815	2.386
Maritime Strike- VLS	SS/CPFF	LM : Baltimore, MD	2.326	0.144	Feb 2022	0.213	Feb 2023	0.000		-		0.000	0.000	2.683	1.600
Maritime Strike - AUR	WR	NSWC-PHD : Port Hueneme, CA	1.345	0.795	Dec 2021	0.908	Oct 2022	0.000		-		0.000	0.000	3.048	1.548
Maritime Strike - AUR	SS/CPFF	ACE Electronics Defense Systems, LLC : Port Hueneme, CA	0.415	0.000		0.000		0.000		-		0.000	0.000	0.415	0.415
Maritime Strike - AUR	WR	NAVWAR : San diego	1.484	0.000		0.000		0.000		-		0.000	0.000	1.484	1.500
Maritime Strike - AUR	MIPR	DCMA : Tucson, AZ	0.560	0.000		0.000		0.000		-		0.000	0.000	0.560	-
Maritime Strike- TTWCS	SS/CPFF	Various : Port Hueneme, CA	0.116	0.000		0.000		0.000		-		0.000	0.000	0.116	-
Maritime Strike - AUR	WR	NSWC-IHD : Indian Head, MD	0.020	0.000		0.000		0.000		-		0.000	0.000	0.020	-
Maritime Strike - AUR	MIPR	DLA : Philadelphia, PA	2.600	0.000		0.000		0.000		-		0.000	0.000	2.600	-
Maritime Strike- TTWCS	SS/CPFF	Various : Newport, RI	0.000	0.507	Mar 2022	0.241	Apr 2023	0.000		-		0.000	0.000	0.748	-
Maritime Strike- TTWCS	SS/CPFF	Various : Dahlgren, VA	0.000	0.290	Mar 2022	0.139	Mar 2023	0.000		-		0.000	0.000	0.429	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning C tr*	**Project (Number/Name)** 4034 / *Maritime Strike*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Maritime Strike - AUR	SS/CPFF	NAVSEA : Manassas, VA	0.000	0.000		1.200	Mar 2023	0.000		-		0.000	0.000	1.200	-
		Subtotal	404.162	67.637		64.035		41.062		-		41.062	Continuing	Continuing	N/A

Remarks

FY 2024 Maritime Strike funding continues the refinement of software algorithm code. FY 2024 funding continues support of system test software development evaluation and continues System of Systems Test Environment and Signal Processor in the Loop laboratory performance runs and analysis. Continues Tactical Tomahawk Weapons Control System v5.6.X system integration testing, correction of deficiencies in Increment (Inc)/Fix-it Build (FB) development, training and curriculum development, and entry into Inc/FB Segment Test. Continue MST training development, and Tomahawk Mission Planning Center initial Product Acceptance Test and Inc/FB complete. Continue planning for the additional capabilities and the correction of MST deficiencies in the follow on derivatives of TTWCS V5.X.X.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Maritime Strike Development Support	WR	NAWC-WD : China Lake	10.161	0.000		0.140	Nov 2022	0.333	Nov 2023	-		0.333	Continuing	Continuing	Continuing
Martime Strike Development Support	SS/CPFF	UARC APL : Laurel, MD	0.317	0.000		0.000		0.000		-		0.000	0.000	0.317	0.318
Maritime Strike Development Support	WR	NSWC-DD : Dahlgren, VA	9.499	0.725	Nov 2021	0.727	Nov 2022	0.543	Nov 2023	-		0.543	Continuing	Continuing	Continuing
Maritime Strike Development Support	WR	NAWC-AD : Pax River, MD	5.332	0.170	Oct 2021	1.477	Nov 2022	1.544	Nov 2023	-		1.544	Continuing	Continuing	Continuing
Maritime Strike Development Support	WR	NUWC-NPT : Newport, RI	0.387	0.000		0.065	Nov 2022	0.000		-		0.000	0.000	0.452	0.403
Maritime Strike Development Support	WR	NSWC-PHD : Port Hueneme, CA	1.836	0.050	Nov 2021	0.025	Oct 2022	0.000		-		0.000	0.000	1.911	1.850
Maritime Strike Development Support	C/CPFF	SSC : San Diego, CA	5.959	0.477	Apr 2022	0.530	Dec 2022	0.623	Dec 2023	-		0.623	0.000	7.589	6.122
Maritime Strike Development Support	WR	NAVWAR : San Diego, CA	4.140	0.684	Oct 2021	1.099	Nov 2022	0.837	Nov 2023	-		0.837	Continuing	Continuing	Continuing
Maritime Strike Development Support	C/CPFF	Sea Corp : Newport, RI	1.091	0.000		0.000		0.000		-		0.000	0.000	1.091	1.091

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204229N / *Tomahawk Mssn Planning C tr*	Project (Number/Name) 4034 / *Maritime Strike*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Maritime Strike Development Support	SS/CPFF	Precise : Pax River, MD	1.771	0.000		0.214	Jul 2023	0.357	Apr 2024	-		0.357	0.000	2.342	2.521
Maritime Strike Development Support	MIPR	US Army : Redstone Arsenal, AL	2.024	0.000		0.000		0.750	Aug 2024	-		0.750	Continuing	Continuing	Continuing
Maritime Strike Development Support	SS/CPFF	Various : Dahlgren, VA	1.094	0.315	Feb 2022	0.000		0.480	Apr 2024	-		0.480	Continuing	Continuing	Continuing
Maritime Strike Development Support	MIPR	Other DOD : Various	0.039	0.000		0.047	Feb 2023	0.000		-		0.000	0.000	0.086	0.615
Maritime Strike Development Support	PO	Naval Research Lab : Washington, DC	0.842	0.168	Jul 2022	0.262	May 2023	0.170	Mar 2024	-		0.170	Continuing	Continuing	Continuing
Maritime Strike Development Support	SS/CPFF	Various : Port Hueneme, CA	0.986	0.393	Mar 2022	0.465	Feb 2023	0.559	Mar 2024	-		0.559	Continuing	Continuing	Continuing
Maritime Strike Development Support	SS/CPFF	Various : Pax River, MD	1.786	0.791	Jun 2022	1.061	Jun 2023	0.000		-		0.000	Continuing	Continuing	Continuing
Maritime Strike Development Support	SS/CPFF	BAE : McLean, VA	0.123	0.000		0.000		0.000		-		0.000	0.000	0.123	0.085
Maritime Strike Development Support	WR	NSWC Corona : Corona, CA	0.223	0.128	Dec 2021	0.000		0.048	Nov 2023	-		0.048	Continuing	Continuing	Continuing
Maritime Strike Development Support	WR	NSWC-IHD : Indian Head, MD	0.060	0.047	Nov 2021	0.049	Oct 2022	0.000		-		0.000	0.000	0.156	0.105
Maritime Strike Development Support	SS/CPFF	Keysight Tech : Colorado Springs, CO	5.101	0.000		0.000		0.000		-		0.000	0.000	5.101	5.101
Maritime Strike Development Support	Various	NAVAIR HQ : Pax River, MD	0.000	0.000		0.025	Nov 2022	0.000		-		0.000	0.000	0.025	-
		Subtotal	52.771	3.948		6.186		6.244		-		6.244	Continuing	Continuing	N/A

Remarks

FY 2024 funding continues Program of Record documentation activities, continues fleet training, ship install of MST hardware and software, continues verification and validation support for Modeling and Simulation (M&S), performs data analysis of final test events to include M&S Runs for Record, TTWCS segment testing, flight testing, TWS Integration Testing, and Missile Level Qualification Test analysis.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204229N / *Tomahawk Mssn Planning C tr*	Project (Number/Name) 4034 / *Maritime Strike*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	NAWC-WD : China Lake	8.441	0.071	Oct 2021	2.025	Nov 2022	5.073	Nov 2023	-		5.073	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	NAWC-AD : Pax River	0.094	0.019	Dec 2021	0.173	Nov 2022	0.273	Nov 2023	-		0.273	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	NSWC-DD : Dahlgren, VA	1.179	1.085	Oct 2021	1.388	Nov 2022	1.026	Nov 2023	-		1.026	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	NSWC-PHD : Port Hueneme, CA	1.064	0.269	Nov 2021	0.564	Nov 2022	0.398	Nov 2023	-		0.398	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	NSWC-IHD : Indian Head, MD	0.104	0.123	Feb 2022	0.000		0.096	Nov 2023	-		0.096	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	NUWC-NPT : Newport, RI	0.101	0.091	Oct 2021	0.000		0.049	Nov 2023	-		0.049	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	NSMA : JBAB, DC	0.000	0.194	Nov 2021	0.248	Nov 2022	0.000		-		0.000	0.000	0.442	-
Developmental Test & Evaluation (DT&E)	SS/CPFF	Various : Pax River, MD	0.000	0.233	Nov 2021	0.241	Nov 2022	0.000		-		0.000	0.000	0.474	-
Developmental Test & Evaluation (DT&E)	Various	NAVAIR HQ : Pax River, MD	0.000	0.009	Dec 2021	0.000		0.000		-		0.000	0.000	0.009	-
Operational Test & Evaluation (OT&E)	WR	NSWC Corona : Corona, CA	0.000	0.000		0.241	Jan 2023	0.150	Jan 2024	-		0.150	0.000	0.391	-
		Subtotal	10.983	2.094		4.880		7.065		-		7.065	Continuing	Continuing	N/A

Remarks

FY 2024 Maritime Strike funding required to continue transition to production representative testing. T&E efforts continue for missile Operationally Embedded Software updates for full seeker capabilities and performance; build-up of missiles for test events to include hardware and software integration; continuation of DT/OT software build-up, System of Systems Test Environment and Signal Processor in the Loop performance runs and analysis. Tactical Tomahawk Weapons Control System Increment/Fix-It Builds completion in preparation for Segment Test and DT/OT.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	467.916	73.679		75.101		54.371		-		54.371	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning C tr*	**Project (Number/Name)** 4034 / *Maritime Strike*

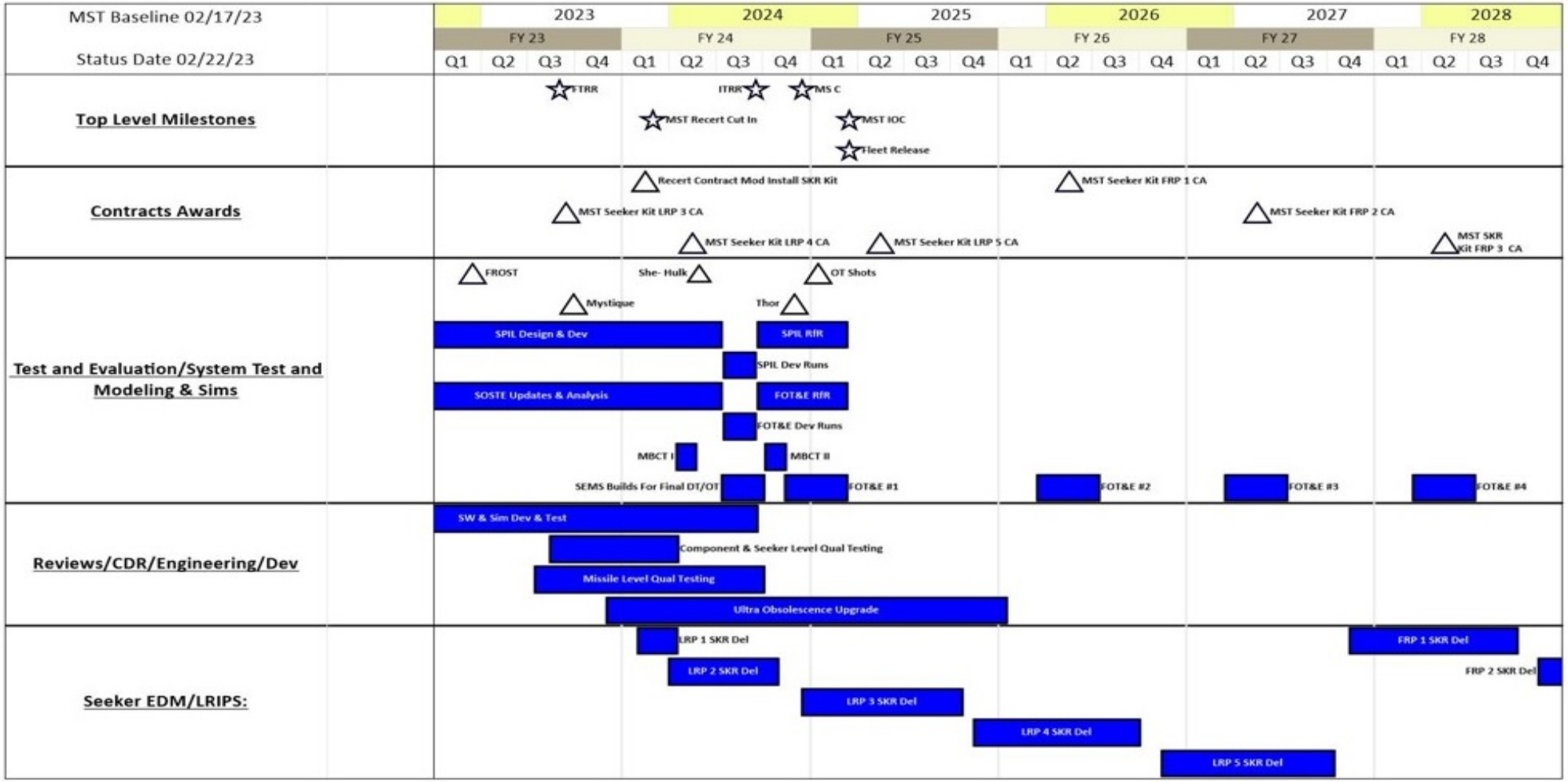


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning C tr*	**Project (Number/Name)** 4034 / *Maritime Strike*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 4034				
Acquisition Milestones: Top Level Milestones: Flight Test Readiness Review (FTRR)	3	2023	3	2023
Acquisition Milestones: Top Level Milestones: ITRR	3	2024	3	2024
Acquisition Milestones: Top Level Milestones: MST IOC	1	2025	1	2025
Acquisition Milestones: Top Level Milestones: Fleet Release	1	2025	1	2025
Acquisition Milestones: Top Level Milestones: Milestone C	4	2024	4	2024
Contracts: Contract Awards: Recert Contract Modification to Install SKR Kit	1	2024	1	2024
Contracts: Contract Awards: MST Seeker Kit LRP 3 Contract Award	3	2023	3	2023
Contracts: Contract Awards: MST Seeker Kit LRP 4 Contract Award	2	2024	2	2024
Contracts: Contract Awards: MST Seeker Kit LRP 5 Contract Award	2	2025	2	2025
Contracts: Contract Awards: MST Seeker Kit FRP 1 Contract Award	2	2026	2	2026
Contracts: Contract Awards: MST Seeker Kit FRP 2 Contract Award	2	2027	2	2027
Contracts: Contract Awards: MST Seeker Kit FRP 3 Contract Award	2	2028	2	2028
System Test & Modeling & Simulation: SPIL Design & Dev	1	2022	3	2024
System Test & Modeling & Simulation: SPIL Development Runs	3	2024	3	2024
System Test & Modeling & Simulation: SPIL Runs for Record (RfR)	3	2024	1	2025
System Test & Modeling & Simulation: SoSTE Update & Analysis	1	2022	3	2024
System Test & Modeling & Simulation: FOT&E Development Runs	3	2024	3	2024
System Test & Modeling & Simulation: FOT&E Runs for Recort (RfR)	3	2024	1	2025
System Test & Modeling & Simulation: Mission Base Capability Testing (MBCT) 1	2	2024	2	2024
System Test & Modeling & Simulation: Mission Base Capability Testing (MBCT) 2	4	2024	4	2024
System Test & Modeling & Simulation: Mystique	4	2023	4	2023

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning Ctr*	**Project (Number/Name)** 4034 / *Maritime Strike*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
System Test & Modeling & Simulation: She-Hulk	2	2024	2	2024
System Test & Modeling & Simulation: Thor	4	2024	1	2028
System Test & Modeling & Simulation: SEMS Builds for final DT/OT	3	2024	4	2024
System Test & Modeling & Simulation: OT Shots	1	2025	1	2025
System Test & Modeling & Simulation: FOT&E 1	4	2024	1	2025
System Test & Modeling & Simulation: FOT&E 2	1	2026	3	2026
System Test & Modeling & Simulation: FOT&E 3	1	2027	3	2027
System Test & Modeling & Simulation: FOT&E 4	1	2028	4	2028
Reviews: Engineering/Dev: Component & Seeker Level Qual Testing	3	2023	2	2024
Reviews: Engineering/Dev: Missile Level Qual Testing	3	2023	4	2024
Reviews: Engineering/Dev: SW & Sim Dev & Test	1	2022	3	2024
Reviews: Engineering/Dev: Ultra Upgrade	4	2023	1	2026
Seeker EDM/LRPS: Seeker EDM Deliveries	1	2022	3	2023
Seeker EDM/LRPS: LRP 1 Seeker Del	1	2024	2	2024
Seeker EDM/LRPS: LRP 2 Seeker Del	1	2024	4	2024
Seeker EDM/LRPS: LRP 3 Seeker Del	4	2024	4	2025
Seeker EDM/LRPS: LRP 4 Seeker Del	4	2025	4	2026
Seeker EDM/LRPS: LRP 5 Seeker Del	4	2026	4	2027
Seeker EDM/LRPS: FRP 1 Seeker Del	4	2027	4	2028
Seeker EDM/LRPS: FRP 2 Seeker Del	4	2028	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204229N / *Tomahawk Mssn Planning Ctr*	Project (Number/Name) 4035 / *JMEWS*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
4035: *JMEWS*	88.446	36.825	22.616	22.012	-	22.012	9.736	9.387	3.207	0.169	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Joint Multiple-Effects Warhead System (JMEWS) ACAT III program enables the Tactical Tomahawk to utilize multiple lethal effects to address Hard and Deeply Buried Targets (HDBT) while increasing the Tomahawk Weapon System (TWS) capabilities against Integrated Air Defense Systems (IADS) and Weapons of Mass Destruction (WMD).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: JMEWS	36.825	22.616	22.012	0.000	22.012
Articles:	-	-	-	-	-
FY 2023 Plans: JMEWS planned activities include the continuation of the EMD phase and post Critical Design Review (CDR) testing, to include Functional Ground Test (FGT) and the start of Flight Testing. EMD efforts continue with hardware and software development, target construction, Insensitive Munitions (IM) and Hazard Classification (HC) testing, arena testing, fuze and warhead integration, systems engineering reviews, and Safety Review board.					
FY 2024 Base Plans: Due to issues found and addressed in developmental test in the hard target sled test and insensitive munitions tests, delta CDR efforts are required. JMEWS planned activities include the continuation of the EMD phase and post Critical Design Review (CDR) testing, to include Functional Ground Test (FGT) and the start of Flight Testing. EMD efforts continue with hardware and software development, target construction, Insensitive Munitions (IM) and Hazard Classification (HC) testing, fuze and warhead qualification, systems engineering reviews, and Safety Review board. No impact to fleet release or IOC.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: Decrease in funding from FY 2023 to FY 2024 is due to completion of arena testing and fuze and warhead integration.					
Accomplishments/Planned Programs Subtotals	36.825	22.616	22.012	0.000	22.012

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning Ctr*	**Project (Number/Name)** 4035 / *JMEWS*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• WPN 2301: *Tomahawk Mods*	0.000	1.406	6.296	-	6.296	25.307	26.828	36.052	39.880	466.470	602.239

Remarks

Other Program Funding Summary for WPN BLI 2301 does not include funding for the Tomahawk Recertification program as there is no RDTEN funding associated with that program.

D. Acquisition Strategy

Joint Multiple Effects Warhead System (JMEWS) (ACAT III) acquisition strategy includes the development, integration, test, qualification and production of a new warhead that will greatly expand the land target set that the Tomahawk missile is capable of defeating by combining the blast and fragmentation capabilities of the current warhead with a new penetration capability and improved mission planning. JMEWS will also be compliant with Insensitive Munitions requirements which improves safety during transportation and storage on land and aboard ships and submarines. JMEWS Milestone B occurred in FY 2020, Milestone C is planned for FY 2025, and the capability will Fleet Release in FY 2027. JMEWS program includes upgrades to the All-Up Round (AUR) missile, the Tactical Tomahawk Weapons Control System (TTWCS) and also required upgrades Theater Mission Planning Center (TMPC) program (under PU 4036).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204229N / *Tomahawk Mssn Planning C tr*	Project (Number/Name) 4035 / *JMEWS*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
JMEWS	SS/CPIF	Raytheon : Tucson, AZ	49.185	24.664	Nov 2021	15.000	Nov 2022	11.934	Nov 2023	-		11.934	Continuing	Continuing	Continuing
JMEWS	WR	NAWC-WD : China Lake, CA	14.132	6.260	Dec 2021	0.000		2.658	Nov 2023	-		2.658	2.842	25.892	-
JMEWS/TTWCS	SS/CPFF	LMVF : Valley Forge, PA	0.122	0.052	Feb 2022	0.300	Feb 2023	0.000		-		0.000	0.000	0.474	-
JMEWS	WR	NSWC-DD : Dahlgren, VA	0.000	0.000		1.695	Nov 2022	2.001	Nov 2023	-		2.001	4.101	7.797	-
		Subtotal	63.439	30.976		16.995		16.593		-		16.593	Continuing	Continuing	N/A

Remarks

FY 2024 JMEWS Product Development funds to NAWC-WD resume China Lake support after FMS (UK) provided funding for FY 2023 efforts.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
JMEWS Development Support	SS/CPFF	UARC-APL : Laurel, MD	0.180	0.060	Dec 2021	0.141	Dec 2022	0.075	Dec 2023	-		0.075	0.000	0.456	-
JMEWS Development Support	WR	NSWC-IH : Indian Head, MD	1.410	0.182	Nov 2021	0.281	Nov 2022	0.189	Nov 2023	-		0.189	0.324	2.386	-
JMEWS Development Support	WR	NSWC-DD : Dahlgren, VA	1.087	0.580	Nov 2021	0.500	Nov 2022	0.298	Nov 2023	-		0.298	0.412	2.877	-
JMEWS Development Support	WR	NAWC-AD : Patuxent River, MD	1.307	0.367	Nov 2021	0.315	Nov 2022	0.508	Nov 2023	-		0.508	0.755	3.252	-
JMEWS Development Support	WR	NAWC-WD : China Lake, CA	4.885	0.000		0.000		0.000		-		0.000	0.000	4.885	-
JMEWS VLS Dev Support	SS/CPFF	BAE Systems : Dahlgren, VA	0.530	0.100	Nov 2021	0.294	Nov 2022	0.250	Nov 2023	-		0.250	0.290	1.464	-
JMEWS Development Support	SS/CPFF	Precise Systems : Lexington Park, MD	0.161	0.000		0.000		0.000		-		0.000	0.000	0.161	-
		Subtotal	9.560	1.289		1.531		1.320		-		1.320	1.781	15.481	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning C tr*	**Project (Number/Name)** 4035 / *JMEWS*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation (OT&E)	WR	NAWC-WD : China Lake, CA	15.109	4.460	Dec 2021	3.990	Dec 2022	3.952	Nov 2023	-		3.952	5.680	33.191	-
Developmental Test & Evaluation (DT&E)	WR	NSWC-DD : Dahlgren, VA	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Developmental Test & Evaluation (DT&E)	WR	NUWC-NPT : Newport, RI	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
		Subtotal	15.109	4.460		3.990		3.952		-		3.952	5.680	33.191	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
JMEWS	WR	NAWC-AD : Patuxent River, MD	0.338	0.100	Nov 2021	0.100	Nov 2022	0.147	Nov 2023	-		0.147	0.280	0.965	-
		Subtotal	0.338	0.100		0.100		0.147		-		0.147	0.280	0.965	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	88.446	36.825		22.616		22.012		-		22.012	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning Ctr*	**Project (Number/Name)** 4035 / *JMEWS*	

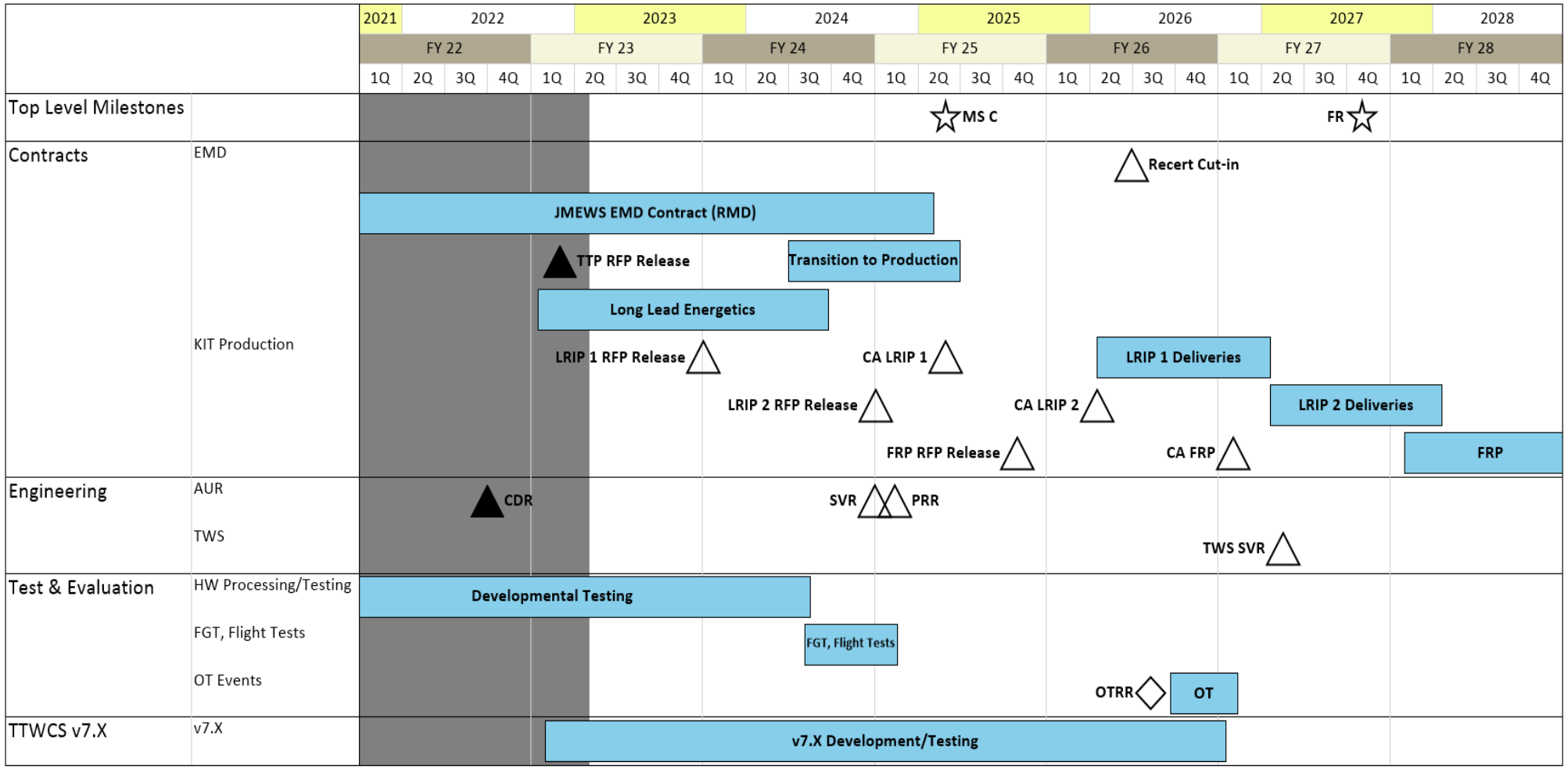


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning Ctr*	**Project (Number/Name)** 4035 / *JMEWS*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
JMEWS				
Acquisition Milestones: Milestones: Milestone C	2	2025	2	2025
Acquisition Milestones: Milestones: Fleet Release	4	2027	4	2027
Systems Development: Software Development: JMEWS TTWCS SW Dev	1	2023	3	2025
Systems Development: Software Development: JMEWS TTWCS SW Test	3	2025	1	2027
Reviews: Acquisition Reviews: JMEWS CDR	3	2022	3	2022
Reviews: Contract Awards: JMEWS Long-Lead Energetics Award	1	2023	1	2023
Reviews: Contract Awards: JMEWS LRIP Lot 1 Award	2	2025	2	2025
Reviews: Contract Awards: JMEWS LRIP Lot 2 Award	2	2026	2	2026

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204229N / *Tomahawk Mssn Planning C tr*	Project (Number/Name) 4036 / *TTWCS TMPC PPPI*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
4036: *TTWCS TMPC PPPI*	52.096	8.268	16.943	17.181	-	17.181	18.361	18.485	19.062	19.212	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Theater Mission Planning Center (TMPC) consists of Commercial and Government Off-The-Shelf (COTS/GOTS) software and COTS hardware. TMPC is the mission planning segment of the Tomahawk Weapon System (TWS) that provides subsystems for the precision targeting, route planning, mission distribution, and strike management of Tomahawk cruise missile missions from sites located ashore and afloat. TMPC optimizes all aspects of the Tomahawk missile mission to successfully engage a target.

TMPC provides mission planning at the theater and operational levels and is designed for high rate mission planning production responsive to national strategic, operational, and tactical requirements. TMPC develops and distributes missions; provides command information services for all variants of the Tomahawk missile; provides strike planning, execution, coordination, control and reporting, and provides Maritime Component Commanders (MCC) the capability to plan or modify conventional TWS missions. TMPC is employed in major joint combat operations and Overseas Contingency Operations. TMPC has evolved into 4 scalable configurations deployed at 184 sites: Cruise Missile Support Activities (CMSAs) (3), Tomahawk Strike Mission Planning Cells (TSMPCs) (3), Carrier Strike Groups (CSGs) (19 Total: 12 Afloat / 7 Shore), and Firing Units (FRUs) (140- 89 Surface / 51 Subsurface). Additionally, TMPC is installed in Labs (6) and Training Classrooms (13) that contain various combinations of the four configurations. TMPC software development activities support new capabilities for the Tomahawk Weapon System while also decreasing mission planning time, increasing the quality and accuracy of each mission and reducing complexity. TMPC was previously referred to as Tomahawk Command and Control System (TC2S).

The Tactical Tomahawk Weapons Control System (TTWCS) provides launch capability for surface and submarine platforms. Development of the TTWCS provides a common architecture to launch the TACTOM and all variants in inventory. Development of upgrades to the TTWCS is required to meet the Department of Defense Information Technology Standards Registry, address cyber threats through system security builds, remain interoperable within the Joint Service Architecture, and to retain weapons system viability and usability for our Sailors. Additionally, TTWCS provides launch capability for various fielded missiles, through an incremental approach to software and hardware performance upgrades. These efforts provide battle-group tactical flexibility and responsiveness while maximizing TWS wartime capability.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Theater Mission Planning Center (TMPC)	8.268	10.838	10.904	0.000	10.904
Articles:	-	-	-	-	-
FY 2023 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning Ctr*	**Project (Number/Name)** 4036 / *TTWCS TMPC PPPI*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Continue evaluation of TMPC design process to ensure Tomahawk missile performance characteristics are adequately modeled in TMPC. Complete coding of TMPC 7.0 and the Maritime Strike Tomahawk (MST) capability. Commence software development and integration of the TWS Joint Multiple Effects Warhead System (JMEWS). Conduct Product Acceptance Testing (PAT) and DT/OT of TMPC 7.0. Commence PAT & DT/OT for MST. ***FY 2024 Base Plans:*** Continue evaluation of TMPC design process to ensure Tomahawk missile performance characteristics are adequately modeled in TMPC. Code critical fixes in TMPC 7.0 from Tomahawk Land Attack DT/OT and achieve IOC. Continue TMPC 7.0 PAT DT/OT for Maritime Strike Tomahawk. Continue software development and integration of the TWS Joint Multiple Effects Warhead System in TMPC 8.0 (JMEWS). ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** TMPC increase from FY 2023 to FY 2024 due to inflation.					
Title: Tactical Tomahawk Weapons Control System (TTWCS) ***Articles:*** ***FY 2023 Plans:*** FY 2023 plans include initial planning, and design/development and validation of new advanced computing hardware (HW) components with increased capacity/throughput, security measures, and software architecture that increases performance for fielded systems and is aligned/interoperable with future networking capabilities. Address development of automated software (SW) testing to reduce cycle time, improve quality, and enhance HW/SW for security engineering. Evaluate fielded systems for cyber threats, create impact assessments and mitigation plans, and develop suitable alternatives/roadmaps. ***FY 2024 Base Plans:*** FY 2024 plans include Fleet Release of v5.6.1, first series in 2Q FY 2024, and the continuation of planning, design/development, and validation of new advanced computing hardware (HW) components with increased capacity/throughput, security measures, kill chain improvements, integrated combat systems prototypes, and software architecture that increases performance for fielded systems (DevSecOps) and is aligned/interoperable with future networking capabilities. Prototype development of automated software (SW) testing to reduce cycle time and enhance HW/SW for security engineering, prototype hardware virtual twins, hardware surrogates/	0.000 -	6.105 -	6.277 -	0.000 -	6.277 -

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning Ctr*	**Project (Number/Name)** 4036 / *TTWCS TMPC PPPI*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
alternatives, and technology insertion. Continue evaluation of fielded systems for cyber threats, create impact assessments and mitigation plans, and develop suitable alternatives/roadmaps. Design system for virtualization of software, create investigation tools, processes, model-based system engineering, and architecture models to support automated testing. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase in funding from FY 2023 to FY 2024 is due to inflation.					
Accomplishments/Planned Programs Subtotals	8.268	16.943	17.181	0.000	17.181

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• OPN 5253: *Tomahawk Support Equipment*	87.147	92.270	92.432	-	92.432	97.568	101.907	98.099	96.886	Continuing	Continuing
• OPN 9020: *Initial and Vendor Direct Spares*	0.400	0.774	0.408	-	0.408	0.410	0.457	0.464	0.488	Continuing	Continuing

Remarks

D. Acquisition Strategy

TMPC and TTWCS use a combination of contracted and government laboratory facilities to integrate hardware and software updates to provide the planning, design/development, and validation of new advanced computing hardware (HW) components with increased capacity/throughput, security measures, kill chain improvements, integrated combat systems prototypes, and software architecture that increases performance for fielded systems (DevSecOps) and is aligned/interoperable with future networking capabilities that meet the requirement to service the Fleet with a lethal Tomahawk capability.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning C tr*	**Project (Number/Name)** 4036 / *TTWCS TMPC PPPI*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
TMPC 7.0	SS/CPFF	Perspecta : San Jose, CA	10.177	0.293	Dec 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
TMPC 7.0	SS/CPFF	Tapestry : St. Louis, MO	0.428	0.097	Jan 2022	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
TMPC 7.0	SS/CPFF	BAE Systems : San Diego, CA	2.390	0.097	Dec 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
TMPC 7.0	SS/CPFF	Leidos : California, MD	11.270	1.426	Dec 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
TMPC 7.0	SS/CPFF	UARC APL : Laurel, MD	1.106	0.105	May 2022	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
TMPC 7.0	WR	NAWC-AD : Patuxent River, MD	6.055	0.296	Nov 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
TMPC 8.0 (JMEWS)	SS/CPFF	Perspecta : San Jose, CA	1.743	0.687	Dec 2021	0.589	Dec 2022	0.601	Dec 2023	-		0.601	Continuing	Continuing	Continuing
TMPC 8.0 (JMEWS)	SS/CPFF	Tapestry : St. Louis, MO	2.111	0.610	Jan 2022	0.308	Jan 2023	0.314	Jan 2024	-		0.314	Continuing	Continuing	Continuing
TMPC 8.0 (JMEWS)	SS/CPFF	BAE Systems : San Diego, CA	1.321	0.916	Dec 2021	1.178	Dec 2022	1.201	Dec 2023	-		1.201	Continuing	Continuing	Continuing
TMPC 8.0 (JMEWS)	SS/CPFF	Leidos : California, MD	3.855	1.878	Dec 2021	1.980	Dec 2022	1.820	Dec 2023	-		1.820	Continuing	Continuing	Continuing
TMPC 8.0 (JMEWS)	SS/CPFF	UARC APL : Laurel, MD	1.288	0.584	May 2022	1.125	May 2023	1.148	May 2024	-		1.148	Continuing	Continuing	Continuing
TMPC 8.0 (JMEWS)	WR	NAWC-AD : Patuxent River, MD	1.673	1.004	Nov 2021	1.658	Nov 2022	1.300	Nov 2023	-		1.300	Continuing	Continuing	Continuing
Systems Engineering - TTWCS Improvements	WR	NSWC : Dahlgren, VA	1.705	0.000		1.989	Oct 2022	2.037	Nov 2023	-		2.037	Continuing	Continuing	Continuing
Systems Engineering- TTWCS Software Support Activity	SS/CPFF	LMVF : Valley Forge, PA	1.137	0.000		1.777	Dec 2022	1.814	Jan 2024	-		1.814	Continuing	Continuing	Continuing
Systems Engineering - TTWCS Hardware Support	WR	NSWC PHD : Port Hueneme	0.000	0.000		0.940	Dec 2022	1.363	Dec 2023	-		1.363	0.000	2.303	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning C tr*	**Project (Number/Name)** 4036 / *TTWCS TMPC PPPI*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering - TTWCS Software Support	WR	NUWC NPT : Newport, RI	0.000	0.000		0.685	Nov 2022	0.330	Nov 2023	-		0.330	0.000	1.015	-
		Subtotal	46.259	7.993		12.229		11.928		-		11.928	Continuing	Continuing	N/A

Remarks

TMPC 8.0 (JMEWS) Implements functionality to support JMEWS and additional M-Code capabilities. Aligns with PU 4033 and 4035.

TTWCS Product Development funds to support to design/development and validation of new advanced computing hardware (HW) components with increased capacity/ throughput, security measures, and software architecture that increases performance for fielded systems and is aligned/interoperable with future networking capabilities.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
TMPC 6.0	SS/CPFF	Perspecta : San Jose, CA	1.395	0.000		0.000		0.000		-		0.000	0.000	1.395	1.496
TMPC 6.0	SS/CPFF	Leidos : California, MD	2.909	0.000		0.000		0.000		-		0.000	0.000	2.909	1.717
TMPC 7.0	SS/CPFF	Leidos : California, MD	0.000	0.275	Dec 2021	0.175	Dec 2022	0.179	Dec 2023	-		0.179	0.000	0.629	-
TMPC 8.0	SS/CPFF	Leidos : California, MD	0.000	0.000		0.000		0.200	Dec 2023	-		0.200	0.000	0.200	-
TMPC Support	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.000		0.281	Dec 2023	-		0.281	0.000	0.281	-
PPPI Development Support	SS/CPFF	Precise : Lexington Park, MD	1.143	0.000		0.000		0.000		-		0.000	0.000	1.143	-
		Subtotal	5.447	0.275		0.175		0.660		-		0.660	0.000	6.557	N/A

Remarks

TMPC 7.0 Implements functionality to support Maritime Strike Tomahawk capability. Aligns with PU: 4034.
TMPC Support increase from FY 2023 to FY 2024 to include funding for government labor at the field activities.
TMPC 8.0 (JMEWS) Increase from FY 2023 to FY 2024 implements functionality to support JMEWS and additional M-Code capabilities. Aligns with PU 4033 and 4035.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning C tr*	**Project (Number/Name)** 4036 / *TTWCS TMPC PPPI*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	WR	NSWC PHD : Port Hueneme	0.390	0.000		0.000		0.000		-		0.000	0.000	0.390	-
Operational Test & Evaluation (OT&E)	C/CPFF	Perspecta : San Jose, CA	0.000	0.000		0.500	Dec 2022	0.503	Dec 2023	-		0.503	0.000	1.003	-
Operational Test & Evaluation (OT&E)	C/CPFF	Leidos : California, MD	0.000	0.000		1.825	Dec 2022	1.827	Dec 2023	-		1.827	0.000	3.652	-
Operational Test & Evaluation (OT&E)	WR	NAWCAD : Patuxent River, MD	0.000	0.000		1.500	Dec 2022	1.530	Dec 2023	-		1.530	0.000	3.030	-
Developmental Test & Evaluation (DT&E)	WR	NSWC PHD : Port Hueneme	0.000	0.000		0.714	Nov 2022	0.733	Nov 2023	-		0.733	0.000	1.447	-
		Subtotal	0.390	0.000		4.539		4.593		-		4.593	0.000	9.522	N/A

Remarks

TTWCS Developmental Test and Evaluation funds are required to support testing and prototyping of new hardware components to increase performance.

TMPC Operation Test and Evaluation funding in FY 2024 supports PAT and DT/OT for TMPC 7.0 Maritime Strike Tomahawk and critical fixes to TMPC 7.0 support for Tomahawk Land Attack

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	52.096	8.268		16.943		17.181		-		17.181	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning C tr*	**Project (Number/Name)** 4036 / *TTWCS TMPC PPPI*

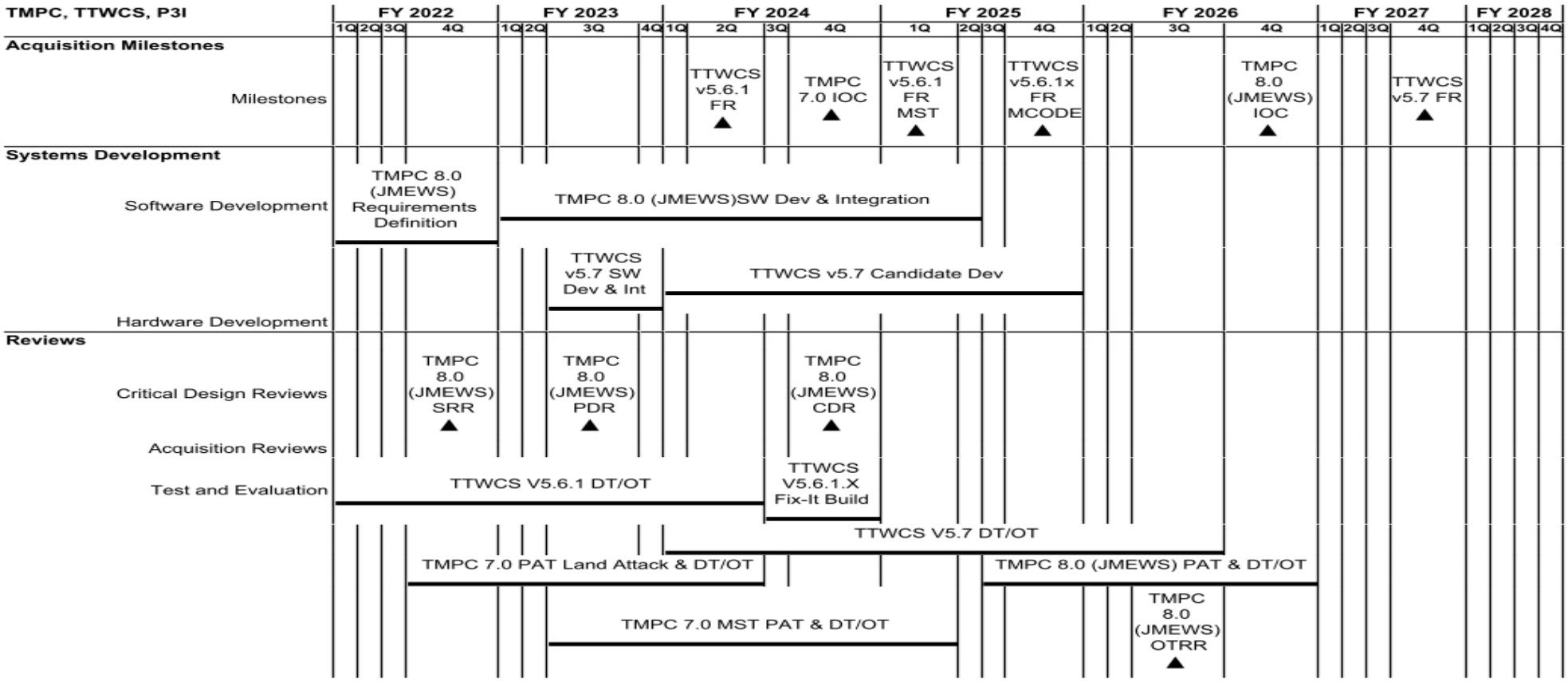


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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning C tr*	**Project (Number/Name)** 4036 / *TTWCS TMPC PPPI*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
TMPC, TTWCS, P3I				
Acquisition Milestones: Milestones: TMPC 7.0 IOC	4	2024	4	2024
Acquisition Milestones: Milestones: TMPC 8.0 (JMEWS) IOC	4	2026	4	2026
Acquisition Milestones: Milestones: TTWCS v5.6.1.X Fleet Release (Land Attack)	2	2024	2	2024
Acquisition Milestones: Milestones: TTWCS v5.6.1.X Fleet Release (MST)	1	2025	1	2025
Acquisition Milestones: Milestones: TTWCS v5.6.1.X Fleet Release (MCODE)	4	2025	4	2025
Acquisition Milestones: Milestones: TTWCS v7.X Fleet Release	4	2027	4	2027
Systems Development: Software Development: TMPC 8.0 (JMEWS) SW Dev & Integration	1	2023	2	2025
Systems Development: Software Development: TMPC 8.0 (JMEWS) Requirements Definition	1	2022	4	2022
Systems Development: Software Development: TTWCS v7.X Design	3	2023	4	2023
Systems Development: Software Development: TTWCS v7.X SW Dev & Int	1	2024	4	2025
Reviews: Critical Design Reviews: TMPC 8.0 (JMEWS) System Requirements Review (SRR)	4	2022	4	2022
Reviews: Critical Design Reviews: TMPC 8.0 (JMEWS) Critical Design Review (CDR)	4	2024	4	2024
Reviews: Critical Design Reviews: TMPC 8.0 (JMEWS) Preliminary Design Review (PDR)	3	2023	3	2023
Reviews: Critical Design Reviews: TACTOM Preplanned Product Improvement (P3I) Cyber Improvements	1	2023	4	2028
Reviews: Test and Evaluation: TTWCS v5.6.1.X DT/OT	1	2022	2	2024
Reviews: Test and Evaluation: TTWCS v5.6.1.X Fix-it Build	3	2024	4	2024
Reviews: Test and Evaluation: TTWCS v7.X DT/OT	1	2024	3	2026

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204229N / *Tomahawk Mssn Planning C tr*	**Project (Number/Name)** 4036 / *TTWCS TMPC PPPI*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Reviews: Test and Evaluation: TMPC 7.0 Product Acceptance Testing Land Attack (PAT) & DT/OT	4	2022	2	2024
Reviews: Test and Evaluation: TMPC 8.0 (JMEWS) Product Acceptance Testing (PAT) & DT/OT	3	2025	4	2026
Reviews: Test and Evaluation: TMPC 7.0 Product Acceptance Testing MST (PAT) & DT/OT	3	2023	1	2025
Reviews: Test and Evaluation: TMPC 8.0 (JMEWS) Operational Test Readiness Review (OTRR)	3	2026	3	2026

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0204311N *I Integrated Surveillance System*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	640.903	83.349	98.370	76.279	-	76.279	84.025	75.896	71.332	72.603	Continuing	Continuing
0344: *Deployable Surveillance Systems*	34.885	16.077	30.429	10.547	-	10.547	1.860	0.000	0.000	0.000	0.000	93.798
0766: *IUSS Detect/Classif System*	575.396	60.542	56.964	63.994	-	63.994	80.465	74.829	70.497	71.751	Continuing	Continuing
1768: *Ship Plan Development and Design*	30.622	6.730	0.977	1.738	-	1.738	1.700	1.067	0.835	0.852	Continuing	Continuing
9999: *Congressional Adds*	0.000	0.000	10.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	10.000

A. Mission Description and Budget Item Justification

The Deployable Surveillance Systems (DSS) project (0344), complementing the Fixed Surveillance System (FSS) and Surveillance Towed Array Sensor System (SURTASS), provides flexible and responsive wide area surveillance to the Theater Anti-Submarine Warfare (TASW) commanders worldwide. DSS will operate as adjunct systems to meet the established FSS and SURTASS missions and to meet additional missions as articulated in the OPNAV Top Level Requirements document and follow-on Course of Action Analysis (COAA) and as dictated by TASW commanders evolving and emergent operational requirements. DSS is comprised of the following systems: Deep Water Passive (DWP), Deep Water Active (DWA), and Mobile Passive Active System (MPAS). Informed by TASW Offset operations and the tailored requirements process, the DSS Middle Tier Acquisition (MTA) Rapid Fielding. Program will focus initially on the DWP increment and associated spiral development updates. Spiral developments to meet the evolving submarine threat will leverage on-going Navy, Defense Advanced Research Projects Agency (DARPA), and small business research efforts including processing and sensor technology. Follow-on increments will be focused on DWA and MPAS, of which MPAS is currently outside the Future Years Defense Program (FYDP). FY24 includes funds for DWA that will provide a rapidly deployable sustained surveillance capability in response to emergent Fleet Undersea Warfare (USW) coverage gaps to include mitigating array outages or platform shortages. This funding will be used to procure one DWA cluster (consisting of 3 DWA Advanced Development Model units) and conduct a fleet demonstration in order to (1) prepare the rationale for using a MTA Program for a future DWA program; (2) conduct a Fleet demonstration to validate Top-Level Requirements; and (3) identify full DWA MTA funding requirements.

Project 0766 provides for Integrated Undersea Surveillance Systems (IUSS) Research and Development Projects under the Maritime Surveillance Systems (MSS) Program Office (PEO UWS PMS 485). IUSS provides the Navy with its primary means of submarine detection, both nuclear and diesel. A portion of project 0766 Fixed Surveillance System (FSS) is classified, with details available at a higher classification level.

The IUSS Research and Development project (0766) funds Surveillance Towed Array Sensor System (SURTASS) Passive and SURTASS Low Frequency Active (LFA) developments. SURTASS provides the mobile, tactical arm of the Integrated Undersea Surveillance System, providing long range detection and cueing for tactical weapons platforms or other vessels of interest. SURTASS LFA provides an active adjunct capability for IUSS passive and tactical sensors to assist in countering the quieter diesel and nuclear threats of the 2000s and beyond. The LFA tasks are directed at detection of slow quiet threats in harsh littoral waters.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0204311N *I Integrated Surveillance System*

Development and improvement continues on the common IUSS processor based on NAVSEA's Acoustic Rapid Commercial Off The Shelf (COTS) Insertion (ARCI) program with a cyclical tech refresh of hardware and software in conjunction with the submarine Advanced Processor Build (APB) process. The IUSS Integrated Common Processor (ICP) has the capability to process and display data from all fixed and mobile underwater systems. The IUSS ICP is used for all new system installations and replaces the legacy systems as they reach end of life and require upgrading. Additionally, SURTASS consolidated on the TB-29A Twin-line array, a variant of the Submarine TB-29A Long line array. This reduced the number of array variants employed by SURTASS from 3 to 1, and enabled development and logistics cost savings by leveraging off the submarine TB-29A program.

SURTASS-E provides a SURTASS passive capability packaged into ISO-Vans for mobilization on Vessels of Opportunity (VOOs). It was developed as a CNO Rapid Prototyping, Experimentation, and Demonstration (RPED) program to provide a SURTASS variant that addresses emergent Theater ASW Commander requirements for SURTASS capability.

Project 1768 T-ARC(X) is a candidate replacement program for U.S. Navy's only organic undersea cable laying and repair ship, USNS ZEUS (T-ARC 7), which is approaching the end of her extended service life. The ship's main mission is to deploy, repair, and retrieve undersea cables and equipment, with a secondary mission of conducting acoustic, hydrographic and bathymetric surveys.

Project C916 funds efforts for design of Next Generation Surveillance Array (NGSA) to include Critical Design Review (CDR), purchase and assemble Advanced Development Model (ADM) and engage industry to build and deliver Open Architecture Telemetry (OAT) components.

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	84.037	68.417	71.104	-	71.104
Current President's Budget	83.349	98.370	76.279	-	76.279
Total Adjustments	-0.688	29.953	5.175	-	5.175
• Congressional General Reductions	-	-0.147			
• Congressional Directed Reductions	-	-2.400			
• Congressional Rescissions	-	-			
• Congressional Adds	-	32.500			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.688	0.000			
• Program Adjustments	0.000	0.000	4.468	-	4.468
• Rate/Misc Adjustments	0.000	0.000	0.707	-	0.707

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2022	FY 2023
Project: 9999: *Congressional Adds*		
Congressional Add: *Next-gen twin-line towed array*	0.000	10.000

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0204311N *I Integrated Surveillance System*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2022	FY 2023
Congressional Add Subtotals for Project: 9999	0.000	10.000
Congressional Add Totals for all Projects	0.000	10.000

Change Summary Explanation

FY2023 Funding has the following adjustments since the PB23 budget submission:
- $8 million Congressional add to PU 0344 Deployable Surveillance Systems for Deep Water Active.
- $14.5 million Congressional add to PU 0344 Deployable Surveillance Systems.
- $10 million Congressional add for the SURTASS Next Generation Surveillance Array.
- $2.4 million Congressional reduction to PU 0344 Deployable Surveillance for Deep Water Passive 1.1 fabrication excess to need.
- $.147 million general FFRDC Reduction.

The FY 2024 funding request has the following adjustments:
- $15.539 million reduction in programmatic adjustments.
- $12.24 million increase to fund PU 0344 Deployable Surveillance Systems Deep Water Active.
- $8.0 million increase to fund Harbinger (details available at a higher level of classification).
- $.474 million decrease for various Navy adjustments.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204311N / *Integrated Surveillance System*	Project (Number/Name) 0344 / *Deployable Surveillance Systems*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
0344: *Deployable Surveillance Systems*	34.885	16.077	30.429	10.547	-	10.547	1.860	0.000	0.000	0.000	0.000	93.798
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Deployable Surveillance Systems (DSS) project (0344), complementing Fixed Surveillance System (FSS) and Surveillance Towed Array Sensor System (SURTASS), provides flexible and responsive wide area surveillance to the Theater Anti-Submarine Warfare (TASW) commanders worldwide. DSS will operate as adjunct systems to meet the established FSS and SURTASS missions and to meet additional missions as articulated in the Office of the Chief of Naval Operations (OPNAV) Top Level Requirements document and follow-on Course of Action Analysis (COAA) and as dictated by TASW commanders evolving and emergent operational requirements. DSS is comprised of the following systems: Deep Water Passive (DWP), Deep Water Active (DWA), and Mobile Passive Active System (MPAS). Informed by TASW Offset operations and the tailored requirements process, the DSS Middle Tier Acquisition (MTA) Rapid Fielding Program will focus initially on the DWP increment and associated spiral development updates. Spiral developments to meet the evolving submarine threat will leverage on-going Navy, Defense Advanced Research Projects Agency (DARPA), and small business research efforts including processing and sensor technology. Follow-on increments will be focused on DWA and MPAS, of which MPAS is currently outside the Future Years Defense Program (FYDP). FY23 includes Congressional Add funds ($22.5M) for DSS/DWA that will provide a rapidly deployable sustained surveillance capability in response to emergent Fleet Undersea Warfare (USW) coverage gaps to include mitigating array outages or platform shortages. This funding will be used to procure one DWA cluster in order to (1) prepare the rationale for using a MTA Program for a future DWA program; (2) conduct a Fleet demonstration to validate Top-Level Requirements; and (3) identify full DWA MTA funding requirements.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Deployable Surveillance Systems (DSS) Deep Water Passive (DWP)	16.077	7.929	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2023 Plans: - Commence deployment and Sustainment of previously fabricated DWP units - Commence non-recurring engineering in support of Test Bed					
FY 2024 Base Plans: - Complete Outcome Determination DWP Acquisition Decision Memorandum (ADM)					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204311N / *Integrated Surveillance System*	**Project (Number/Name)** 0344 / *Deployable Surveillance Systems*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
The $7.929M decrease from FY23 to FY24 is due to the completion of the development and procurement of DWP units and transition to operations and maintenance.					
Title: Deployable Surveillance Systems (DSS) Deep Water Active (DWA)	0.000	22.500	10.547	0.000	10.547
Articles:	-	-	-	-	-
FY 2023 Plans: - Commence non-recurring engineering - Commence fabrication of one (1) Advanced Development model (ADM) cluster - Commence refurbishment of four (4) ADM clusters					
FY 2024 Base Plans: - Complete fabrication of one (1) Advanced Development model (ADM) cluster - Commence fabrication of one (1) ADM cluster - Commence refurbishment of wave gliders.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: The $11.953 million decrease from FY2023 to FY2024 is due to $22.5M of Congressional Adds in support of DWA that moved project commencement one fiscal year (FY) to the left from FY24 to FY23.					
Accomplishments/Planned Programs Subtotals	16.077	30.429	10.547	0.000	10.547

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

FY 2022: Quick Reaction Assessment (QRA) Test Plan
FY 2023: Initiate Deep Water Active (DWA) Increment
FY 2024: Fabricate one (1) DWA Advanced Development Model (ADM) cluster
FY 2024: Outcome Determination DWP ADM

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204311N / *Integrated Surveillance System*	**Project (Number/Name)** 0344 / *Deployable Surveillance Systems*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DSS DWP Spiral 1.1 LRIP Units	C/CPFF	Leidos : MS	8.299	6.240	Jun 2022	3.263	Jan 2023	0.000		-		0.000	0.000	17.802	-
DSS DWP Spiral 1.1 LRIP Units Refurbishment	C/CPFF	Teledyne Webb Research : MA	0.302	0.292	Mar 2022	0.000		0.000		-		0.000	0.000	0.594	-
DSS DWP Spiral 1.1 LRIP Units Logistics	C/CPFF	Leidos : MS	0.750	0.773	Jun 2022	0.000		0.000		-		0.000	0.000	1.523	-
DSS DWP Spiral 1.5 Fiber Optic Cable	C/CPFF	Various : Various	0.000	1.044	Mar 2022	0.000		0.000		-		0.000	0.000	1.044	-
DSS DWP Processing	C/CPFF	APL/JHU : MD	1.826	0.741	Mar 2022	0.600	Mar 2023	0.000		-		0.000	0.000	3.167	-
DSS DWP Processing	C/CPFF	Leidos : MS	1.450	0.000		0.000		0.000		-		0.000	0.000	1.450	-
DSS DWP Processing	C/CPFF	Sandia National Lab : NM	0.300	0.000		0.500	Sep 2023	0.000		-		0.000	0.000	0.800	-
DSS DWP Processing	C/CPFF	Proteq : VA	1.200	0.000		0.000		0.000		-		0.000	0.000	1.200	-
DSS DWP Risk Reduction	Various	Various : Various	1.049	0.538	Feb 2022	0.715	Feb 2023	0.000		-		0.000	0.000	2.302	-
DSS DWP Risk Reduction	WR	NUWC Newport : RI	0.964	0.625	Dec 2021	1.163	Nov 2022	0.000		-		0.000	0.000	2.752	-
DSS DWP Risk Reduction (NRE)	C/CPFF	Leidos : MS	7.200	0.291	Nov 2021	0.584	Jan 2023	0.000		-		0.000	0.000	8.075	-
DSS DWA ADM & NRE	C/CPFF	GD APS : RI	0.000	0.000		17.912	Jun 2023	6.051	Jun 2024	-		6.051	0.000	23.963	-
DSS DWA Risk Reduction	WR	NUWC Newport : RI	0.000	0.000		0.000		0.970	Nov 2023	-		0.970	0.000	0.970	-
DSS DWA Risk Reduction	C/CPFF	ARL/UT : TX	0.000	0.000		1.500	Mar 2023	0.410	Mar 2024	-		0.410	0.000	1.910	-
DSS DWA Risk Reduction	Various	Various : Various	0.000	0.000		0.000		0.130	Feb 2024	-		0.130	0.000	0.130	-
DSS DWA Processing	C/CPFF	APL/JHU : MD	0.000	0.000		0.688	Mar 2023	0.410	Mar 2024	-		0.410	0.000	1.098	-
		Subtotal	23.340	10.544		26.925		7.971		-		7.971	0.000	68.780	N/A

Remarks

The FY 2024 decrease is due to Congressional Adds in support of DWA that moved project commencement one Fiscal year (FY) to the left from FY24 to FY23.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204311N / *Integrated Surveillance System*	Project (Number/Name) 0344 / *Deployable Surveillance Systems*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DSS C4I Integration	WR	NIWC PAC : CA	1.900	0.000		0.000		0.000		-		0.000	0.000	1.900	-
DSS C4I Integration	WR	NUWC Newport : RI	3.485	0.773	Nov 2021	0.000		0.000		-		0.000	0.000	4.258	-
DSS C4I Integration	WR	Navy Research Lab : DC	0.330	0.000		0.000		0.000		-		0.000	0.000	0.330	-
DSS T&E	WR	NIWC PAC : CA	0.404	0.416	Nov 2021	0.000		0.000		-		0.000	0.000	0.820	-
DSS DWP ISEA	WR	NUWC Keyport : WA	3.659	3.417	Dec 2021	0.000		0.000		-		0.000	0.000	7.076	-
DSS DWA C4I Integration	WR	NUWC Newport : RI	0.000	0.000		0.600	Mar 2023	0.730	Nov 2023	-		0.730	0.000	1.330	-
DSS DWA ISEA	WR	NUWC Keyport : WA	0.000	0.000		1.500	Mar 2023	0.890	Dec 2023	-		0.890	0.000	2.390	-
		Subtotal	9.778	4.606		2.100		1.620		-		1.620	0.000	18.104	N/A

Remarks

The FY 2024 decrease is due to $22.5M of Congressional Adds in support of DWA that moved project commencement one Fiscal year (FY) to the left from FY24 to FY23.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation (OT&E)	WR	COTF : VA	0.000	0.000		0.167	Apr 2023	0.000		-		0.000	0.000	0.167	-
		Subtotal	0.000	0.000		0.167		0.000		-		0.000	0.000	0.167	N/A

Remarks

The FY 2024 decrease is due to completion of DWP testing.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DSS DWP Management Services	C/CPFF	BAH : VA	1.767	0.927	Jan 2022	0.937	Jan 2023	0.000		-		0.000	0.000	3.631	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204311N / *Integrated Surveillance System*	**Project (Number/Name)** 0344 / *Deployable Surveillance Systems*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DSS DWA Management Services	C/BA	BAH : VA	0.000	0.000		0.300	Jun 2023	0.956	Jan 2024	-		0.956	0.000	1.256	-
		Subtotal	1.767	0.927		1.237		0.956		-		0.956	0.000	4.887	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	34.885	16.077		30.429		10.547		-		10.547	0.000	91.938	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204311N / *Integrated Surveillance System*	**Project (Number/Name)** 0344 / *Deployable Surveillance Systems*

DSS POAP

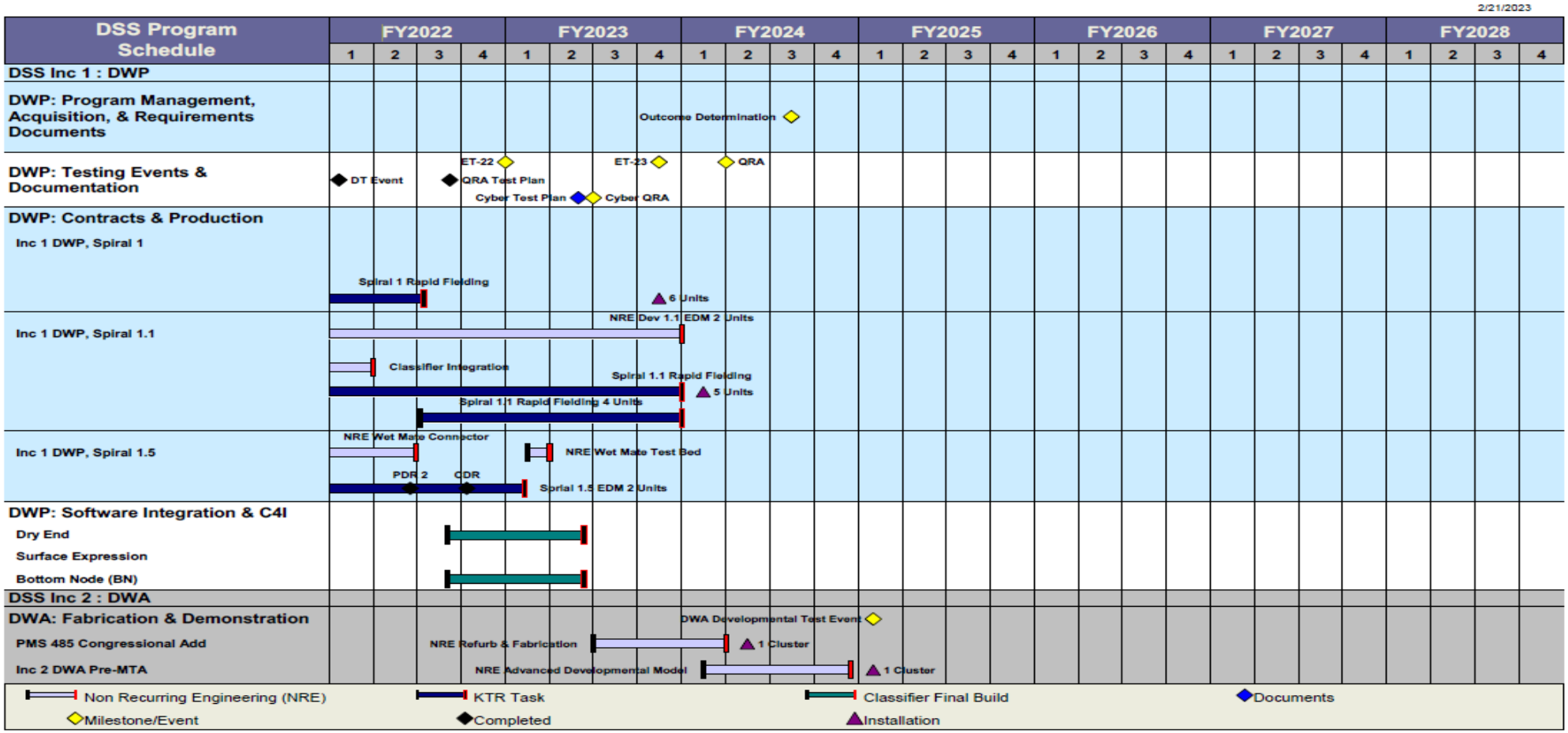

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204311N / *Integrated Surveillance System*	**Project (Number/Name)** 0344 / *Deployable Surveillance Systems*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0344				
DWP Middle Tier Acquisition Documentation: Milestones: Outcome Determination Acquisition Decision Memorandum	3	2024	3	2024
DWP Test and Evaluation Milestones: Developmental Test Event	1	2022	1	2022
DWP Test and Evaluation Milestones: Quick Reaction Assessment Test Plan	3	2022	3	2022
DWP Test and Evaluation Milestones: Quick Reaction Assessment Engineering Test 22	4	2022	4	2022
DWP Test and Evaluation Milestones: Cyber Test Plan	2	2023	2	2023
DWP Test and Evaluation Milestones: Cyber Quick Reaction Assessment	2	2023	2	2023
DWP Test and Evaluation Milestones: Quick Reaction Assessment Engineering Test 23	4	2023	4	2023
DWP Test and Evaluation Milestones: Quick Reaction Assessment	1	2024	1	2024
Production Milestones: DWP Low Rate Initial Production (LRIP): DWP Spiral 1 LRIP (6 Units)	1	2022	3	2022
Production Milestones: DWP Low Rate Initial Production (LRIP): DWP Spiral 1 Installation (6 Units)	4	2023	4	2023
Production Milestones: DWP Low Rate Initial Production (LRIP): DWP Spiral 1.1 LRIP (5 Units)	1	2022	4	2023
Production Milestones: DWP Low Rate Initial Production (LRIP): DWP Spiral 1.1 Installation (5 Units)	1	2024	1	2024
Production Milestones: DWP Low Rate Initial Production (LRIP): DWP Spiral 1.1 LRIP (4 Units)	3	2022	4	2023
Production Milestones: DWP Low Rate Initial Production (LRIP): Non- Recurring Engineering Wet Mate Connector	1	2022	3	2022

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204311N / *Integrated Surveillance System*	**Project (Number/Name)** 0344 / *Deployable Surveillance Systems*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Production Milestones: DWP Low Rate Initial Production (LRIP): Non- Recurring Engineering Test Bed	1	2023	1	2023
Production Milestones: DWP Low Rate Initial Production (LRIP): Classifier Integration Non- Recurring Engineering Development	1	2022	2	2022
Production Milestones: DWP EDMs: DWP Spiral 1.01 EDM (2 Units)	1	2022	4	2023
Production Milestones: DWP EDMs: DWP Spiral 1.5 EDM (2 Units)	1	2022	1	2023
Production Milestones: DWP Software Integration & C4I: DWP (Dry End)	3	2022	2	2023
Production Milestones: DWP Software Integration & C4I: DWP (Bottom Node)	3	2022	2	2023
DWA: Contracts and Production: DWA Non-Recurring Engineering Refurbishment and Fabrication	3	2023	1	2024
DWA: Contracts and Production: DWA Refurbishment and Fabrication Installation	2	2024	2	2024
DWA: Contracts and Production: DWA Advanced Development Models (ADM) (1 Cluster)	1	2024	4	2024
DWA: Contracts and Production: DWA Advanced Development Model Installation (1 Cluster)	1	2025	1	2025
DWA: Contracts and Production: DWA Developmental Test Event	1	2025	1	2025

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy												Date: March 2023
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0204311N / *Integrated Surveillance System*				Project (Number/Name) 0766 / *IUSS Detect/Classif System*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
0766: *IUSS Detect/Classif System*	575.396	60.542	56.964	63.994	-	63.994	80.465	74.829	70.497	71.751	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

A. This project includes efforts for SURTASS, Expeditionary SURTASS (SURTASS-E), Theater Anti-submarine Warfare (ASW) Offset Initiative, and Fixed Surveillance System (FSS). The SURTASS project comprises the mobile, tactical arm of the Integrated Undersea Surveillance System (IUSS), providing long range detection and cueing for tactical weapons platforms against both diesel and nuclear powered submarines. SURTASS also provides the undersea surveillance necessary to support regional conflicts and sea-lane protection. SURTASS has experienced recent passive and active success against diesel submarines operating in shallow water. SURTASS is leveraging existing developments and reducing costs by using Non-Developmental Items and commercial hardware, supporting common Navy Undersea Warfare processing and towed array developments, and increasing operator efficiency through computer-aided detection and classification processing. SURTASS development efforts include Low Frequency Active (LFA)/Compact Low Frequency Active (CLFA) improvements, common IUSS processing, twin-line array development and processing, improved detection and classification/passive automation to counter quieter threats, additional signal processing, integrated active and passive operations, improved Battle Group support, and improved information processing.

LFA provides an active adjunct capability for IUSS passive and tactical sensors to counter the quieter diesel and nuclear threats of the 1990s and beyond. The LFA tasks are directed at detection of slow, quiet threats in harsh littoral waters. Improvements include TL-29A/LFA integration enhancements, advanced waveforms for littoral/shallow water operations including Doppler sensitive waveforms, and processing algorithms to reduce clutter and reverberation false alarms in shallow water. The Integrated Common Processor (ICP) is a derivative of the Naval Sea Systems Command (NAVSEA) Submarine Acoustic Rapid Commercial Off the Shelf (COTS) Insertion (ARCI) program and is being augmented for IUSS requirements. Together, the LFA/CLFA improvements, TL-29A, and the ICP support the SURTASS Active Improvement Program.

Functional improvements to ICP are delivered to the Fleet in software "builds" while hardware improvements are delivered through the Tech Insertion (TI) process. Software improvements delivered via the Advanced Surveillance Build (ASB) process are based on the Advanced Processor Build (APB) process begun by the NAVSEA Submarine USW program. Each ASB will introduce new capabilities into SURTASS systems including improved automation, normalizer techniques, adaptive beam forming, and display enhancements. SURTASS participates in the process by contributing algorithms for consideration, supplying peer group members for review of candidate algorithms, participating in test evolutions, and incorporating improved algorithms into operational systems. The TI process, modeled after the NAVSEA Submarine Undersea Warfare (USW) hardware improvement program, delivers processing technology improvements to platforms on roughly a 4-6 year cycle. Hardware upgrades for active and passive arrays and communications systems will also be provided during TI upgrades, but not on a regular planned development cycle as for the processing upgrades.

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SURTASS-E provides a SURTASS passive capability packaged into ISO-Vans for mobilization on Vessels of Opportunity (VOOs). It was developed as a CNO Rapid Prototyping, Experimentation, and Demonstration (RPED) program to provide a SURTASS variant that addresses emergent Theater ASW Commander requirements for SURTASS capability.

B. PEO UWS is involved with the development and maintenance of various IUSS systems. These systems include Fixed Distributed systems (FDS), Fixed Distributed Systems-Commercial (FDS-C), and SURTASS. The existing system architectures, signal processing, contact management, and reporting requirements will be evaluated as well as the requirements for future systems. The cyclical development of the ICP will take advantage of automation advancement, array technology improvements, along with IUSS, submarine, and surface USW system commonality to address these requirements.
The FSS portion of 0766 is classified with details available at a higher classification level.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Integrated Common Processor (ICP)	10.430	6.107	10.718	0.000	10.718
Articles:	-	-	-	-	-
FY 2023 Plans: - ASB-23 improvements planned to begin in FY2023: Improvements to AIS to Acoustic Track Association, Initial implementation of Deep Learning Capabilities, Improvements (Advanced Processing, Active, Passive, Cyber, & Advanced Sensors), Improved OMI, Improved Cyber Security and Program Protection. - Continue ASB-21 Integration and Test in FY2023. - Technology Insertion Hardware improvements in FY2023: Continue TI-24 improvements for cyber security, Program Protection (afloat and Engineering Measurements Program (EMP)) & address hardware obsolescence.					
FY 2024 Base Plans: - Continue development of ASB-23 which includes :Improvements to AIS to Acoustic Track Association; Improved passive automation tuning; Improved Active OMI, Continued improvements to active array monitoring; Improved Cyber Security and Program Protection. - Begin development of additional ASB-23 capabilities which includes: Ownership noise reduction; ONR Active Initiatives; Improved Target Motion Analysis, Automated passive display requantization; improve active transmit startup; improved Active CW processing; Improved Active Automation; improved Cyber Security and P2. - Continue ASB-23 Integration and Test in Q3 FY2024. - Begin TI-24 Hardware Design to develop Technology Insertions hardware improvements for Cyber Security, Program Protection (afloat and Engineering Measurements Program (EMP)) and address hardware obsolescence. - Continue Advanced Capabilities development of Artificial Intelligence/Machine Learning algorithms for enhanced human-machine performance; Continue system infrastructure modernization to streamline system development, to provide more flexibility in hardware and to enable for more frequent software updates of					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
software to include patches/baseline and new capabilities; advanced beamforming techniques for the fielding of new variants of modern arrays. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding increase of $4.611M due to Advanced Capabilities development of Artificial Intelligence/Machine Learning algorithms for enhanced human-machine performance, system modernization to support development of hardware and software to include advanced beamforming techniques for the fielding of new variants of modern arrays.					
Title: TL-29A/Twin-Line	2.000	1.544	3.958	0.000	3.958
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue development of upgraded telemetry components to address component obsolescence. - Continue development of fishing net mitigation solutions and upgrades to reduce potential for array damage from fishing apparatus. - Continue at-sea test and evaluation efforts to demonstrate passive array system hardware and processing enhancements and net mitigation equipment. - Continue evaluation of true fiber optic array technologies and array components, including Twin-line variants of newsubmarine Long-line arrays for future application to SURTASS. - Continue development of future passive systems to outfit T-AGOS(X). ***FY 2024 Base Plans:*** - Continue development of upgraded telemetry components to address component obsolescence. - Continue development of fishing net mitigation solutions and upgrades to reduce potential for array damage from fishing apparatus. - Continue at-sea test and evaluation efforts to demonstrate passive array system hardware and processing enhancements and net mitigation equipment. - Continue evaluation of true fiber optic array technologies and array components, including Twin-line variants of newsubmarine Long-line arrays for future application to SURTASS. - Continue development of future passive systems to outfit T-AGOS(X).					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Develop replacement technologies for obsolete and manufacturer discontinued parts and to address high failure items and other reliability and maintainability improvements. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding increased $2.414M to develop replacement technologies for obsolete and manufacturer discontinued parts and to address high failure items and other reliability and maintainability improvements.					
Title: Classified Effort ***Articles:*** ***Description:*** The FSS portion of 0766 is classified with details available at a higher classification level. ***FY 2023 Plans:*** The FSS portion of 0766 is classified with details available at a higher classification level. ***FY 2024 Base Plans:*** The FSS portion of 0766 is classified with details available at a higher classification level. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The FSS portion of 0766 is classified with details available at a higher classification level.	48.112 -	49.313 -	49.318 -	0.000 -	49.318 -
Accomplishments/Planned Programs Subtotals	60.542	56.964	63.994	0.000	63.994

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• OPN/2237: *SURTASS*	67.500	25.030	33.910	-	33.910	25.204	28.804	29.148	29.371	Continuing	Continuing

Remarks

D. Acquisition Strategy

FY 2022: ASB Step 4 Testing. TL-29A/ICP FOT&E
FY 2023: ICP Tech Refresh. TL-29A/ICP FOT&E

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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FY 2024: ASB Step 4 Testing. TL-29A/ICP FOT&E
The FSS portion of 0766 is classified with details available at a higher classification level.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
IUSS COMMON ARCHITECTURE	C/CPFF	LOCKHEED MARTIN : VA	62.719	4.018	Dec 2021	0.720	Dec 2022	5.222	Dec 2023	-		5.222	Continuing	Continuing	Continuing
IUSS COMMON ARCHITECTURE	SS/CPFF	APL/JHU : MD	9.255	0.907	Apr 2022	0.585	Apr 2023	0.597	Apr 2024	-		0.597	Continuing	Continuing	Continuing
IUSS COMMON ARCHITECTURE	C/CPFF	L-3 : MD	6.575	0.594	Dec 2021	0.480	Dec 2022	0.490	Dec 2023	-		0.490	Continuing	Continuing	Continuing
IUSS COMMON ARCHITECTURE	Various	VARIOUS : Not Specified	77.655	1.204	Dec 2021	0.705	Dec 2022	0.719	Dec 2023	-		0.719	Continuing	Continuing	Continuing
ACTIVE IMPROVEMENT/ CLFA/LFA	WR	Warfare Centers : CA	7.062	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
ACTIVE IMPROVEMENT/ CLFA/LFA	SS/CPFF	APL/JHU : MD	5.791	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
ARRAY IMPROVEMENTS	SS/CPFF	APL/JHU : MO	7.880	0.580	Apr 2022	0.400	Apr 2023	1.471	Apr 2024	-		1.471	Continuing	Continuing	Continuing
ARRAY IMPROVEMENTS	SS/CPFF	L-3 : MD	3.192	0.302	Dec 2021	0.172	Dec 2022	0.175	Dec 2023	-		0.175	Continuing	Continuing	Continuing
ARRAY IMPROVEMENTS	C/CPFF	L-3 CSC : MD	0.204	0.195	Dec 2021	0.149	Dec 2022	0.152	Dec 2023	-		0.152	Continuing	Continuing	Continuing
ARRAY IMPROVEMENTS	C/CPFF	Makai : HI	0.200	0.203	Mar 2022	0.103	Mar 2023	0.105	Mar 2024	-		0.105	Continuing	Continuing	Continuing
ARRAY IMPROVEMENTS	Various	VARIOUS : Not Specified	11.676	0.000		0.000		0.000		-		0.000	0.000	11.676	-
SURTASS-E	Various	Various : Not Specified	4.560	0.000		0.000		0.000		-		0.000	0.000	4.560	-
FSS - Classified	Various	TBD : Not Specified	260.992	48.112	Nov 2021	49.313	Nov 2022	49.318	Nov 2023	-		49.318	Continuing	Continuing	Continuing
		Subtotal	457.761	56.115		52.627		58.249		-		58.249	Continuing	Continuing	N/A

Remarks

The $5.617 million increase from FY 2023 to FY 2024 is due to:
1. Advanced Capabilities development of Artificial Intelligence/Machine Learning algorithms for enhanced human-machine performance, system modernization to support development of hardware and software to include advanced beamforming techniques for the fielding of new variants of modern arrays.
2. Development replacement technologies for obsolete and manufacturer discontinued parts and to address high failure items and other reliability and maintainability improvements.
The FSS portion of 0766 is classified with details available at a higher classification level.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
IUSS COMMON ARCHITECTURE	WR	NIWC PAC : CA	6.311	0.292	Nov 2021	0.285	Nov 2022	0.291	Nov 2023	-		0.291	Continuing	Continuing	Continuing
IUSS COMMON ARCHITECTURE	C/CPFF	APL/JHU : MD	8.228	0.768	Apr 2022	0.749	Apr 2023	0.764	Apr 2024	-		0.764	Continuing	Continuing	Continuing
IUSS COMMON ARCHITECTURE	C/CPFF	Lockheed Martin : VA	8.001	0.716	Dec 2021	0.699	Dec 2022	0.713	Dec 2023	-		0.713	Continuing	Continuing	Continuing
IUSS COMMON ARCHITECTURE	Various	VARIOUS : Not Specified	7.001	0.336	Jan 2022	0.328	Jan 2023	0.335	Jan 2024	-		0.335	Continuing	Continuing	Continuing
ACTIVE IMPROVEMENT/ CLFA/LFA	Various	VARIOUS : Not Specified	10.374	0.000		0.000		0.000		-		0.000	0.000	10.374	-
ARRAY IMPROVEMENTS	WR	Warfare Centers : RI	0.340	0.345	Nov 2021	0.345	Nov 2022	1.673	Nov 2023	-		1.673	Continuing	Continuing	Continuing
ARRAY IMPROVEMENTS	Various	VARIOUS : Not Specified	2.529	0.000		0.000		0.000		-		0.000	0.000	2.529	-
SURTASS-E	WR	Warfare Centers : CA	1.240	0.000		0.000		0.000		-		0.000	0.000	1.240	Continuing
		Subtotal	44.024	2.457		2.406		3.776		-		3.776	Continuing	Continuing	N/A

Remarks

The $1.370 million increase from FY 2023 to FY 2024 is due to:
1. Support associated with Advanced Capabilities development of Artificial Intelligence/Machine Learning algorithms for enhanced human-machine performance, system modernization to support development of hardware and software to include advanced beamforming techniques for the fielding of new variants of modern arrays.
2. Support associated with development replacement technologies for obsolete and manufacturer discontinued parts and to address high failure items and other reliability and maintainability improvements.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	C/CPFF	LOCKHEED MARTIN : VA	8.500	0.665	Dec 2021	0.648	Dec 2022	0.661	Dec 2023	-		0.661	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	SS/CPFF	ARL/UT : TX	0.425	0.293	Apr 2022	0.286	Apr 2023	0.292	Apr 2024	-		0.292	0.000	1.296	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	C/CPFF	Various : Various	10.603	0.103	Jan 2022	0.101	Jan 2023	0.103	Jan 2024	-		0.103	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	Warfare Centers : Various	22.564	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	SS/CPFF	APL/JHU : MD	2.278	0.265	Apr 2022	0.265	Apr 2023	0.270	Apr 2024	-		0.270	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	OPTEVOR : VA	0.400	0.000		0.000		0.000		-		0.000	0.000	0.400	-
		Subtotal	44.770	1.326		1.300		1.326		-		1.326	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
IUSS COMMON ARCHITECTURE	Various	VARIOUS : Not Specified	11.060	0.534	Jan 2022	0.521	Jan 2023	0.531	Jan 2024	-		0.531	Continuing	Continuing	Continuing
ACTIVE IMPROVEMENT/ CLFA/LFA	Various	VARIOUS : Not Specified	16.501	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
ARRAY IMPROVEMENTS	Various	VARIOUS : Not Specified	1.280	0.110	Jan 2022	0.110	Jan 2023	0.112	Jan 2024	-		0.112	Continuing	Continuing	Continuing
		Subtotal	28.841	0.644		0.631		0.643		-		0.643	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	575.396	60.542		56.964		63.994		-		63.994	Continuing	Continuing	N/A

Remarks

The R3 and the R4 / R4A reflect the UNCLASSIFIED portion of the PE.
The FSS portion of 0766 is classified with details available at a higher classification level.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
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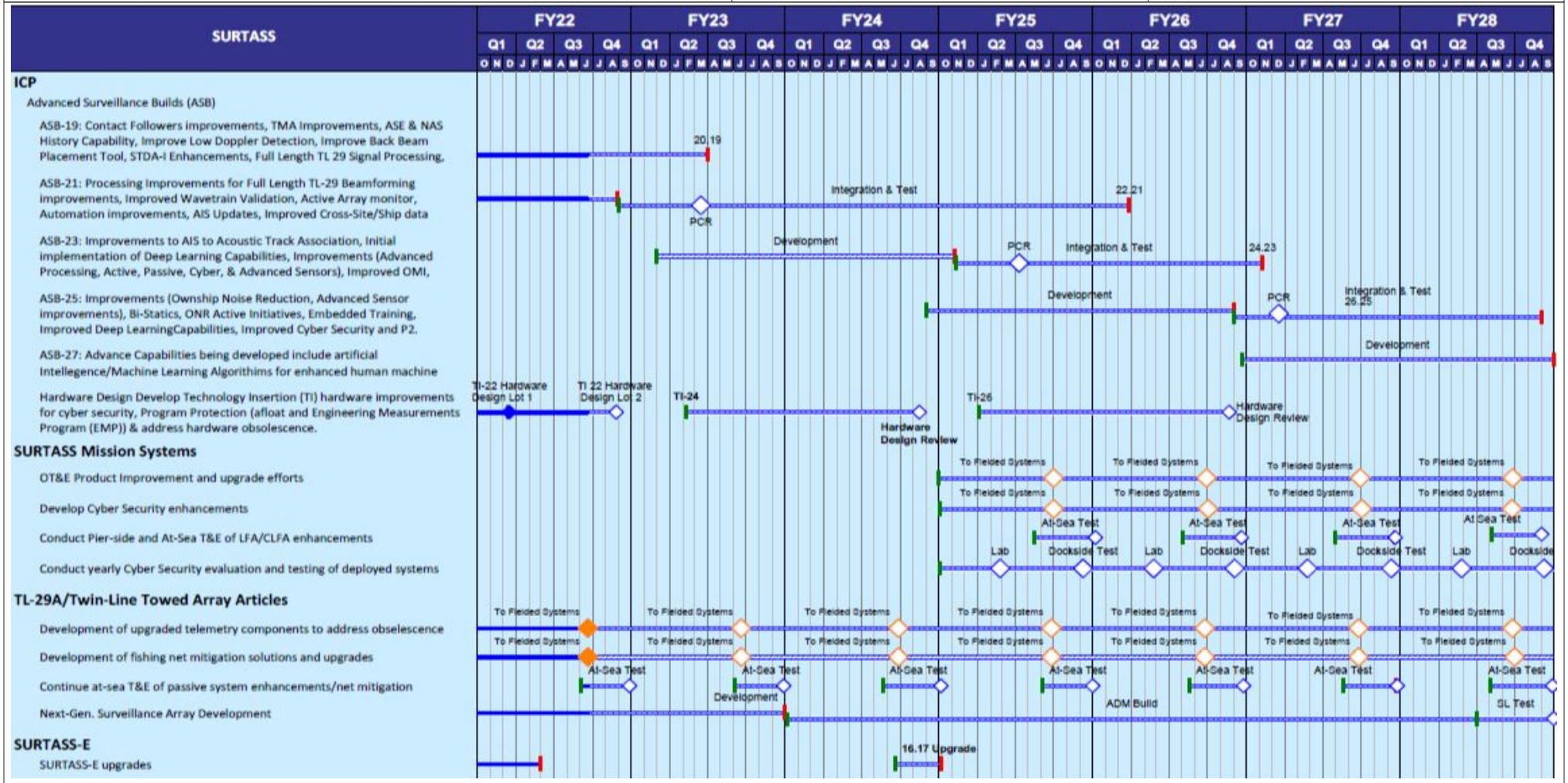

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
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Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0766.L24				
TEST and EVALUATION MILESTONES: LFA/CLFA Testing: LFA/CLFA Cyber Security Evaluation and Testing (2025-28)	1	2025	4	2028
TEST and EVALUATION MILESTONES: LFA/CLFA Testing: Pier-side and At-Sea T&E of LFA/CLFA Enhancements (2025)	3	2025	4	2025
TEST and EVALUATION MILESTONES: LFA/CLFA Testing: Pier-side and At-Sea T&E of LFA/CLFA Enhancements (2026)	3	2026	4	2026
TEST and EVALUATION MILESTONES: LFA/CLFA Testing: Pier-side and At-Sea T&E of LFA/CLFA Enhancements (2027)	3	2027	4	2027
TEST and EVALUATION MILESTONES: LFA/CLFA Testing: Pier-side and At-Sea T&E of LFA/CLFA Enhancements (2028)	3	2028	4	2028
TEST and EVALUATION MILESTONES: TL-29A Testing: TL-29A At-SEA T&E Passive System/Net Mitigation (2022)	3	2022	4	2022
TEST and EVALUATION MILESTONES: TL-29A Testing: TL-29A At-SEA T&E Passive System/Net Mitigation (2023)	3	2023	4	2023
TEST and EVALUATION MILESTONES: TL-29A Testing: TL-29A At-SEA T&E Passive System/Net Mitigation (2024)	3	2024	4	2024
TEST and EVALUATION MILESTONES: TL-29A Testing: TL-29A At-SEA T&E Passive System/Net Mitigation (2025)	3	2025	4	2025
TEST and EVALUATION MILESTONES: TL-29A Testing: TL-29A At-SEA T&E Passive System/Net Mitigation (2026)	3	2026	4	2026
TEST and EVALUATION MILESTONES: TL-29A Testing: TL-29A At-SEA T&E Passive System/Net Mitigation (2027)	3	2027	4	2027
TEST and EVALUATION MILESTONES: TL-29A Testing: TL-29A At-SEA T&E Passive System/Net Mitigation (2028)	3	2028	4	2028

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
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	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
TEST and EVALUATION MILESTONES: TL-29A Testing: Towed Array Next-Gen Surveillance Array SL Test	3	2028	4	2028
TEST and EVALUATION MILESTONES: ICP Advanced Surveillance Builds (ASB): ASB-19 Integration and Test	1	2022	2	2023
TEST and EVALUATION MILESTONES: ICP Advanced Surveillance Builds (ASB): ASB-21 Integration and Test	4	2022	1	2026
TEST and EVALUATION MILESTONES: ICP Advanced Surveillance Builds (ASB): ASB-23 Integration and Test	1	2025	1	2027
TEST and EVALUATION MILESTONES: ICP Advanced Surveillance Builds (ASB): ASB-25 Integration and Test	4	2026	4	2028
DEVELOPMENT MILESTONES: LFA/CLFA Development: LFA/CLFA OT&E Product Improvement/Upgrade Efforts (FY25-28)	1	2025	4	2028
DEVELOPMENT MILESTONES: LFA/CLFA Development: LFA/CLFA Cyber Security Enhancements (FY25-28)	1	2025	4	2028
DEVELOPMENT MILESTONES: TL-29A Development: TL-29A Develop Telemetry Components (Upgrades) (Yearly)	1	2022	4	2028
DEVELOPMENT MILESTONES: TL-29A Development: TL-29A Develop Fishing Net Mitigation (Yearly)	1	2022	4	2028
DEVELOPMENT MILESTONES: TL-29A Development: Towed Array Next-Gen Survellance Array Development	1	2022	4	2023
DEVELOPMENT MILESTONES: TL-29A Development: Towed Array Next-Gen Surveillance Array ADM Build	1	2024	2	2028
DEVELOPMENT MILESTONES: ICP Development: ASB 21 Development	1	2022	4	2022
DEVELOPMENT MILESTONES: ICP Development: ASB 23 Development	1	2023	1	2025
DEVELOPMENT MILESTONES: ICP Development: ASB 25 Development	4	2024	4	2026
DEVELOPMENT MILESTONES: ICP Development: ASB 27 Development	4	2026	4	2028
DEVELOPMENT MILESTONES: SURTASS-E: Upgrades 14.15	1	2022	2	2022
DEVELOPMENT MILESTONES: SURTASS-E: Upgrades 16.17	3	2024	4	2024

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204311N / *Integrated Surveillance System*	**Project (Number/Name)** 0766 / *IUSS Detect/Classif System*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
PRODUCTION MILESTONES: ICP Technology Insertion: Hardware Design ICP Tech Insertion TI-24	2	2023	4	2024
PRODUCTION MILESTONES: ICP Technology Insertion: Hardware Design ICP Tech Insertion TI-26	2	2025	4	2026

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204311N / *Integrated Surveillance System*	Project (Number/Name) 1768 / *Ship Plan Development and Design*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
1768: *Ship Plan Development and Design*	30.622	6.730	0.977	1.738	-	1.738	1.700	1.067	0.835	0.852	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

T-Auxiliary, Repair, Cable (T-ARC) is a candidate replacement program for U.S. Navy's only organic undersea cable laying and repair ship, USNS ZEUS (T-ARC 7), which is approaching the end of her extended service life. The ship's main mission is to deploy, repair, and retrieve undersea cables and equipment, with a secondary mission of towing projectors.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: T-ARC(X) Cable Ship Design and Total Ship Integration	6.730	0.977	1.738	0.000	1.738
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue design integration and T&E planning. - Update indicative design to incorporate new requirements and support revised SEA05C cost estimate. - Continue development of acquisition documentation in support of Milestone B/C. - Continue to coordinate acquisition efforts with NAVSEA, MSC, PEO SHIPS, CNO, ASN RD&A, OSD, and Fleet.					
FY 2024 Base Plans: - Continue development of acquisition documentation in support of Milestone B/C. - Continue updating indicative design to incorporate new requirements and support revised SEA05C cost estimate. - Update and release DD&C RFP. - Continue to coordinate acquisition efforts with NAVSEA, MSC, PEO SHIPS, CNO, ASN RD&A, OSD, and Fleet.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204311N / *Integrated Surveillance System*	**Project (Number/Name)** 1768 / *Ship Plan Development and Design*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
The increase of $0.761M is due to updating the indicative design to support revised SEA05C cost estimate and to release the RFP to support the FY 2026 DD&C award.					
Accomplishments/Planned Programs Subtotals	6.730	0.977	1.738	0.000	1.738

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• SCN/5080: *TARC Cable Repair Ship*	0.000	0.000	0.000	-	0.000	0.000	767.939	0.000	0.000	0.000	767.939

Remarks

D. Acquisition Strategy

Issued Request for Proposal (RFP) in FY 2020 and awarded Industry Studies in FY 2021. Issue RFP for Detail Design and Construction (DD&C) in FY 2024 for a FY 2026 award.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204311N / *Integrated Surveillance System*	Project (Number/Name) 1768 / *Ship Plan Development and Design*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Industry Studies	C/FFP	Various : Various	14.500	0.000		0.000		0.000		-		0.000	0.000	14.500	-
Engineering Integration/ Design/Indictive Design	Various	Various : Various	3.968	1.812	May 2022	0.555	Mar 2023	0.337	Jan 2024	-		0.337	2.719	9.391	-
		Subtotal	18.468	1.812		0.555		0.337		-		0.337	2.719	23.891	N/A

Remarks

Increase in Engineering Integration/Design/Indictive Design requirements from FY23 to FY24 is due to updating the Indictive Design to ensure alignment with SEA05C cost estimate to support FY 2026 DD&C contract award.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Requirements Definition	Various	Various : Various	1.040	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Spec and Technical Data Package Development	Various	Various : Various	4.064	1.930	Jan 2023	0.226	Mar 2023	0.201	Jan 2024	-		0.201	0.000	6.421	-
Milestone Documentation/ RFP development	Various	Various : Various	3.797	2.022	Jan 2023	0.196	Mar 2023	1.200	Jan 2024	-		1.200	0.765	7.980	-
Systems Integration	Various	Various : Various	2.386	0.911	May 2022	0.000		0.000		-		0.000	0.353	3.650	-
		Subtotal	11.287	4.863		0.422		1.401		-		1.401	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	Various	Various : Various	0.867	0.055	May 2022	0.000		0.000		-		0.000	11.235	12.157	-
		Subtotal	0.867	0.055		0.000		0.000		-		0.000	11.235	12.157	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204311N / *Integrated Surveillance System*	Project (Number/Name) 1768 / *Ship Plan Development and Design*	

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	30.622	6.730		0.977		1.738		-		1.738	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204311N / *Integrated Surveillance System*	**Project (Number/Name)** 1768 / *Ship Plan Development and Design*

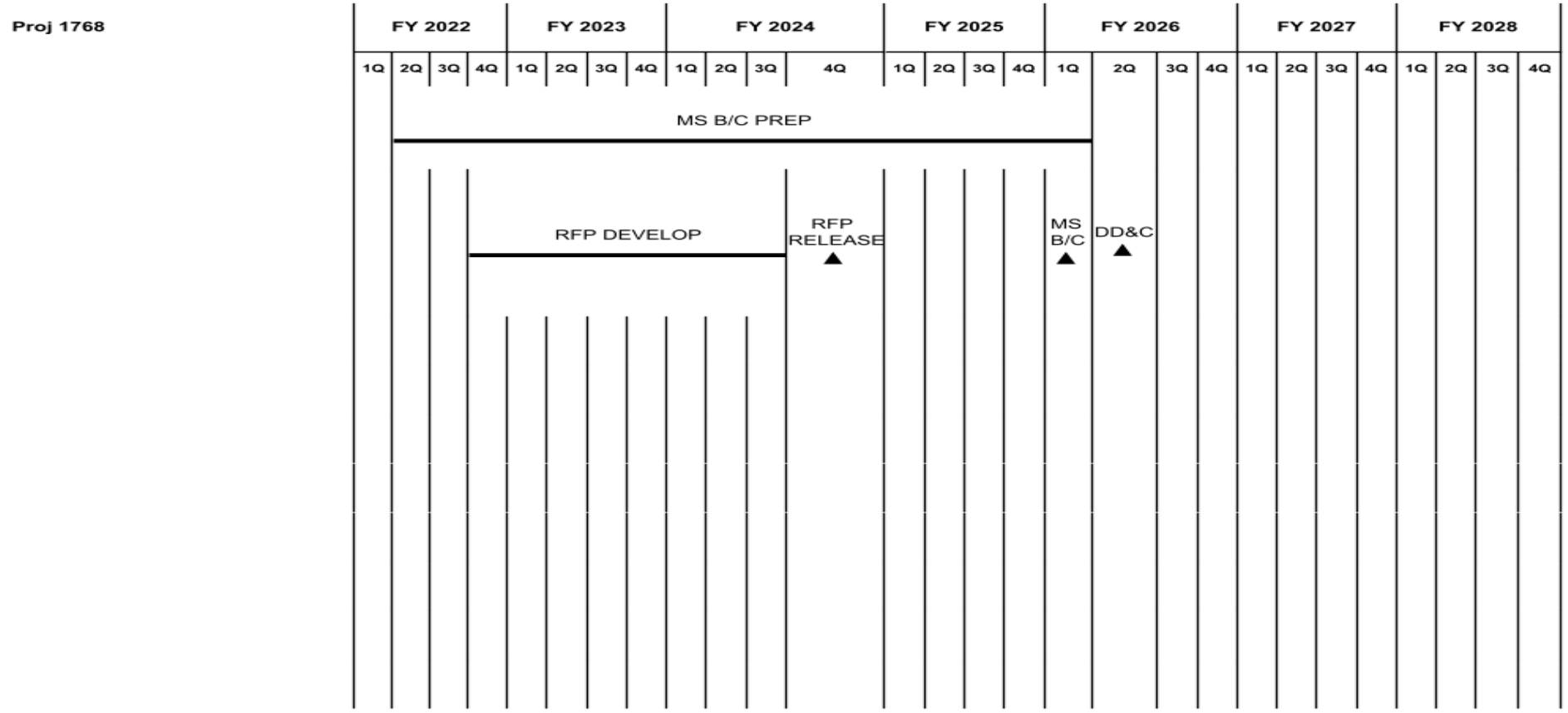


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204311N / *Integrated Surveillance System*	**Project (Number/Name)** 1768 / *Ship Plan Development and Design*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 1768				
Milestone B/C Document Preparation	2	2022	1	2026
Detail Design & Construction Specification and Request For Proposal Development	4	2022	3	2024
Issue Detail Design & Construction Request For Proposal	4	2024	4	2024
Milestone B/C	1	2026	1	2026
Issue Detail Design & Construction Award	2	2026	2	2026

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204311N / *Integrated Surveillance System*	Project (Number/Name) 9999 / *Congressional Adds*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
9999: *Congressional Adds*	0.000	0.000	10.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	10.000
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project C916 funds efforts for design of Next Generation Surveillance Array (NGSA) to include Critical Design Review (CDR), purchase and assemble Advanced Development Model (ADM) and engage industry to build and deliver Open Architecture Telemetry (OAT) components.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023
Congressional Add: Next-gen twin-line towed array	0.000	10.000
FY 2022 Accomplishments: N/A		
FY 2023 Plans: - Complete Critical Design Review (CDR) Q2FY24. - Procure Next Generation Surveillance Array (NGSA) Advanced Development Model (ADM) material. - Assemble NGSA ADM material Q3FY24. - Award Other Transaction Authority (OTA) for Open Architecture Telemetry (OAT) orientation. - Various Program Management and Engineering tasks.		
Congressional Adds Subtotals	0.000	10.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

FY23: Rapid Prototype

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204311N / *Integrated Surveillance System*	**Project (Number/Name)** 9999 / *Congressional Adds*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Design and Manufacture Array	WR	NUWC Newport : Newport, RI	0.000	0.000		4.600	Apr 2023	0.000		-		0.000	0.000	4.600	-
Qualify Prototype Array Components w/ Industry	TBD	NUWC Newport : Newport, RI	0.000	0.000		2.500	Apr 2023	0.000		-		0.000	0.000	2.500	-
Design and Manufacture Array	C/CPFF	Johns Hopkins : Columbia, MD	0.000	0.000		2.600	Apr 2023	0.000		-		0.000	0.000	2.600	-
Evaluate COTS Array Components	C/CPFF	MAKAI : Hawaii	0.000	0.000		0.200	Apr 2023	0.000		-		0.000	0.000	0.200	-
		Subtotal	0.000	0.000		9.900		0.000		-		0.000	0.000	9.900	N/A

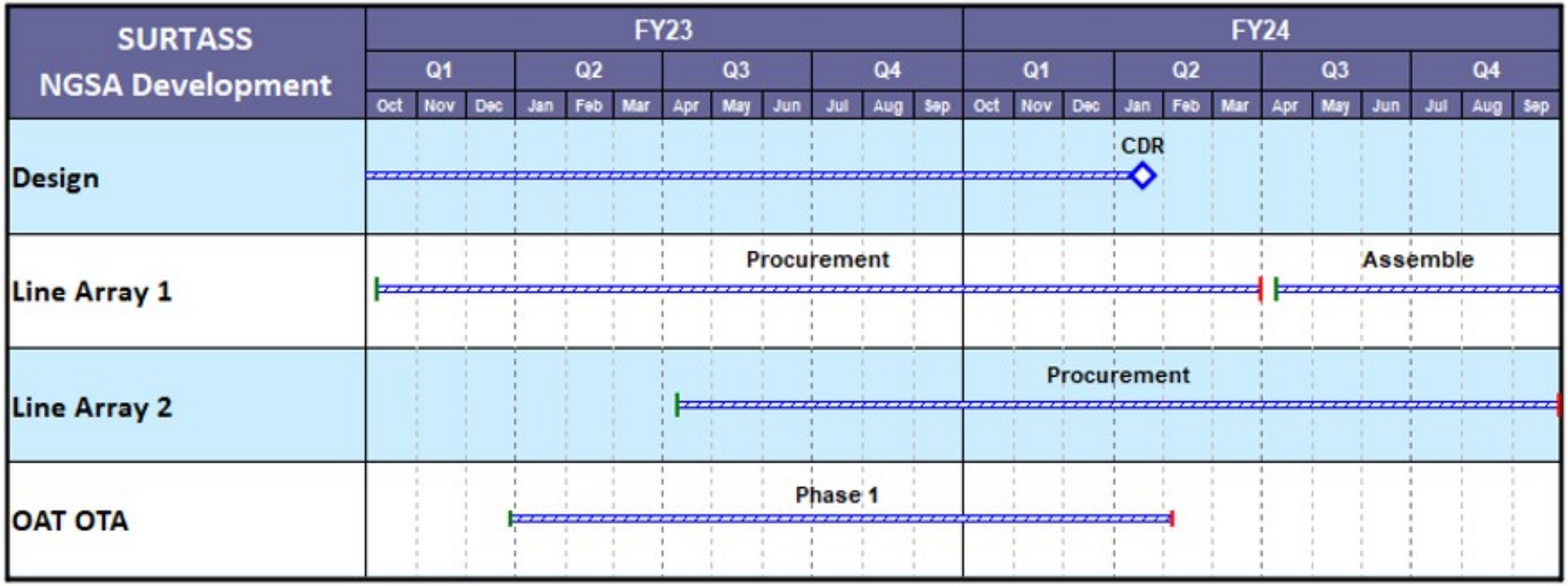
Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management and Engineering Support	C/CPFF	Booz Allen Hamilton : McClean, VA	0.000	0.000		0.100	Apr 2023	0.000		-		0.000	0.000	0.100	-
		Subtotal	0.000	0.000		0.100		0.000		-		0.000	0.000	0.100	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		10.000		0.000		-		0.000	0.000	10.000	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204311N / *Integrated Surveillance System*	**Project (Number/Name)** 9999 / *Congressional Adds*



Acronyms
OAT – Open Architecture Telemetry
OTA - Other Transactional Authority
NGSA - Next Generation Surveillance Array

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204311N / *Integrated Surveillance System*	**Project (Number/Name)** 9999 / *Congressional Adds*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 9999				
DEVELOPMENT MILESTONES: Next Generation Surveillance Array (NGSA) Design	1	2023	2	2024
DEVELOPMENT MILESTONES: NGSA Critical Design Review (CDR)	2	2024	2	2024
PRODUCTION MILESTONES: Line Array 1: NGSA Material Procurement	1	2023	2	2024
PRODUCTION MILESTONES: Line Array 1: NGSA Assembly	3	2024	4	2024
PRODUCTION MILESTONES: Line Array 2: NGSA Material Procurement	3	2023	4	2024
ACQUISITION MILESTONES: Open Architecture Telemetry (OAT) Other Transactional Authority (OTA) Phase 1	2	2023	2	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0204313N *I Ship-Towed Array Surveillance Systems*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	47.574	6.080	1.188	1.103	-	1.103	1.462	1.738	4.975	2.002	Continuing	Continuing
3261: *TAGOS Design & Total Ship Integration*	47.574	6.080	1.188	1.103	-	1.103	1.462	1.738	4.975	2.002	Continuing	Continuing

A. Mission Description and Budget Item Justification

T-AGOS are Ocean surveillance ships that gather underwater acoustical data to support the Integrated Undersea Surveillance System (IUSS) mission by providing a ship platform capable of theater anti-submarine passive and active acoustic surveillance. T-AGOS ships are operated by Military Sealift Command (MSC) to support the anti-submarine warfare (ASW) mission of Atlantic and Pacific Fleet Commanders. Both classes of T-AGOS ships use the Surveillance Towed-Array Sensor System (SURTASS) to gather undersea acoustic data. They also carry electronic equipment to process and transmit that data via satellite to shore stations for evaluation. Funding in this budget will recapitalize Navy's Auxiliary General Ocean Surveillance (T-AGOS) ships (four T-AGOS 19 Class vessels & one T-AGOS 23 Class vessel) with a total of seven (7) T-AGOS 25 Class ships based on the 2016 N81 Force Structure Assessment (FSA).

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	6.261	1.188	0.905	-	0.905
Current President's Budget	6.080	1.188	1.103	-	1.103
Total Adjustments	-0.181	0.000	0.198	-	0.198
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.181	0.000			
• Program Adjustments	0.000	0.000	0.181	-	0.181
• Rate/Misc Adjustments	0.000	0.000	0.017	-	0.017

Change Summary Explanation

Decrease of $0.085 million as the program transitions from acquisition efforts to Test & Evaluation.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204313N / *Ship-Towed Array Surveillance Systems*	Project (Number/Name) 3261 / *TAGOS Design & Total Ship Integration*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
3261: *TAGOS Design & Total Ship Integration*	47.574	6.080	1.188	1.103	-	1.103	1.462	1.738	4.975	2.002	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

T-AGOS are ocean surveillance ships that gather underwater acoustical data to support the mission of the Integrated Undersea Surveillance System (IUSS) by providing a ship platform capable of theater anti-submarine acoustic passive and active surveillance. Auxiliary General Ocean Surveillance Ships (T-AGOS) are operated by Military Sealift Command to support the anti-submarine warfare mission of the commanders of the Atlantic and Pacific Fleets. The two current classes of surveillance ships use Surveillance Towed-Array Sensor System (SURTASS) equipment to gather undersea acoustic data. The ships also carry electronic equipment to process and transmit that data via satellite to shore stations for evaluation. Funding will support recapitalization of the four Small Waterplane Area Twin Hull (SWATH) T-19 Class and one SWATH T-23 Class.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: T-AGOS 25 Class Design & Total Ship Integration	6.080	1.188	1.103	0.000	1.103
Articles:	-	-	-	-	-
FY 2023 Plans: - Coordinate T&E events with OPTEVFOR, Maritime Surveillance Systems Program Office (PMS 485), Military Sealift Command (MSC), and OPNAV. - Conduct Milestone B/C. - Draft Developmental Test Plan. - Conduct Cybersecurity Testing.					
FY 2024 Base Plans: - Continue T&E events with OPTEVFOR, Maritime Surveillance Systems Program Office (PMS 485), MSC, and OPNAV. - Finish Developmental Test Plan. - Continue Cybersecurity Testing.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204313N / *Ship-Towed Array Surveillance Systems*	**Project (Number/Name)** 3261 / *TAGOS Design & Total Ship Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Decrease of $0.085 million as the program transitions from acquisition efforts to Test & Evaluation.					
Accomplishments/Planned Programs Subtotals	6.080	1.188	1.103	0.000	1.103

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• SCN/5030: *TAGOS Surtass Ships*	434.384	0.000	355.166	-	355.166	433.858	416.613	421.135	427.134	876.750	3,365.040
• SCN/5300: *Completion of PY Shpbldg Progr*	0.000	0.000	355.166	-	355.166	0.000	0.000	0.000	0.000	0.000	355.166

Remarks

D. Acquisition Strategy

Issued Request For Proposal (RFP) for industry studies and awarded in FY 2020. Issued RFP for Detail Design and Construction (DD&C) in FY 2022. Award DD&C in FY 2024 for lead ship with options.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204313N / *Ship-Towed Array Surveillance Systems*	**Project (Number/Name)** 3261 / *TAGOS Design & Total Ship Integration*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Integration/ Design	Various	Various : Various	16.845	2.919	Nov 2021	0.800	Mar 2023	0.000		-		0.000	0.000	20.564	-
Industry Studies	C/FFP	Various : Various	6.275	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Model Testing	WR	Carderock : Bethesda, MD	6.140	0.000		0.000		0.000		-		0.000	0.000	6.140	-
SURTASS Integration	Various	Various : Various	3.600	0.800	May 2022	0.000		0.000		-		0.000	0.000	4.400	-
		Subtotal	32.860	3.719		0.800		0.000		-		0.000	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Milestone Documentation/ RFP Development	Various	Various : Various	4.547	0.900	May 2022	0.000		0.000		-		0.000	0.000	5.447	-
Specification & Technical Data Package Development	Various	Various : Various	6.055	0.000		0.000		0.000		-		0.000	0.000	6.055	-
Systems Integration (C4I/ Safety/Risk)	Various	Various : Various	2.967	0.800	May 2022	0.200	Apr 2023	0.000		-		0.000	0.000	3.967	-
Source Selection Support	Various	Various : Various	0.000	0.100	May 2022	0.000		0.000		-		0.000	0.000	0.100	-
		Subtotal	13.569	1.800		0.200		0.000		-		0.000	0.000	15.569	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	Various	Various : Various	1.145	0.561	May 2022	0.188	Feb 2023	1.103	Jan 2024	-		1.103	10.885	13.882	-
		Subtotal	1.145	0.561		0.188		1.103		-		1.103	10.885	13.882	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204313N / *Ship-Towed Array Surveillance Systems*	Project (Number/Name) 3261 / *TAGOS Design & Total Ship Integration*	

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	47.574	6.080		1.188		1.103		-		1.103	Continuing	Continuing	N/A

Remarks

Decrease of $0.085 million as the program transitions from acquisition efforts to Test & Evaluation.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204313N / *Ship-Towed Array Surveillance Systems*	**Project (Number/Name)** 3261 / *TAGOS Design & Total Ship Integration*

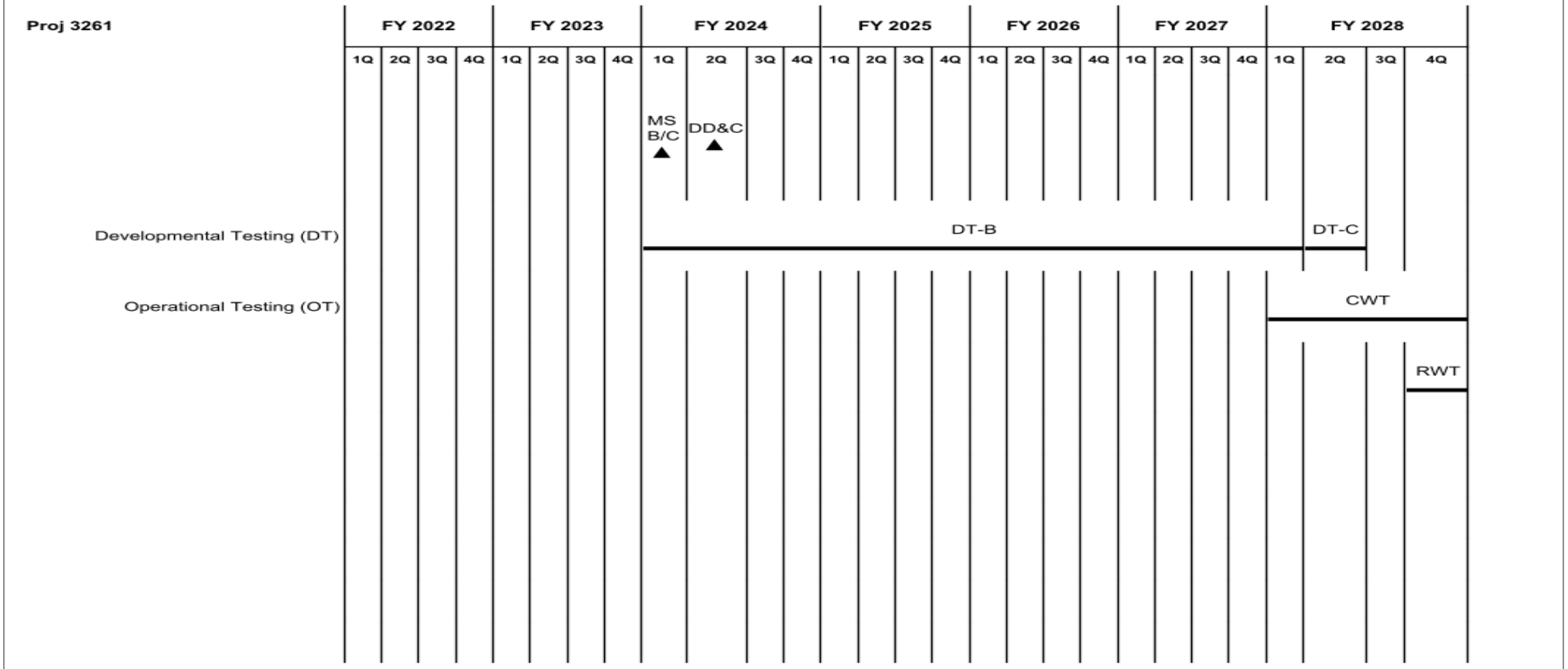

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204313N / *Ship-Towed Array Surveillance Systems*	**Project (Number/Name)** 3261 / *TAGOS Design & Total Ship Integration*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3261				
Milestone B/C	1	2024	1	2024
Lead Hull Detail Design & Construction Award	2	2024	2	2024
Developmental Testing (DT): DT Phase B - Production Acceptance Test & Evaluation (PAT&E)	1	2024	1	2028
Developmental Testing (DT): DT Phase C - Post Delivery Test and Trials (PDT&T)	2	2028	2	2028
Operational Testing (OT): Calm Water Trials	1	2028	4	2028
Operational Testing (OT): Rough Water Trials	4	2028	4	2028

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0204413N *I Amphibious Tactical Supt Units*

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	35.667	1.650	1.789	1.991	-	1.991	2.264	2.056	1.917	1.956	Continuing	Continuing
2231: *LCAC / LCU 1700*	35.189	1.153	1.279	1.471	-	1.471	1.742	1.523	1.373	1.401	Continuing	Continuing
2477: *NECC Additive Manufacturing*	0.478	0.497	0.510	0.520	-	0.520	0.522	0.533	0.544	0.555	Continuing	Continuing

A. Mission Description and Budget Item Justification

Landing Craft, Air Cushion (LCAC): Research and development efforts to transfer technologies into functional uses on the current LCACs. Current technology initiatives include sustainability/reliability/readiness/performance analyses, LCAC communication improvements, compliance with Cybersecurity policy regulations, and LCAC Total Ownership Costs (TOC) reduction initiatives.

Landing Craft, Utility (LCU 1700): Replacement program for the current LCU 1610 class craft - a class of craft that has exceeded its 25-year planned service life by nearly double, average age of craft is approaching 50-years-old. LCU 1700 will provide similar payload, range, speed, and interoperability. Detail design contract awarded Q2 FY18.

The Amphibious Support Craft Vehicle (ASCV) which will be the Lighter Amphibious Resupply Cargo, 5 ton (LARC-V) Replacement, provides amphibious equipment and personnel transport as well as near shore salvage and diving capability.

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	1.657	1.789	2.200	-	2.200
Current President's Budget	1.650	1.789	1.991	-	1.991
Total Adjustments	-0.007	0.000	-0.209	-	-0.209
• 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	-0.243	-	-0.243
• Rate/Misc Adjustments	0.000	0.000	0.034	-	0.034

Change Summary Explanation

Due to LCU 1700 Construction delays, LCU 1700 Integrated Developmental/Operational Testing is expected to be completed 2nd quarter of 2025.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204413N / *Amphibious Tactical Supt U nits*	Project (Number/Name) 2231 / *LCAC / LCU 1700*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2231: *LCAC / LCU 1700*	35.189	1.153	1.279	1.471	-	1.471	1.742	1.523	1.373	1.401	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Landing Craft, Air Cushion (LCAC): Research and development efforts to transfer technologies into functional uses on the current LCACs. Ongoing technology initiatives include sustainability/reliability/readiness/performance analyses, LCAC communication improvements, Cybersecurity policy regulations compliance, and LCAC Total Ownership Costs (TOC) reduction initiatives.

Landing Craft, Utility (LCU 1700): Replacement program for the current LCU 1610 class craft - a class of craft that has exceeded its 25-year planned service life by nearly double, average age of craft is approaching 50-years-old. LCU 1700 will provide similar payload, range, speed, and interoperability. Detail design contract awarded Q2 FY18.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: LCAC and LCU 1700 RDT&E,N	1.153	1.279	1.471	0.000	1.471
Articles:	-	-	-	-	-
FY 2023 Plans: LCAC: - Continue to improve reliability and maintainability of the LCAC Hull, Mechanical & Electrical (HM&E) systems. - Maintain compliance with cybersecurity directives and mandates. LCU: - Conduct risk reduction efforts, which support Life Cycle/Total Ownership Cost (TOC) reductions for the class. - Conduct and Support Developmental Testing & Operational Testing (DT/OT).					
FY 2024 Base Plans: LCAC: - Continue to improve reliability and maintainability of the LCAC Hull, Mechanical & Electrical (HM&E) systems. - Maintain compliance with cybersecurity directives and mandates. LCU: - Continue risk reduction efforts, which support Life Cycle/Total Ownership Cost (TOC) reductions for the class.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204413N / *Amphibious Tactical Supt Units*	**Project (Number/Name)** 2231 / *LCAC / LCU 1700*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Continue Developmental Testing & Operational Testing (DT/OT). ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase to support the delivery and start of initial testing in August of FY23.					
Accomplishments/Planned Programs Subtotals	1.153	1.279	1.471	0.000	1.471

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• OPN 0970: *LCAC*	21.314	17.452	10.794	-	10.794	18.253	19.902	20.292	20.730	0.000	266.622
• SCN 5139: *LCAC SLEP*	17.712	36.301	15.286	-	15.286	55.147	56.153	57.274	58.511	0.000	1,771.250
• SCN 5100: *LCU 1700*	79.744	0.000	62.532	-	62.532	45.164	48.481	48.534	50.034	122.212	703.234

Remarks

D. Acquisition Strategy

Multiple contracts and Field Activities are involved to complete the various projects.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204413N / *Amphibious Tactical Supt U nits*	**Project (Number/Name)** 2231 / *LCAC / LCU 1700*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
LCAC - Systems Engineering	WR	NSWC : Various	8.117	0.184	Jan 2022	0.200	Jan 2023	0.200	Jan 2024	-		0.200	Continuing	Continuing	Continuing
LCU - Ship Design	WR	NSWC : Various	18.995	0.061	Dec 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	27.112	0.245		0.200		0.200		-		0.200	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
LCU - Research Studies	Various	Various : Various	0.656	0.125	Dec 2021	0.125	Dec 2022	0.130	Dec 2023	-		0.130	0.000	1.036	-
		Subtotal	0.656	0.125		0.125		0.130		-		0.130	0.000	1.036	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	WR	Various : Various	0.287	0.000		0.000		0.000		-		0.000	0.000	0.287	-
Prior Year Operational Test & Evaluation Not Funded FYDP (PYOT&E)	WR	NSWC PCD : Panama City, FL	2.047	0.000		0.000		0.000		-		0.000	0.000	2.047	-
Prior Year Live Fire Test & Evaluation Not Funded FYDP (PYLFT&E)	WR	NSWC PCD : Panama City, FL	0.850	0.000		0.000		0.000		-		0.000	0.000	0.850	-
Developmental Test & Evaluation (DT&E)	WR	Various : Various	1.162	0.396	Dec 2021	0.404	Nov 2022	0.625	Dec 2023	-		0.625	Continuing	Continuing	Continuing
Operational Test & Evaluation (OT&E)	WR	Various : Various	0.781	0.250	Nov 2021	0.514	Nov 2022	0.257	Jun 2024	-		0.257	Continuing	Continuing	Continuing
		Subtotal	5.127	0.646		0.918		0.882		-		0.882	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204413N / *Amphibious Tactical Supt U nits*	Project (Number/Name) 2231 / *LCAC / LCU 1700*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Support	WR	Various : Various	0.816	0.071	Jan 2022	0.013	Jan 2023	0.100	Mar 2024	-		0.100	0.000	1.000	-
Program Management	WR	Various : Various	1.403	0.066	Nov 2021	0.023	Nov 2022	0.159	Mar 2024	-		0.159	0.000	1.651	-
Travel	WR	NAVSEA : Not Specified	0.064	0.000		0.000		0.000		-		0.000	0.000	0.064	-
Defense Acquisition Workforce	MIPR	OSD : Not Specified	0.011	0.000		0.000		0.000		-		0.000	0.000	0.011	-
		Subtotal	2.294	0.137		0.036		0.259		-		0.259	0.000	2.726	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	35.189	1.153		1.279		1.471		-		1.471	Continuing	Continuing	N/A

Remarks

FY24 increase of LCU 1700 RDT&E funding is due to LCU 1700 Integrated Developmental/Operational Testing events taking longer than originally scheduled due to delays at the shipbuilder.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204413N / *Amphibious Tactical Supt U nits*	**Project (Number/Name)** 2231 / *LCAC / LCU 1700*

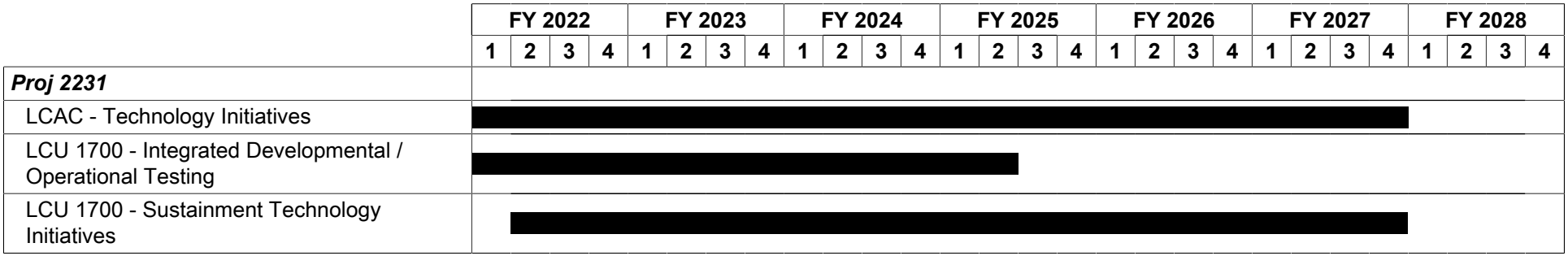


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204413N / *Amphibious Tactical Supt U nits*	**Project (Number/Name)** 2231 / *LCAC / LCU 1700*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2231				
LCAC - Technology Initiatives	1	2022	4	2027
LCU 1700 - Integrated Developmental / Operational Testing	1	2022	2	2025
LCU 1700 - Sustainment Technology Initiatives	2	2022	4	2027

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204413N / *Amphibious Tactical Supt Units*	Project (Number/Name) 2477 / *NECC Additive Manufacturing*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2477: *NECC Additive Manufacturing*	0.478	0.497	0.510	0.520	-	0.520	0.522	0.533	0.544	0.555	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

In accordance with the National Defense Strategy (NDS), A Design for Maintaining Maritime Superiority 2.0, and Navy Facility Command (NAVFAC) Strategic Design 2.0, this program provides the Navy with new capabilities to enable resilient and agile logistics thru additive manufacturing (AM). Investing in AM enhances the fleet's ability to conduct operational logistics in a contested environment, and ensures logistics supportability across the austere distributed battlespace. AM technology results in increased operational availability, on demand production of critical systems, and supply chain cost savings. This effort will identify critical parts suitable for AM production in the field; identify AM systems appropriate to produce and certify critical parts in the field; analyze and identify AM system implications across doctrine, organization, training, materiel, leadership and education, personnel, facilities and policy (DOTMLPF-P); conduct end-user training, field experimentation, and fleet exercise technology insertion to validate AM system capability and systems integration issues.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: NECC Additive Manufacturing	0.497	0.510	0.520	0.000	0.520
Articles:	-	-	-	-	-
FY 2023 Plans: - Begin development of Universal Facility Criteria for Additive Manufacturing (AM)Construction; complete Navy Expeditionary Combat Force (NECF)AM IT systems Authority to Operate (ATO); complete Navy Expeditionary Combat Enterprise (NECE) file repository; complete NAVFAC AM Policy development; perform a Business Case Analysis of AM in Expeditionary Maintenance Centers; evaluate 3D printers and support systems as noted in NECE AM Analysis of Alternatives (AoA) to determine military utility and suitability for initially fielding technology; continue other developmental efforts as noted in FY22.					
FY 2024 Base Plans: - Continue development of Universal Facility Criteria for AM Construction; modify Navy Expeditionary Combat Force (NECF) AM IT systems Authority to Operate (ATO) as required to adapt to any FY24 system configuration changes; implement NECC NIPR file repository and evaluate system military utility; modify NAVFAC AM Policy as required to adapt to ATO and data repository assessments; evaluate 3D printers and support systems as					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204413N / *Amphibious Tactical Supt Units*	**Project (Number/Name)** 2477 / *NECC Additive Manufacturing*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
noted in Navy Expeditionary Combat Enterprise (NECE) AM Analysis of Alternatives (AoA) to determine military utility and suitability for technology refresh; continue other developmental efforts as noted in FY23. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase of 0.01M will be applied to modifications to Additive Manufacturing Information Technology (AM IT) to operate.					
Accomplishments/Planned Programs Subtotals	0.497	0.510	0.520	0.000	0.520

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The projects identified in this budget have been carefully selected to respond to a series of extended user evaluations of commercial off the shelf (COTS) equipment by the warfighter with the goal of developing requirements for future additive manufacturing capabilities that will meet unique logistics alternatives. This effort will be executed by members of the expeditionary programs office in collaboration with various naval warfare centers and partners in the expeditionary additive manufacturing community of practice, and in conjunction with end users at the appropriate Type Commands. By working through the previously described sequence of analysis and experimental validation, we will identify the appropriate systems for in-field additive manufacturing while simultaneously informing end-user requirements development and program office acquisition plans..

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204413N / *Amphibious Tactical Supt U nits*	**Project (Number/Name)** 2477 / *NECC Additive Manufacturing*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	C/BA	EXWC : Port Hueneme, CA	0.378	0.358	Oct 2021	0.329	Oct 2022	0.332	Oct 2023	-		0.332	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	C/BA	Not Specified : Not Specified	0.100	0.139	Dec 2021	0.181	Dec 2022	0.188	Dec 2023	-		0.188	Continuing	Continuing	Continuing
		Subtotal	0.478	0.497		0.510		0.520		-		0.520	Continuing	Continuing	N/A

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.478	0.497		0.510		0.520		-		0.520	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204413N / *Amphibious Tactical Supt U nits*	**Project (Number/Name)** 2477 / *NECC Additive Manufacturing*

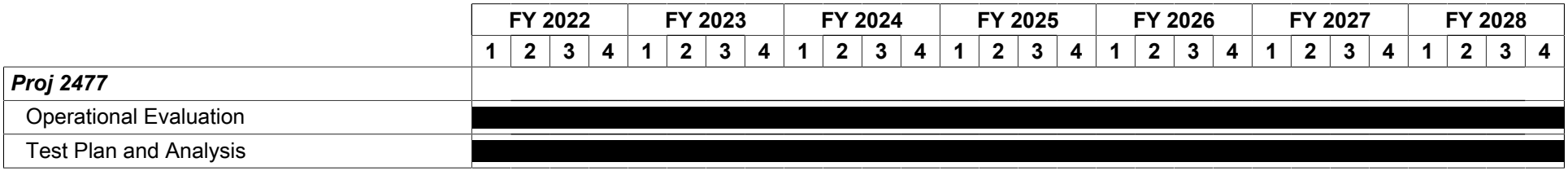


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204413N / *Amphibious Tactical Supt Units*	**Project (Number/Name)** 2477 / *NECC Additive Manufacturing*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2477				
Operational Evaluation	1	2022	4	2028
Test Plan and Analysis	1	2022	4	2028

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0204460M *I Ground/Air Task Oriented Radar (G/ATOR)*

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	522.787	43.761	61.104	92.674	-	92.674	54.414	23.585	16.026	16.347	Continuing	Continuing
9999: *Congressional Adds*	0.000	23.168	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	23.168
9C89: *Marine Ground-Air Radar*	522.787	20.593	61.104	92.674	-	92.674	54.414	23.585	16.026	16.347	Continuing	Continuing

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): 386

A. Mission Description and Budget Item Justification

The Ground/Air Task Oriented Radar (G/ATOR) is a multi-role, ground-based, expeditionary 3D radar system employed by both the Air Combat Element and Ground Combat Element within the Marine Air Ground Task Force. It satisfies the Marine Air Command and Control System and the Ground Counter Fire/Counter Battery capabilities. G/ATOR provides mobile, multi-functional, three-dimensional surveillance of air breathing targets, detection of cruise missiles, unmanned aerial systems, rockets, artillery and mortars, and the cueing of air defense weapons. G/ATOR contributes to Littoral Operations in a Contested Environment and Expeditionary Advanced Base Operations by surveillance and detection of enemy air threats not seen by Navy sensors in the littorals and 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. G/ATOR is the primary ground-based sensor for the United States Marine Corps, and is the only air defense/air surveillance radar currently in the Marine Corps inventory.

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	45.221	61.422	52.016	-	52.016
Current President's Budget	43.761	61.104	92.674	-	92.674
Total Adjustments	-1.460	-0.318	40.658	-	40.658
• Congressional General Reductions	-	-0.318			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.460	0.000			
• Program Adjustments	0.000	0.000	54.965	-	54.965
• Rate/Misc Adjustments	0.000	0.000	-14.307	-	-14.307

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0204460M *I Ground/Air Task Oriented Radar (G/ATOR)*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2022	FY 2023
Project: 9999: *Congressional Adds*		
Congressional Add: *AN/TPS-80 G/ATOR Naval Integrated Fire Control*	11.584	0.000
Congressional Add: *AN/TPS-80 G/ATOR Radar Signal Processor Refresh*	11.584	0.000
Congressional Add Subtotals for Project: 9999	23.168	0.000
Congressional Add Totals for all Projects	23.168	0.000

Change Summary Explanation

RDT&E funding increases $31.570M from FY 2023 to FY 2024 in order to continue to support the development and integration of software required to implement the full spectrum of Naval Integrated Fire Control, the development of a new Radar Signal Processor (RSP), replacing a 2007 vintage RSP, the continuation of the Ground Weapons Locating Radar user improvements identified during DT/OT and IOT&E testing, Multi-Domain Radar in a Contested Environment (MuDRaCE), as well as, the initiation of a new Digital Receiver/Exciter (DREX), Mode S, a Radar Tracker Software Enhancement (RTSE), and G/ATOR Block IV (GB4) Air Traffic Control development, while continuing to pursue software capability improvements providing both low, slow, small target detection and non-cooperative target recognition.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204460M / *Ground/Air Task Oriented Radar (G/ATOR)*	Project (Number/Name) 9999 / *Congressional Adds*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
9999: *Congressional Adds*	0.000	23.168	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	23.168
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Ground/Air Task Oriented Radar (G/ATOR) is a critical CMC Force Design program. G/ATOR is a multi-role, ground-based, expeditionary 3D radar system employed by both the Air Combat Element (ACE) and Ground Combat Element (GCE) within the Marine Air Ground Task Force. It satisfies the Marine Air Command and Control System and the Ground Counter Fire/Counter Battery capabilities. G/ATOR provides mobile, multi-functional, three-dimensional surveillance of air breathing targets, detection of cruise missiles, Unmanned Aerial Systems (UAS), Rockets, Artillery and Mortars, and the cueing of air defense weapons. G/ATOR contributes to Littoral Operations in a Contested Environment (LOCE) and Expeditionary Advanced Base Operations (EABO) by surveillance and detection of enemy air threats not seen by Navy sensors in the littorals and 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. G/ATOR is the primary Ground-Based sensor for the United States Marine Corps and is the only Air Defense/Air Surveillance radar currently in the Marine Corps inventory.

Due to an FY 2022 Congressional add, RDT&E funding decreases by $23.168M from FY 2022 to FY 2023. FY 2022 funding initiates the development and integration of software required to implement the full spectrum of Naval Integrated Fire Control (NIFC) and the development of a new Radar Signal Processor (RSP), replacing a 2007 vintage RSP.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023
Congressional Add: AN/TPS-80 G/ATOR Naval Integrated Fire Control ***FY 2022 Accomplishments:*** Initiates the first year of software development necessary for all G/ATOR systems to fully integrate Naval Integrated Fire Control (NIFC). ***FY 2023 Plans:*** N/A	11.584	0.000
Congressional Add: AN/TPS-80 G/ATOR Radar Signal Processor Refresh ***FY 2022 Accomplishments:*** Initiates the first year of development necessary to replace the current 2007-era Radar Signal Processor (RSP). ***FY 2023 Plans:*** N/A	11.584	0.000
Congressional Adds Subtotals	23.168	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204460M / *Ground/Air Task Oriented Radar (G/ATOR)*	**Project (Number/Name)** 9999 / *Congressional Adds*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The Ground/Air Task Oriented Radar (G/ATOR) acquisition strategy for both Naval Integrated Fire Control (NIFC) and the replacement of a 2007 vintage Radar Signal Processor (RSP) is to award these capability enhancements/improvements as task orders on the Northrup Grumman Mission Systems Sustainment Engineering and Logistics Support (SELS) contract, initially awarded 1Q FY 2021.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204460M / *Ground/Air Task Oriented Radar (G/ATOR)*	**Project (Number/Name)** 9999 / *Congressional Adds*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NAVAL INTEGRATED FIRE CONTROL	C/CPIF	NORTHROP GRUMMAN SYSTEMS CORPORATION : LINTHICUM HEIGHTS, MD	0.000	10.009	Nov 2022	0.000		0.000		-		0.000	0.000	10.009	-
RADAR SIGNAL PROCESSOR REFRESH	C/CPIF	NORTHROP GRUMMAN SYSTEMS CORPORATION : LINTHICUM HEIGHTS, MD	0.000	9.994	Nov 2022	0.000		0.000		-		0.000	0.000	9.994	-
		Subtotal	0.000	20.003		0.000		0.000		-		0.000	0.000	20.003	N/A

Remarks

Product Development funding decreases $20.835M from FY 2022 to FY 2023 due to a Congressional add. FY 2022 funds initiate the development and integration software required to implement the full spectrum of Naval Integrated Fire Control (NIFC) and the development of a new Radar Signal Processor (RSP), replacing a 2007 vintage RSP.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NSWC TECHNICAL SUPPORT	WR	NSWC DAHLGREN : DAHLGREN, VA	0.000	1.712	May 2022	0.000		0.000		-		0.000	0.000	1.712	-
		Subtotal	0.000	1.712		0.000		0.000		-		0.000	0.000	1.712	N/A

Remarks

Government Technical Support funding decreases $1.712M from FY 2022 to FY 2023 due to a Congressional add. FY 2022 funds initiate development and integration of software required to implement the full spectrum of NIFC and the development of a new RSP.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204460M / *Ground/Air Task Oriented Radar (G/ATOR)*	**Project (Number/Name)** 9999 / *Congressional Adds*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	Various	N/A : N/A	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	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MCSC MANAGEMENT SERVICES	Various	MCSC : QUANTICO, VA	0.000	1.378	Aug 2022	0.000		0.000		-		0.000	0.000	1.378	-
TRAVEL	Various	MCSC : QUANTICO, VA	0.000	0.075	May 2022	0.000		0.000		-		0.000	0.000	0.075	-
		Subtotal	0.000	1.453		0.000		0.000		-		0.000	0.000	1.453	N/A

Remarks

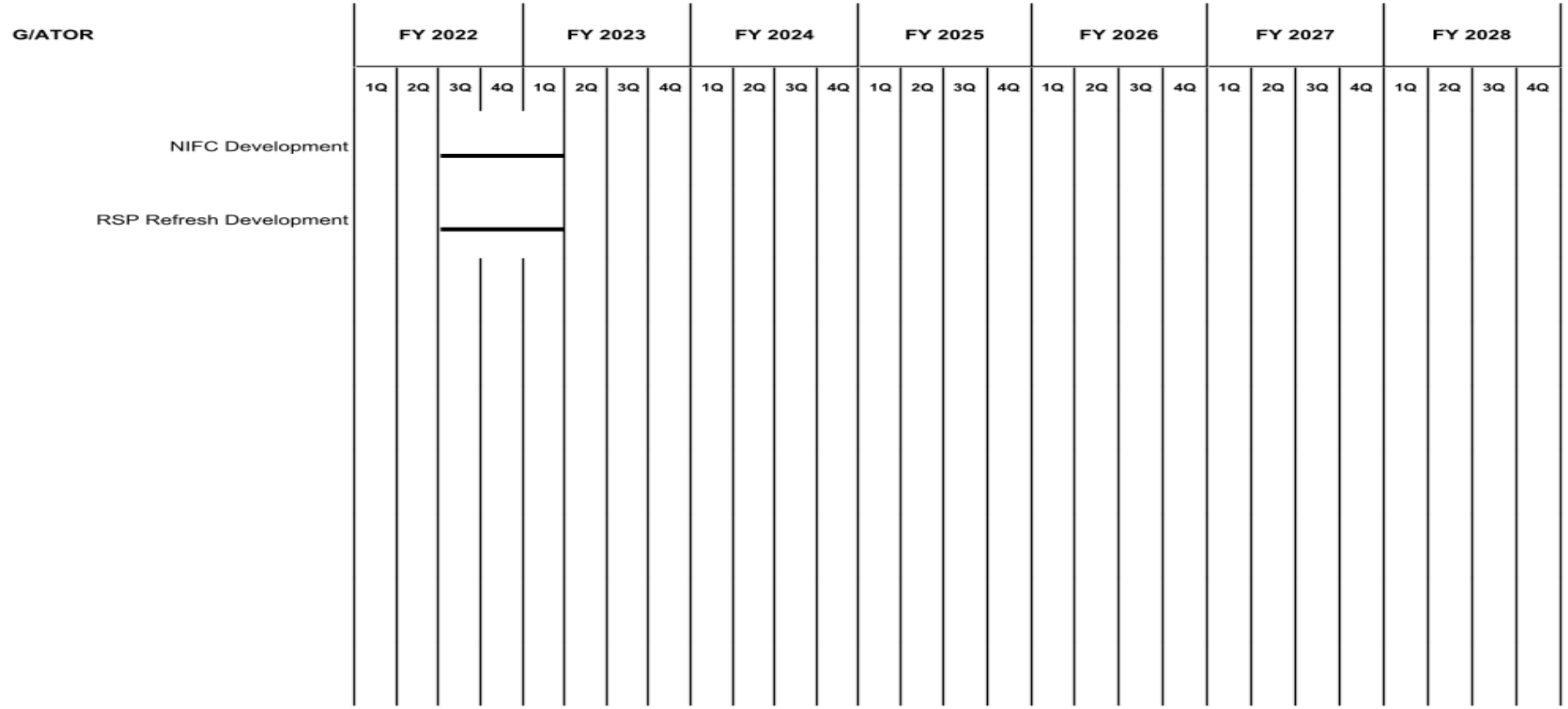
Program Office travel funding and management services decreases by $1.453M from FY 2022 to FY 2023 due to a Congressional add. FY 2022 funding supports the implementation of NIFC and RSP Refresh development.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	23.168		0.000		0.000		-		0.000	0.000	23.168	N/A

Remarks

Due to an FY 2022 congressional add, RDT&E funding decreases by $23.168M from FY 2022 to FY 2023. FY 2022 funds initiate development and integration of software required to implement the full spectrum of Naval Integrated Fire Control (NIFC) and development of a new Radar Signal Processor (RSP), replacing a 2007 vintage RSP.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204460M / *Ground/Air Task Oriented Radar (G/ATOR)*	**Project (Number/Name)** 9999 / *Congressional Adds*



2024DON - 0204460M - 9999

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204460M / *Ground/Air Task Oriented Radar (G/ATOR)*	**Project (Number/Name)** 9999 / *Congressional Adds*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
G/ATOR				
NIFC Development: Initiate Naval Integrated Fire Control Development	3	2022	1	2023
RSP Refresh Development: Initiate Radar Signal Processor Refresh Development	3	2022	1	2023

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204460M / *Ground/Air Task Oriented Radar (G/ATOR)*	Project (Number/Name) 9C89 / *Marine Ground-Air Radar*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
9C89: *Marine Ground-Air Radar*	522.787	20.593	61.104	92.674	-	92.674	54.414	23.585	16.026	16.347	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 386

A. Mission Description and Budget Item Justification

The Ground/Air Task Oriented Radar (G/ATOR) is a critical CMC Force Design program. G/ATOR is a multi-role, ground-based, expeditionary 3D radar system employed by both the Air Combat Element (ACE) and Ground Combat Element (GCE) within the Marine Air Ground Task Force. It satisfies the Marine Air Command and Control System and the Ground Counter Fire/Counter Battery capabilities. G/ATOR provides mobile, multi-functional, three-dimensional surveillance of air breathing targets, detection of cruise missiles, Unmanned Aerial Systems (UAS), Rockets, Artillery and Mortars, and the cueing of air defense weapons. G/ATOR contributes to Littoral Operations in a Contested Environment (LOCE) and Expeditionary Advanced Base Operations (EABO) by surveillance and detection of enemy air threats not seen by Navy sensors in the littorals and 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. G/ATOR is the primary Ground-Based sensor for the United States Marine Corps and is the only Air Defense/Air Surveillance radar currently in the Marine Corps inventory.

RDT&E funding increases $31.570M from FY 2023 to FY 2024 in order to continue to support the development and integration of software required to implement the full spectrum of Naval Integrated Fire Control, the development of a new Radar Signal Processor (RSP), replacing a 2007 vintage RSP, the continuation of the Ground Weapons Locating Radar user improvements identified during DT/OT and IOT&E testing, Multi-Domain Radar in a Contested Environment (MuDRaCE), as well as, the initiation of a new Digital Receiver/Exciter (DREX), Mode S, a Radar Tracker Software Enhancement (RTSE), and G/ATOR Block IV (GB4) Air Traffic Control development, while continuing to pursue software capability improvements providing both low, slow, small (LSS) target detection and non-cooperative target recognition (NCTR).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: G/ATOR Contractor Technical, Development Engineering/Block 1 (GB1)	12.629	41.065	61.255	0.000	61.255
Articles:	-	-	-	-	-
FY 2023 Plans: - Completes RSP Development. - Continues Electronic Protection, Cyber Protection & Systems Security efforts, as well as, NCTR and LSS Target Detection software development. - Continues the development and integration of software to implement NIFC.					
FY 2024 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204460M / *Ground/Air Task Oriented Radar (G/ATOR)*	**Project (Number/Name)** 9C89 / *Marine Ground-Air Radar*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Initiates the development of a new Digital Exciter/Receiver (DREX). - Initiates Mode S development. - Initiates the development of a Radar Tracker Software Enhancement (RTSE). - Will continue Electronic Protection, Cyber Protection & Systems Security efforts, as well as, NCTR and LSS Target Detection software development. - Will continue the development and integration of software to implement NIFC. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** G/ATOR Contractor Technical, Development Engineering Block 1 (GB1) funding increases from FY 2023 to FY 2024 to enhance both Radar and Force Survivability in a Peer/Near-Peer Competitor environment through the development and integration of software required to implement the full spectrum of NIFC, the development of a Radar Tracker Software Enhancement, Mode S and a new DREX, that are all necessary to implement Warfighter desired USMC Force Design 2030 capability enhancements.					
Title: G/ATOR Contractor Technical, Development Engineering/Block 2 (GB2)	0.000	2.897	3.129	0.000	3.129
Articles:	-	-	-	-	-
FY 2023 Plans: - Initiates the development of specific user enhancements for GB2 software in order to improve the operator's situational awareness, tracker performance refinements and allow for a quick assessment of the radar's state of operations and performance. ***FY 2024 Base Plans:*** - Continues the development of specific user enhancements for GB2 software in order to improve the operator's situational awareness, tracker performance refinements and allow for a quick assessment of the radar's state of operations and performance. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:***					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204460M / *Ground/Air Task Oriented Radar (G/ATOR)*	**Project (Number/Name)** 9C89 / *Marine Ground-Air Radar*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
G/ATOR Contractor Technical, Development Engineering Block 2 funding increases from FY 2023 to FY 2024 in order to continue enhancements to GB2 software that were identified during DT, OA and IOT&E.					
Title: G/ATOR Contractor Technical, Development Engineering/Block 4 (GB4) ***Articles:*** ***Description:*** A 2007 Marine Corps senior leadership decision directed the AN/TPS-80 would replace the Air Traffic Navigation Integration and Coordination System (ATNAVICS) as the Marine Corps' Airport Surveillance RADAR (ASR) for Air Traffic Control (ATC). ***FY 2023 Plans:*** N/A ***FY 2024 Base Plans:*** Initiates G/ATOR ATC development. RDT&E funds will begin development of the software baseline, update CAC2S/CTN interface, and address the ATC FAA certification for use within the National Airspace System (NAS). ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding increases from FY23 to FY24 to initiate development of the software baseline, update CAC2S/CTN interface, and address the ATC FAA certification for use within the NAS.	0.000 -	0.000 -	12.009 -	0.000 -	12.009 -
Title: Multi-Domain Radar in a Contested Environment (MuDRaCE) ***Articles:*** ***FY 2023 Plans:*** - Initiates the development of adaptive layers for C2 integration and for near and far range passive detection and air surveillance in spectrum dense environments. ***FY 2024 Base Plans:*** - Will continue the development of adaptive layers for C2 integration and for Near Range and Far Range passive detection and air surveillance in spectrum dense environments. ***FY 2024 OCO Plans:***	0.000 -	4.962 -	3.005 -	0.000 -	3.005 -

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204460M / *Ground/Air Task Oriented Radar (G/ATOR)*	**Project (Number/Name)** 9C89 / *Marine Ground-Air Radar*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: MuDRaCE is a Future Naval Capability (FNC) that transitioned from the Office of Naval Research (ONR) in FY 2023. MuDRaCE decreases from FY 2023 to FY 2024 in order to continue to enhance Radar and Force Survivability in a Peer/Near-Peer Competitor environment by allowing for aviation ground command and control agencies to minimize probability of detection through signature management.					
Title: Government Technical Support	4.968	8.112	9.005	0.000	9.005
Articles:	-	-	-	-	-
Description: The Government Technical Support Team provides primarily inherent governmental support functions, including Federally Funded Research and Development Centers (FFRDCs), adding depth, breadth, and expertise not resident in the G/ATOR Program Office. Functions include technical planning as well as execution and analysis across multi-disciplinary competencies to include: Systems Architecture, Radar Software Engineering, Radar Systems Engineering, Radar Decoy Engineering, Cyber Security/Information Assurance, Human Systems Integration, Safety, Program Protection and Configuration Management. It also includes the coordination necessary to enable a System of Systems interface with other programs in the "Cue to Slew" kill chain such as Air Command and Control and Sensor Netting (AC2SN), Composite Tracking Network (CTN) & Advanced Field Artillery Tactical Data System (AFATDS), Naval Integration Fire Control (NIFC) as well as, providing passive detection and air surveillance in spectrum dense enviroments via Multi-Domain Radar in a Contested Environment (MuDRaCE), ultimately ensuring platform/software compatibility. Technical Team support is vital during the both the G/ATOR System's Production phase and for the USMC Force Design capability enhancements, as it is the Government's responsibility to ensure that G/ATOR meets Government Performance Specification Verification.					
FY 2023 Plans: - Continues Government support from the following activities to enable program execution: MITRE; NAVAIR; NSWC Dahlgren; NSWC Crane; NAWC-AD China Lake; AIMS and DTIC. - Initiates Government support from NIWC Atlantic in support of MuDRaCE program execution.					
FY 2024 Base Plans: - Will continue Government support from the following activities to enable program execution: MITRE; NIWC Atlantic, NSWC Dahlgren; NSWC Crane; NAWC-AD China Lake; AIMS and DTIC.					
FY 2024 OCO Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204460M / *Ground/Air Task Oriented Radar (G/ATOR)*	**Project (Number/Name)** 9C89 / *Marine Ground-Air Radar*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Government Technical Support funding increases from FY 2023 to FY 2024 as G/ATOR continues to enhance Radar and Force Survivability in a Peer/Near-Peer Competitor environment with the initiation of RTSE, Mode S, a new DREX and GB4 development, as well as, the continued development of GB2 User Improvements, NIFC, LSS Targets, NCTR and MuDRaCE.					
Title: G/ATOR: Management Services & Travel	0.275	1.978	2.084	0.000	2.084
Articles:	-	-	-	-	-
FY 2023 Plans: - Continues to provide program office travel in support of system development and management services related to engineering test events. - Continues RDT&E related engineering, management, logistics program office support and travel for RSP Refresh, LSS Targets, NCTR and NIFC. - Initiates MuDRaCE transition. ***FY 2024 Base Plans:*** - Will continue to provide program office travel in support of system development and management services related to engineering test events. - Will continue RDT&E related engineering, management, logistics program office support and travel for LSS Targets, NCTR, NIFC and MuDRaCE. - Will initiate RDT&E related engineering, management, logistics program office support and travel for RTSE, Mode S, DREX and GB4. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Program Office travel funding and management services increases from FY 2023 to FY 2024 in order to continue to support the development of both Radar and Force Survivability capabilities needed in a Peer/Near-Peer Competitor environment.					
Title: G/ATOR: Test and Evaluation	2.721	2.090	2.187	0.000	2.187
Articles:	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204460M / *Ground/Air Task Oriented Radar (G/ATOR)*	**Project (Number/Name)** 9C89 / *Marine Ground-Air Radar*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
FY 2023 Plans: - Continues to conduct improved software capability and survivability related engineering testing focusing on Electronic Protection, Cyber Protection and Systems Security. ***FY 2024 Base Plans:*** - Will continue to conduct improved software capability and survivability related engineering testing focusing on Electronic Protection, Cyber Protection and Systems Security. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** G/ATOR Test and Evaluation funding increases from FY 2023 to FY 2024 as G/ATOR continues to enhance both Radar and Force Survivability capabilities needed in a Peer/Near-Peer Competitor environment.					
Accomplishments/Planned Programs Subtotals	20.593	61.104	92.674	0.000	92.674

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• RDTE/0604504N/0718: *AIR CONTROL MATCALS*	3.108	3.020	1.063	-	1.063	0.878	0.938	0.998	1.059	Continuing	Continuing
• PMC/7000: *INITIAL SPARES-G/ATOR*	13.609	14.422	14.802	-	14.802	15.118	15.387	15.665	15.978	Continuing	Continuing
• PMC/4655: *GROUND/AIR TASK ORIENTED RADAR*	339.369	365.943	66.291	-	66.291	72.141	55.026	56.529	57.660	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Ground/Air Task Oriented Radar (G/ATOR) is a multi-role, ground-based, expeditionary radar that replaces five legacy radar systems and provides the USMC Air Defense and Air Surveillance (AD/AS) (G/ATOR Block 1), Counterfire/Targeting (G/ATOR Block 2), and Air Traffic Control (G/ATOR Block 4) capability. The AD/AS (GB1) development effort was competitively awarded in 2007 and completed Milestone C in FY 2014. GB1 achieved Initial Operational Capability (IOC) in March 2018. Development of the Counterfire/Targeting (GB2) capability was initiated in FY 2010 with a RFI to industry, followed by a Business Case Analysis (BCA) to select the most cost-effective procurement strategy. The results of the BCA indicated that a sole source contract to Northrup Grumman Mission Systems (NGMS) was the most cost-effective solution. Thus, the GB2 development contract awarded in August FY 2015. GB2 achieved IOC in February 2019. The strategy for GB4 is

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204460M / *Ground/Air Task Oriented Radar (G/ATOR)*	**Project (Number/Name)** 9C89 / *Marine Ground-Air Radar*

to begin development in FY 2024 through FY 2025 with testing in FY 2026. The Full Rate Production (FRP) Contract with NGMS awarded in June 2019. FRP Lot 5 (Congressional Add) contract award is planned for Sept 2023. G/ATOR enhancements include a three-phased Electronic Protection, Cyber Protection and Systems Security effort, Radar Emplacement/Displacement improvements, G/ATOR Tactical Target Generators (Decoys), Low-Slow-Small (LSS) Target Detection, Non-Cooperative Target Recognition (NCTR), Naval Integrated Fire Control (NIFC), GB2 User Enhancements, Communications Modernization, Long Range Radar (LRR) Kits, replacement of a 2007 vintage Radar Signal Processor (RSP), the implementation of Multi-Domain Radar in a Contested environment (MuDRaCE), and the initiation of a Radar Tracker Software Enhancement (RTSE), Mode S, Digital Receiver/Exciter (DREX) and GB4 development, which are all necessary to increase both G/ATOR's and the Fleet Marine Force's survivability in a Peer/Near-Peer competitor environment. In order to improve G/ATOR's reliability and sustainability, the implementation of a Pallet Communications Support Processor (PCSP) Engineering Change Order (ECO) has been cut-in to FRP Lots 3 and 4, along with the retrofit of the remaining 29 Radar Systems. With the exception of MuDRaCE, these capability enhancements/ improvements will be awarded as task orders on the Northrup Grumman Mission Systems Sustainment Engineering and Logistics Support (SELS) contract, awarded 1Q FY 2021, that will support the continued development of G/ATOR capability enhancements and the deployment, sustainment and maintenance of delivered G/ATOR systems. A follow-on SELS II Contract is planned for 1Q FY 2026 through 4Q FY 2030. Post FY 2023, RSP Refresh continued development and procurement will be funded using America's Mid-Band Initiative Team (ABMIT) 5G funding.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
G/ATOR Block 1 (GB1)	C/CPIF	NORTHROP GRUMMAN SYSTEMS CORPORATION : LINTHICUM HEIGHTS, MD	253.133	12.629	Dec 2021	41.065	Dec 2022	61.255	Dec 2023	-		61.255	Continuing	Continuing	Continuing
G/ATOR Block 2 (GB2)	C/CPIF	NORTHROP GRUMMAN SYSTEMS CORPORATION : LINTHICUM HEIGHTS, MD	67.895	0.000		2.897	Jan 2023	3.129	Jan 2024	-		3.129	Continuing	Continuing	Continuing
G/ATOR Block 4 (GB4)	C/CPIF	NORTHROP GRUMMAN SYSTEMS CORPORATION : LINTHICUM HEIGHTS, MD	0.000	0.000		0.000		12.009	Jan 2024	-		12.009	Continuing	Continuing	Continuing
MuDRaCE	TBD	TBD : TBD	0.000	0.000		4.962	Feb 2023	3.005	Feb 2024	-		3.005	Continuing	Continuing	Continuing
		Subtotal	321.028	12.629		48.924		79.398		-		79.398	Continuing	Continuing	N/A

Remarks

G/ATOR Product Development funding increases from FY 2023 to FY 2024 in order to continue to develop Warfighter desired USMC Force Design Capability enhancements, that include NIFC, GB2 User Improvements, LSS Targets, NCTR and MuDRaCE, as well as, the initiation of RTSE, Mode S, DREX and GB4 development which are all necessary for Radar and Force Survivability in a Peer/Near-Peer Competitor environment. GB4 equates to G/ATOR Air Traffic Control (ATC) development. For ATC, RDT&E funds will begin development of the software baseline, update CAC2S/CTN interface, and address the ATC FAA certification for use within the National Airspace System (NAS).

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
FFRDC TECHNICAL SUPPORT	FFRDC	MITRE : BOSTON, MA	9.105	1.155	Dec 2021	1.154	Dec 2022	1.212	Dec 2023	-		1.212	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NSWC TECHNICAL SUPPORT	WR	NSWC DAHLGREN : DAHLGREN, VA	50.185	1.244	Dec 2021	3.252	Dec 2022	4.065	Dec 2023	-		4.065	Continuing	Continuing	Continuing
NSWC TECHNICAL SUPPORT	WR	NSWC CRANE : CRANE, IN	5.583	1.277	Dec 2021	1.274	Dec 2022	1.593	Dec 2023	-		1.593	Continuing	Continuing	Continuing
NAVAIR TECHNICAL SUPPORT	WR	NAWC AD : CHINA LAKE, CA	0.135	0.020	Dec 2021	0.020	Dec 2022	0.025	Dec 2023	-		0.025	Continuing	Continuing	Continuing
NAVAIR TECHNICAL SUPPORT	WR	NAVAIR : PAX RIVER, MD	6.104	0.740	Dec 2021	0.639	Dec 2022	0.000		-		0.000	Continuing	Continuing	Continuing
AIMS TECHNICAL SUPPORT	WR	AIMS : ROBINS AFB, GA	1.271	0.252	Dec 2021	0.244	Dec 2022	0.250	Dec 2023	-		0.250	Continuing	Continuing	Continuing
DTIC TECHNICAL SUPPORT	WR	DTIC : FT BELVOIR, VA	1.644	0.280	Dec 2021	0.262	Dec 2022	0.276	Dec 2023	-		0.276	Continuing	Continuing	Continuing
NIWC TECHNICAL SUPPORT	WR	NIWC LANT : NORTH CHARLESTON, SC	0.000	0.000		1.267	Dec 2022	1.584	Dec 2023	-		1.584	0.000	2.851	-
Prior Years Cumulative Funding	Various	N/A : N/A	22.670	0.000		0.000		0.000		-		0.000	0.000	22.670	-
		Subtotal	96.697	4.968		8.112		9.005		-		9.005	Continuing	Continuing	N/A

Remarks

Award dates reflected are the actual obligation date for the first incremental award. Most activities, excluding MITRE, are incrementally funded throughout the fiscal year. Government Technical Support funding increases from FY 2023 to FY 2024 as G/ATOR continues to enhance Radar and Force Survivability in a Peer/Near-Peer Competitor environment with the continued development of NIFC, GB2 User Improvements, LSS Targets, NCTR, MuDRaCE and the initiation of RTSE, Mode S, DREX and GB4 development.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	C/CPIF	NORTHROP GRUMMAN SYSTEMS CORPORATION :	18.770	0.783	Dec 2021	0.626	Dec 2022	0.657	Dec 2023	-		0.657	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204460M / *Ground/Air Task Oriented Radar (G/ATOR)*	**Project (Number/Name)** 9C89 / *Marine Ground-Air Radar*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		LINTHICUM HEIGHTS, MD													
Developmental Test & Evaluation (DT&E)	WR	NSWC DAHLGREN : DAHLGREN, VA	12.153	0.260	Dec 2021	0.253	Dec 2022	0.266	Dec 2023	-		0.266	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	Various	NSWC-FALLBROOK : CPEN, CA	10.372	0.215	Dec 2021	0.207	Dec 2022	0.217	Dec 2023	-		0.217	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	Various	NSWC CRANE : CRANE, IN	2.185	0.255	Dec 2021	0.228	Dec 2022	0.239	Dec 2023	-		0.239	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	Various	NSWC CORONA : CORONA, CA	8.268	0.199	Dec 2021	0.122	Dec 2022	0.128	Dec 2023	-		0.128	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	Various	NSWC PHD : DAM NECK, VA	7.022	0.204	Dec 2021	0.157	Dec 2022	0.165	Dec 2023	-		0.165	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	Various	MARFOR : Various	1.882	0.105	Dec 2021	0.102	Dec 2022	0.100	Dec 2023	-		0.100	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	SCSC : WALLOPS IS, MD	0.630	0.200	Jan 2022	0.197	Jan 2023	0.207	Jan 2024	-		0.207	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	MIPR	WSMR : OTERO, NM	0.000	0.250	Jan 2022	0.198	Jan 2023	0.208	Jan 2024	-		0.208	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	MIPR	DUGWAY AFB : DUGWAY, AZ	0.000	0.250	Jan 2022	0.000	Jan 2023	0.000		-		0.000	0.000	0.250	-
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	Various	N/A : N/A	2.513	0.000		0.000		0.000		-		0.000	0.000	2.513	-
Prior Year Operational Test & Evaluation Not Funded FYDP (PYOT&E)	Various	N/A : N/A	28.366	0.000		0.000		0.000		-		0.000	0.000	28.366	-
		Subtotal	92.161	2.721		2.090		2.187		-		2.187	Continuing	Continuing	N/A

Remarks

Award dates reflected are the actual obligation date for the first incremental award. G/ATOR Test and Evaluation funding increases from FY 2023 to FY 2024 as G/ATOR continues to enhance both Radar and Force Survivability capabilities needed in a Peer/Near-Peer Competitor environment.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204460M / *Ground/Air Task Oriented Radar (G/ATOR)*	**Project (Number/Name)** 9C89 / *Marine Ground-Air Radar*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
TRAVEL	Various	MCSC : QUANTICO, VA	2.290	0.275	Sep 2022	0.350	Sep 2023	0.375	Sep 2024	-		0.375	Continuing	Continuing	Continuing
MCSC MANAGEMENT SERVICES	Various	MCSC : MCSC - QUANTICO, VA	10.611	0.000		1.628	Feb 2023	1.709	Feb 2024	-		1.709	Continuing	Continuing	Continuing
		Subtotal	12.901	0.275		1.978		2.084		-		2.084	Continuing	Continuing	N/A

Remarks

Program Office travel funding and management services increases from FY 2022 to FY 2023 to continue to develop Warfighter desired USMC Force Design Capability enhancements, that include NIFC, GB2 User Improvements, LSS Targets, NCTR, MuDRaCE and the initiation of RTSE, Mode S and GB4 development.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	522.787	20.593		61.104		92.674		-		92.674	Continuing	Continuing	N/A

Remarks

Overall, RDT&E funding increases from FY 2023 to FY 2024 to continue to develop Warfighter desired USMC Force Design Capability enhancements, that include NIFC, GB2 User Improvements, LSS Targets, NCTR and MuDRaCE, as well as, the initiation of RTSE, Mode S and GB4 development, which are all necessary for Radar and Force Survivability in a Peer/Near-Peer Competitor environment.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204460M / *Ground/Air Task Oriented Radar (G/ATOR)*	**Project (Number/Name)** 9C89 / *Marine Ground-Air Radar*

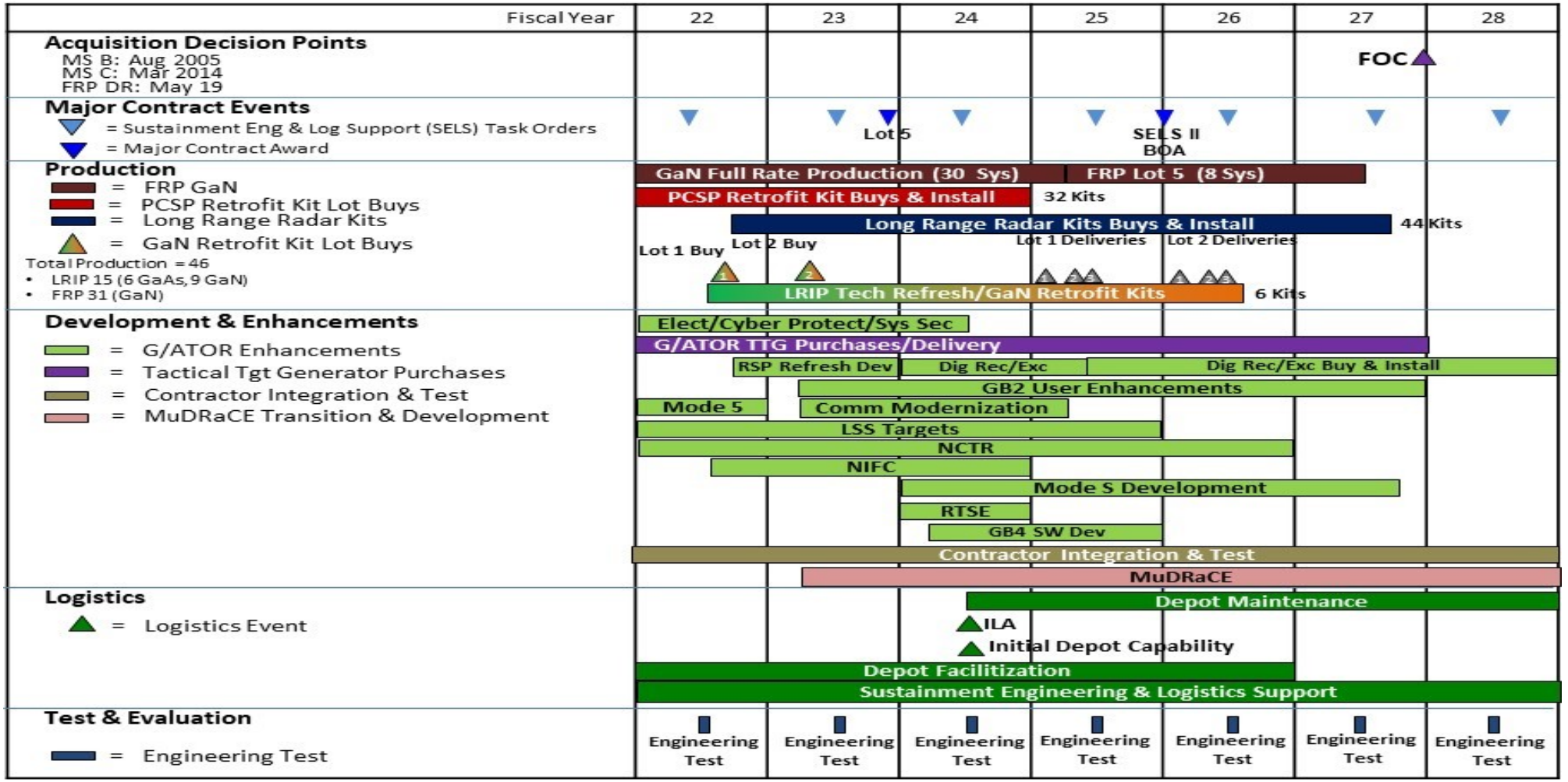


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204460M / *Ground/Air Task Oriented Radar (G/ATOR)*	**Project (Number/Name)** 9C89 / *Marine Ground-Air Radar*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 9C89				
Gallium Nitride (GaN) Radar: Gallium Nitride (GaN) Retrofit Kit Procurement Lot 1	3	2022	3	2022
Gallium Nitride (GaN) Radar: Gallium Nitride (GaN) Retrofit Kit Procurement Lot 2	2	2023	2	2023
Gallium Nitride (GaN) Radar: GaN Retrofit Kits Lot 1 Deliveries	1	2025	2	2025
Gallium Nitride (GaN) Radar: GaN Retrofit Kits Lot 2 Deliveries	1	2026	2	2026
Gallium Nitride (GaN) Radar: LRIP Tech Refresh	3	2022	3	2026
Gallium Nitride (GaN) Radar: GaN FRP	1	2022	2	2025
Gallium Nitride (GaN) Radar: Engineering Test 6	3	2022	3	2022
Gallium Nitride (GaN) Radar: Engineering Test 7	3	2023	3	2023
Gallium Nitride (GaN) Radar: PCSP Retrofit Kits Buys & Installs	1	2022	4	2024
Gallium Nitride (GaN) Radar: Long Range Radar Kits Buys & Installs	4	2022	3	2027
Gallium Nitride (GaN) Radar: Engineering Test 8	3	2024	3	2024
Gallium Nitride (GaN) Radar: Full Operational Capability (FOC)	4	2027	4	2027
Gallium Nitride (GaN) Radar: Engineering Test 9	3	2025	3	2025
Gallium Nitride (GaN) Radar: Engineering Test 10	3	2026	3	2026
Gallium Nitride (GaN) Radar: Engineering Test 11	3	2027	3	2027
Gallium Nitride (GaN) Radar: Engineering Test 12	3	2028	3	2028
FRP Lot 5 Radar: FRP Lot 5 Contract Award	4	2023	4	2023
FRP Lot 5 Radar: FRP Lot 5 Radar Production	2	2025	3	2027
Enhancements: Electronic/Cyber Protection & System Security	1	2022	2	2024
Enhancements: GB1 Tactical Target Generator Procurements/Deliveries	1	2022	4	2025
Enhancements: GB2 Tactical Target Generator Procurements/Deliveries	3	2025	2	2027

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204460M / *Ground/Air Task Oriented Radar (G/ATOR)*	**Project (Number/Name)** 9C89 / *Marine Ground-Air Radar*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Enhancements: GB2 User Enhancements	2	2023	4	2027
Enhancements: RSP Refresh Development	3	2022	4	2023
Enhancements: Digital Receiver/Exciter (DREX) Development	1	2024	2	2025
Enhancements: Digital Receiver/Exciter (DREX) Procurement and Installation	3	2025	4	2028
Enhancements: Comm Modernization	2	2023	1	2025
Enhancements: Mode 5 Development	1	2022	4	2022
Enhancements: Low, Slow, Small (LSS) Targets	1	2022	4	2025
Enhancements: Non-Cooperative Target Recognition (NCTR)	1	2022	4	2026
Enhancements: Naval Integrated Fire Control (NIFC)	3	2022	4	2024
Enhancements: Mode S Development	1	2024	3	2027
Enhancements: Contractor Integration & Test	1	2022	4	2028
Enhancements: MuDRaCE	2	2023	4	2028
Enhancements: Radar Tracker Software Enhancement (RTSE)	1	2024	4	2024
Enhancements: G/ATOR Block IV (GB4) Software Development	2	2024	4	2025
Logistics: Depot Facilitization (LRU Repair & IROAN)	1	2022	4	2026
Logistics: Sustainment Engineering and Logistics Support (SELS) Contract	1	2022	4	2025
Logistics: SELS II Contract	1	2026	4	2028
Logistics: ILA	3	2024	3	2024
Logistics: Initial Depot IROAN Capability	3	2024	3	2024
Logistics: Depot Maintenance	3	2024	4	2028

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0204571N *I Consolidated Trng Sys Dev*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	806.888	53.099	100.339	115.894	-	115.894	130.620	103.044	71.378	71.918	Continuing	Continuing
0604: *Training Range & Instr Dev*	163.098	2.418	3.380	4.300	-	4.300	4.259	4.116	4.191	4.276	Continuing	Continuing
1427: *Surface Tactical Team Trainer (STTT)*	278.719	30.322	13.721	33.057	-	33.057	56.108	43.786	25.779	24.878	Continuing	Continuing
1982: *Adversary Mission Systems*	0.000	0.000	0.000	5.140	-	5.140	5.290	5.948	4.000	4.600	Continuing	Continuing
2124: *Air Warfare Training*	55.262	1.591	1.754	1.734	-	1.734	1.764	1.795	1.823	1.860	Continuing	Continuing
3093: *TACTS/LATR Replacement*	274.446	17.179	51.287	68.632	-	68.632	63.148	47.340	35.532	36.248	Continuing	Continuing
3356: *High Fidelity Surface Trainers*	35.363	1.589	0.197	3.031	-	3.031	0.051	0.059	0.053	0.056	Continuing	Continuing
9999: *Congressional Adds*	0.000	0.000	30.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	30.000

A. Mission Description and Budget Item Justification

0604 - Training Range and Instrumentation Development (TRID) projects develop specialized instrumentations for fleet readiness training while minimizing life cycle costs. Projects are development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

1427 - Surface Tactical Team Trainer (STTT) develops modifications during sustainment of Battle Force Tactical Training (BFTT) system and modernization into the Advanced Training Domain (ATD). Both BFTT and ATD are the core systems that are used to integrate the weapon system elements, and combat system components to create the Total Ship Training Capability (TSTC). BFTT and ATD continue to integrate and update, as new tactical capabilities are being introduced, to enable crew operator proficiency training for basic and through sustainment level phase training events, through and distributed strike group certification Fleet Synthetic Training (FST) events and including COMPTUEX FST at Sea integration into Live, Virtual and Constructive (LVC) environment. Development of the next generation of ATD will align with combat systems virtualization efforts, and focus on increased fidelity to represent contested environments by leveraging the simulations used in the Combined Integrated Air and Missile Defense (IAMD) and Anti-Submarine Warfare (ASW) Trainer (CIAT), also known as CIAT to Sea. Continued Development is required to integrate new capabilities and interfaces to provide training for AEGIS and SSDS combat system capability upgrades, and to address the Fleet's Live, Virtual and Constructive (LVC) Fleet Training Wholeness (FTW) initiative. Additionally, modernization is needed to support the DoD Training Transformation Plan, the Chief of Naval Operations Fleet Response Plan (OFRP).

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0204571N *I Consolidated Trng Sys Dev*

1982 - Airborne Adversary Mission Systems builds upon existing RedNet architecture to allow classified software development and classified hardware integration with Tactical Combat Training System (TCTS) Increment II. This project will enable the aircrew to accurately emulate peer threat capabilities and provides a standalone Adversary 'Operational Flight Program (OFP)', that can be deployed on any aircraft with RedNet Multi-Layered Obstructed Brokered Hub (MOBHub) avionics architecture and TCTS Increment II pod. Primary platforms for development include the F-5, F-16 and F-18 within existing Naval Adversary Squadrons. These systems combined with a classified electronic kneeboard, allows for the development, integration and deployment of adversary mission hardware and software systems without modification of aircraft's existing OFP. This effort will provide for the future ability to participate fully in the LVC environment as well as provide physics and effects-based threat replications for the mission essential training of deploying Fleet aircrews.

2124 - Air Warfare Training Development (AWTD) provides for advanced technology maturation, risk mitigation, study and demonstration in support of naval aviation manned and unmanned platforms, operational flight trainers, maintenance trainers, training networks, distributed mission training, and Live Virtual Constructive (LVC) training applications. Supports the Navy Aviation Simulation Master Plan (NASMP) upgrade efforts and Type/Model/Series programs with advanced visual system display configurations requirements. Provides for Open Architecture (OA), and common systems interface applications. Assesses trainee cognitive requirements and the development and incorporation of next generation LVC, UAS constructive and associated visualization component technologies. Additionally, AWTD provides for advanced virtual component fidelity improvements for LVC capability which includes the "Mobility" Part-Task Trainers and the Multiplex Data Bus Controller Translator Transmitter enabling technologies. LVC technologies will facilitate advanced, cost effective weapons and tactics training and emerging capability requirements in the Air-Sea Battle Space and Naval Integrated Fire Control-Counter Air capabilities development. AWTD investigates training applications of emerging technologies such as Augmented Reality (AR), Virtual Reality (VR), and Mixed Reality (MR) Head Mounted Displays (HMD), haptic feedback devices, and cross domain solutions/ cybersecurity solutions (e.g., Blockchain technology).

3093 - The Tactical Combat Training System (TCTS) Increment II will provide an improved environment for air combat training utilizing a secure air-to-air and air-to-ground data link, and will provide rangeless operation capability to Forward Deployed Naval Forces (FDNF). TCTS Increment II will provide encryption and an enhanced threat environment, as well as airborne participant instrumentation for multiple fixed and rotary wing platforms. Engineering Development Model (EDM) units in multiple form factors are being developed in FY19 through FY26 and will support Engineering and Developmental Testing events through FY27. The EDMs will be specifically utilized for testing in the following areas: Environmental Qualification, Software, High Accelerated Lifecycle, Ground System Integration, Airborne Subsystem Air Worthiness and Performance, Shipboard Ground Station, Internal Mount and Rack Mounted Subsystem (Internal Mount) Airworthiness and Performance and JSF Airworthiness and Performance. TCTS Increment II provides the foundational encrypted airborne network for implementation of Aviation Live Virtual Constructive capabilities.

3093 (cont) Aviation Live Virtual Constructive (LVC) Live Aircraft Integration Phase 1 funds the integration of Live aircraft into the Live, Virtual, Constructive, blended training environment to close the Great Powers Competition training capability gap for mission rehearsal for the high end fight. Aviation LVC will establish an integrated System of Systems (SoS) training environment bringing already-developed capabilities together with new developmental efforts to form a cohesive architecture that accurately emulates the high end fight for warfighter training. LVC takes a hybrid approach to aviation and Fleet-wide training where the training audience in the form of Live personnel operating Live equipment (to include aircraft and surface vessels) on a Tactical Training Range (TTR) will be teamed with Live aircrew operating simulators to provide a Virtual complement in the "Blue Air" picture. The "Red" adversary for this training is made up of Live people operating Live aircraft complemented by computer generated "Red" Constructive Air and Surface threats that stimulate the "Blue" Air displays and sensors as if a "Red" Live adversary were present. Range

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0204571N *I Consolidated Trng Sys Dev*

Training Officers (RTO) operating at the TTR Operations Center monitor and oversee the overall mission picture while directing Live participants and controlling Constructive threats.

3356 - Funds high fidelity Aegis Integrated Air and Missile Defense (IAMD) individual, instructor, strike group and team trainers for all Advanced Capability Build (ACB) and below Aegis baselines. This line provides funds for development of a High Fidelity Aegis Combined Integrated Air and Missile Defense (IAMD) and Anti-Submarine Warfare (ASW) Trainer (CIAT). Additionally, this line funds the development of the Surface Training and Readiness Management System (STRMS). This line supports Surface Training Advanced Virtual Environment (STAVE) methodology by researching and developing trainers that will create an immersive and interactive learning environment and support both Chief of Naval Operations (CNO) High Velocity Learning and Ready Relevant Learning intent and developing advanced technology for collecting Sailor performance data to determine measured benefit of delivered training. NOTE: In FY18, Mine Warfare Synthetic Training requirements previously captured within PE 0204571N / Project 3356 [(High Fidelity Surface Trainer)] were realigned to PE 0603502N / Project 1235 [(Mine Warfare Planning and Analysis)].

JUSTIFICATON 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. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	52.741	70.339	93.326	-	93.326
Current President's Budget	53.099	100.339	115.894	-	115.894
Total Adjustments	0.358	30.000	22.568	-	22.568
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	30.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	1.400	0.000			
• SBIR/STTR Transfer	-1.042	0.000			
• Program Adjustments	0.000	0.000	21.904	-	21.904
• Rate/Misc Adjustments	0.000	0.000	0.664	-	0.664

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2022	FY 2023
Project: 9999: *Congressional Adds*		
Congressional Add: *Secure LVC advanced training environment*	0.000	20.000
Congressional Add: *Test capabilities acceleration - Barking Sands Undersea Range Extension*	0.000	10.000
Congressional Add Subtotals for Project: 9999	0.000	30.000

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0204571N *I Consolidated Trng Sys Dev*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2022	FY 2023
Congressional Add Totals for all Projects	0.000	30.000

Change Summary Explanation

0604: FY 2024 funding increase ($0.920M) supports program office restructure for improved program execution resulted in three new designations aligning the current programs as follows: Ocean Systems (OS), Air Combat Maneuvering Instrumentation (ACMI) formerly identified as TTR, and Range Equipment and Modernization (RE&M) formerly identified as LATR.

1427: FY 2024 funding increase ($19.336M) supports Fleet Training Wholeness (FTW) development and integration to allow shore operator training systems to be updated at the same time new shipboard combat system baselines are delivered, enabling school houses to begin training classes soon after a build is released, vice 6-12 months after. To integrate Synthetic Training Advanced Virtual Environment (STAVE) fidelity capabilities into the Total Ship Training Capability (TSTC) Advanced Training Domain (ATD)/Internal Training Domain (ITD) LVC Training Capability as part of the shipboard IaaS computing, networking and displays to enhance realistic training within a contested environment.

1982: FY 2024 funding increase ($5.140M) supports a new start for Adversary Mission Systems.

2124: FY 2024 funding decrease ($0.020M) due contract software development efforts and shifted requirements.

3093: FY 2024 funding increase ($17.345M) supports system testing and LVC integration.

3356: FY 2024 funding increase ($2.834M) supports Phase II of Surface Training Readiness Management System (STRMS) development.

Schedule Changes:
2124: AWTD tasks extended due to Adding/Capabilities for NGTS Analysis and Report as well as Fleet Adaptive Multi-Level Measurement for LVC. Flight Deck Trainer Expansion Pack now expected to end in 2025 as transition to new capability begins. TH-57 Evaluation Completion shifted to 2023 due to slowdown in data collection.

3093: Schedule updates are based on re-submittal of POM-25 Issue sheet for F-35 IM development and to alignment of Engineering & Development phased with IOC. Additionally, POM-23 funds for the development of Phase III, allowed testing to begin in 2023.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204571N / *Consolidated Trng Sys Dev*	Project (Number/Name) 0604 / *Training Range & Instr Dev*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
0604: *Training Range & Instr Dev*	163.098	2.418	3.380	4.300	-	4.300	4.259	4.116	4.191	4.276	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Training Range and Instrumentation Development projects develop specialized instrumentations for fleet readiness training while minimizing life cycle costs. Projects are development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Range Equipment & Modernization (RE&M)	1.029	0.099	0.124	0.000	0.124
Articles:	-	-	-	-	-
Description: Range Equipment & Modernization (RE&M) IPT. Consists of: Joint Advanced Weapons Scoring System (JAWSS) - comprised of: Weapons Impact Scoring Set (WISS) and Laser Training Systems (LTS). ***FY 2023 Plans:*** Two projects: Project 1: HSLESM - Design, fabricate, integrate, and test a prototype module to equip HSLESM with a visual indicator to enhance system feedback during laser targeting missions. Project 2: WISS - Design, integrate and test WISS v5 Controller software to take advantage of new software technologies and provide upgrades for existing WISS v5 implementations. Implement migration strategies from WISS v5 Controller 2.2 to WISS Controller 3 in order to maximize existing hardware while taking advantage of new technologies. ***FY 2024 Base Plans:*** Continue to develop RE&M specialized instrumentation and upgrade fielded systems of WISS and LTS. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY24 $0.025M increase supports prioritization of projects for RE&M efforts.					
Title: Air Combat Maneuvering Instrumentation (ACMI)	0.828	2.318	3.213	0.000	3.213

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 0604 / *Training Range & Instr Dev*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Articles:	-	-	-	-	-
Description: Air Combat Maneuvering Instrumentation (ACMI) IPT. Consists of: Large Area Tracking Range (LATR), Tactical Air Range Integration Facility (TARIF), and Tactical Combat Training Systems (TCTS) I. ***FY 2023 Plans:*** Four projects: Project 1: TCTS I/II - Develop and test upgrades to the Link-16 Interface, Joint Display Subsystem (JDS), Radar Acquisition Display Subsystem (RADS), Test and Training Enabling Architecture (TENA), Electronic Warfare (EW) server and Increment II new interface requirements. Project 2: LATR TENA - Continued LATR Ground System (LGS) software and Multi-Source System (MSS) software NIS (NCTE Interoperability Standard) TENA integration (Phase II/III), including LATR system health and status information. Project 3: LATR P-8A - Investigate feasibility of LATR tracking improvements on P-8A, including improving LSRTU tracking improvement, integrating the LATR AIP-FW or LATR AIP-FWI. Project 4: LITL - Design, integrate and test the LITL system to be further integrated into the live ranges' TCTS display and debrief systems to support a more complete LVC solution. Designing and improving the MIDS interface with LITL. ***FY 2024 Base Plans:*** Develop ACMI specialized instrumentation and upgrade fielded systems of TCTS I, LATR, TARIF, to include hardware upgrades at TARIF to meet software demands. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY24 $0.895M increase supports prioritization of projects including TARIF computer upgrades in ACMI Efforts.					
Title: Ocean Systems (OS)	0.561	0.963	0.963	0.000	0.963
Articles:	-	-	-	-	-
Description: Ocean Systems (OS) IPT: research, develop, and test technology improvements for fixed and portable Anti-Submarine Warfare (ASW) training ranges.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 0604 / *Training Range & Instr Dev*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
FY 2023 Plans: Two projects: Project 1: Single Ping - This capability will reduce weapon interference from standard tracking pingers on all Navy undersea Training, Test and Evaluation (TT&E) ranges (portable and fixed), improve training realism and track fidelity. Project 2: PROTF II - labor for IPT Lead to determine feasibility of improving underwater communications and increasing overall Portable Range tracking area. ***FY 2024 Base Plans:*** Continue to develop OS specialized instrumentation and upgrade fielded systems of USWTR and PUTR. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** No change in funding.					
Accomplishments/Planned Programs Subtotals	2.418	3.380	4.300	0.000	4.300

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• OPN/4204: *Weapons Range Support Equipment (WRSE)/ LSRTU/Ocean Systems*	87.748	106.209	147.556	-	147.556	143.807	162.621	162.970	166.339	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Training Range and Instrumentation Development (TRID) program is a non-ACAT program. The integrated product teams that develop new TRID capabilities include government and contractor engineering personnel.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204571N / *Consolidated Trng Sys Dev*	Project (Number/Name) 0604 / *Training Range & Instr Dev*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware Development	C/CPFF	JACOBS ENG : RIDGECREST, CA	13.889	0.000		0.000		0.000		-		0.000	0.000	13.889	13.889
Hardware Development	WR	NSWC : CORONA, CA	0.617	0.100	Nov 2021	0.107	Nov 2022	0.000		-		0.000	Continuing	Continuing	Continuing
Hardware Development	C/CPFF	ATI : Summerville, SC	0.150	0.000		0.000		0.000		-		0.000	0.000	0.150	0.150
Software Development	WR	NUWC : NEWPORT, RI	2.267	0.584	Nov 2021	0.963	Nov 2022	0.963	Nov 2023	-		0.963	Continuing	Continuing	Continuing
Software Development	C/CPFF	JACOBS ENG : RIDGECREST, CA	5.932	0.200	Nov 2021	1.071	Nov 2022	0.000		-		0.000	0.000	7.203	7.203
Software Development	WR	NAWC-AD : PAX RIVER, MD	11.696	0.500	Nov 2021	0.391	Nov 2022	0.820	Nov 2023	-		0.820	Continuing	Continuing	Continuing
Software Development	WR	NSWC : CORONA, CA	0.458	0.000		0.000		0.754	Nov 2023	-		0.754	0.000	1.212	-
Software Development	WR	NAWC-WD : POINT MUGU, CA	0.375	0.000		0.000		0.000		-		0.000	0.000	0.375	-
Prior Year Prod Dev No Longer Funded in the FYDP	Various	Various : Various	100.705	0.000		0.000		0.000		-		0.000	0.000	100.705	100.705
		Subtotal	136.089	1.384		2.532		2.537		-		2.537	Continuing	Continuing	N/A

Remarks

Increasing support at NAWCAD PAX and NSWC Corona for new software prototype projects.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NAWC-AD : PAX RIVER, MD	2.439	0.262	Nov 2021	0.136	Nov 2022	0.750	Nov 2023	-		0.750	Continuing	Continuing	Continuing
Systems Engineering	WR	NAWC-WD : CHINA LAKE, CA	3.251	0.772	Nov 2021	0.712	Nov 2022	1.013	Nov 2023	-		1.013	0.000	5.748	5.748

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204571N / *Consolidated Trng Sys Dev*	Project (Number/Name) 0604 / *Training Range & Instr Dev*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NSWC : CORONA, CA	1.231	0.000		0.000		0.000		-		0.000	0.000	1.231	1.231
Systems Engineering	WR	GSA : Washington, DC	0.124	0.000		0.000		0.000		-		0.000	0.000	0.124	0.124
Prior Year Support No Longer Funded in the FYDP	Various	Various : Various	10.926	0.000		0.000		0.000		-		0.000	0.000	10.926	10.926
		Subtotal	17.971	1.034		0.848		1.763		-		1.763	Continuing	Continuing	N/A

Remarks

FY24 increased engineering support at NAWCAD PAX and NAWCAD CLK for Fleet emergent projects.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	Various	Various : Various	5.299	0.000		0.000		0.000		-		0.000	0.000	5.299	5.299
		Subtotal	5.299	0.000		0.000		0.000		-		0.000	0.000	5.299	N/A

Management Services ($ in Millions)

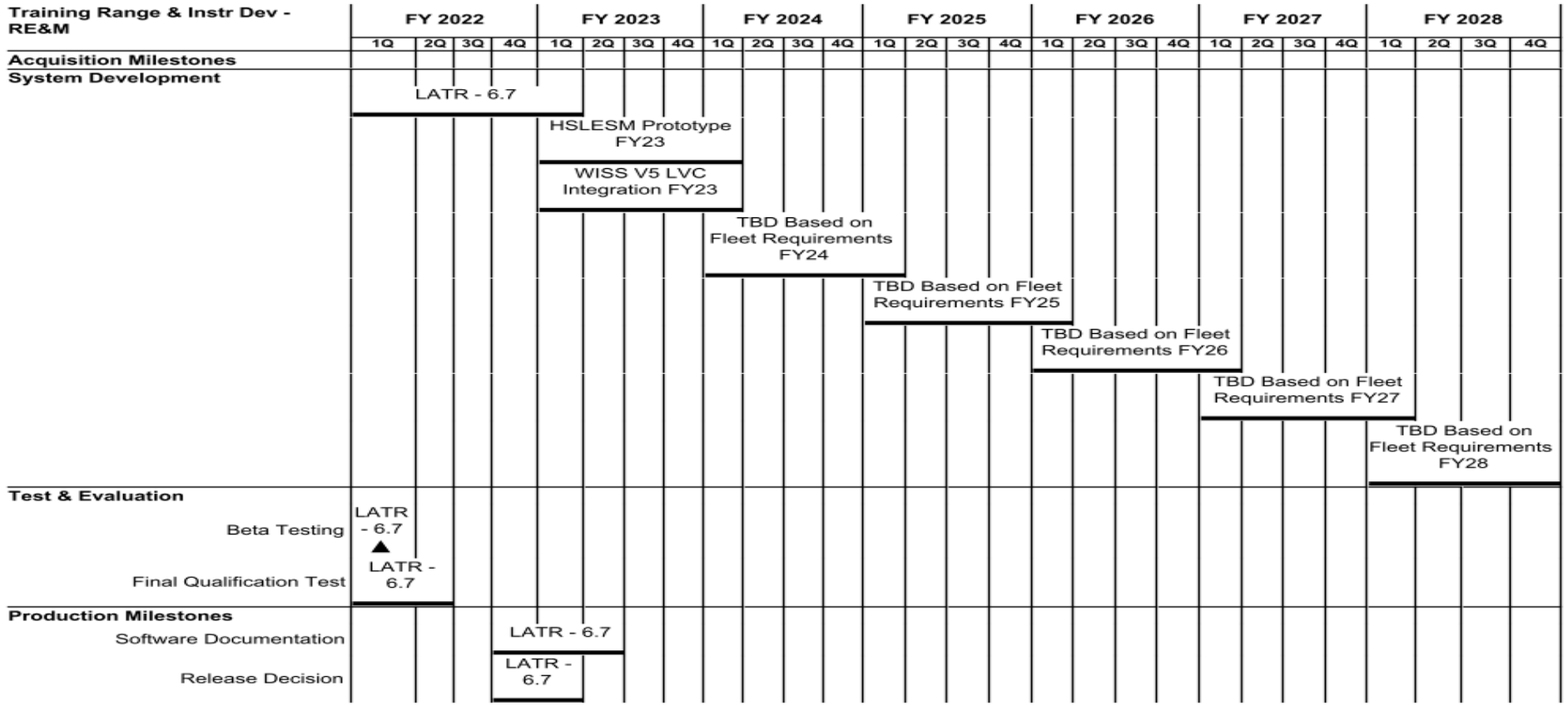
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Support No Longer Funded in the FYDP	Various	Various : Various	3.739	0.000		0.000		0.000		-		0.000	0.000	3.739	3.739
		Subtotal	3.739	0.000		0.000		0.000		-		0.000	0.000	3.739	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204571N / *Consolidated Trng Sys Dev*	Project (Number/Name) 0604 / *Training Range & Instr Dev*	

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	163.098	2.418		3.380		4.300		-		4.300	Continuing	Continuing	N/A

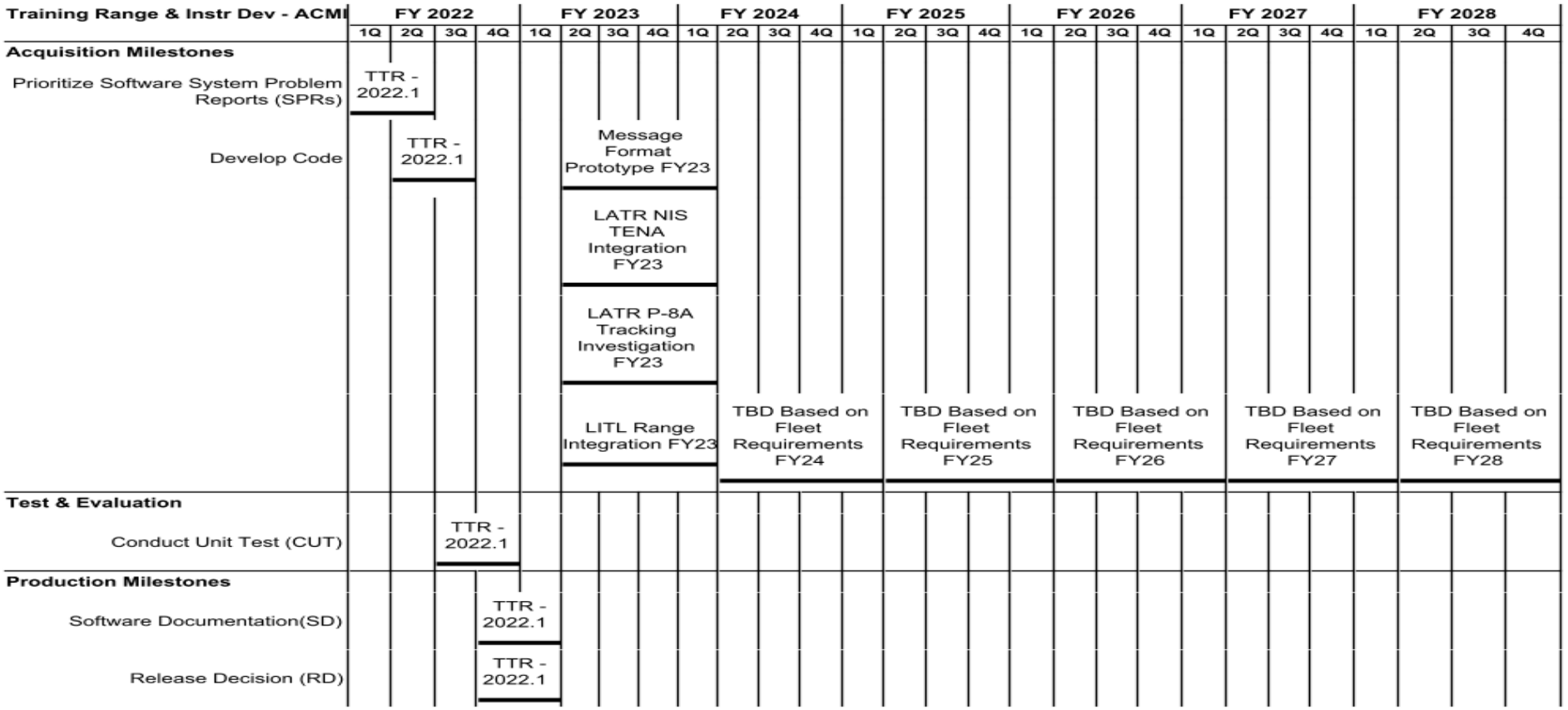
Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 0604 / *Training Range & Instr Dev*



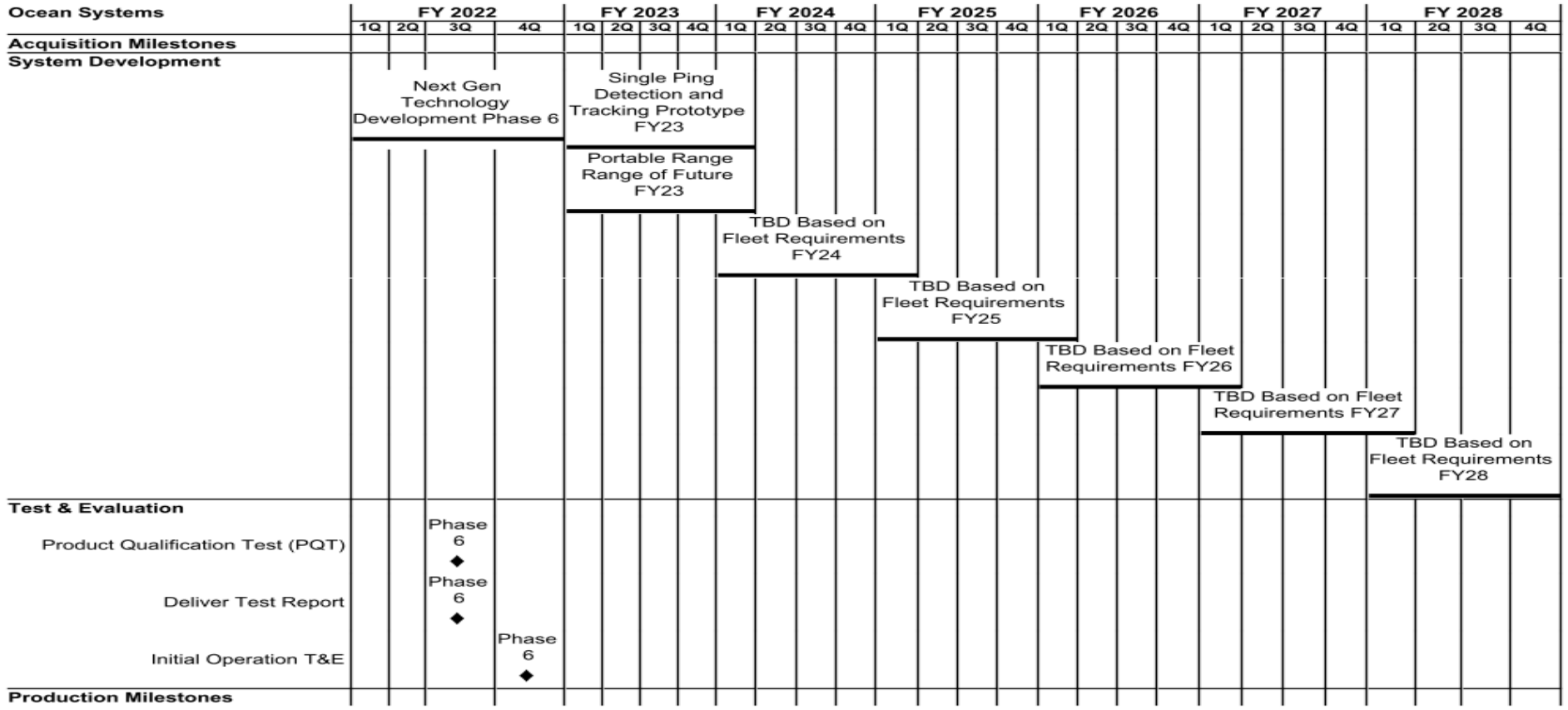
2024DON - 0204571N - 0604

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 0604 / *Training Range & Instr Dev*



2024DON - 0204571N - 0604

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 0604 / *Training Range & Instr Dev*



2024DON - 0204571N - 0604

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 0604 / *Training Range & Instr Dev*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Training Range & Instr Dev - RE&M				
System Development: LATR - 6.7 Software Engineering Development	1	2022	1	2023
System Development: RE&M - HSLESM Prototype FY23	1	2023	1	2024
System Development: RE&M - WISS V5 LVC Integration FY23	1	2023	1	2024
System Development: RE&M - TBD Based on Fleet Requirements FY24	1	2024	1	2025
System Development: RE&M - TBD Based on Fleet Requirements FY25	1	2025	1	2026
System Development: RE&M - TBD Based on Fleet Requirements FY26	1	2026	1	2027
System Development: RE&M - TBD Based on Fleet Requirements FY27	1	2027	1	2028
System Development: RE&M - TBD Based on Fleet Requirements FY28	1	2028	4	2028
Test & Evaluation: Beta Testing: LATR - 6.7	1	2022	1	2022
Test & Evaluation: Final Qualification Test: LATR - 6.7 Final Qualification Test	1	2022	2	2022
Production Milestones: Software Documentation: LATR - 6.7	4	2022	2	2023
Production Milestones: Release Decision: LATR - 6.7	4	2022	1	2023
Training Range & Instr Dev - ACMI				
Acquisition Milestones: Prioritize Software System Problem Reports (SPRs): TTR - 2022.1	1	2022	2	2022
Acquisition Milestones: Develop Code: TTR - 2022.1	2	2022	3	2022
Acquisition Milestones: Develop Code: ACMI - LATR NIS TENA Integration FY23	2	2023	1	2024
Acquisition Milestones: Develop Code: ACMI - LATR P-8A Tracking Investigation FY23	2	2023	1	2024
Acquisition Milestones: Develop Code: ACMI - LITL Range Integration FY23	2	2023	1	2024
Acquisition Milestones: Develop Code: ACMI - TBD Based on Fleet Requirements FY24	2	2024	1	2025
Acquisition Milestones: Develop Code: ACMI - TBD Based on Fleet Requirements FY25	2	2025	1	2026

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 0604 / *Training Range & Instr Dev*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Acquisition Milestones: Develop Code: ACMI - TBD Based on Fleet Requirements FY26	2	2026	1	2027
Acquisition Milestones: Develop Code: ACMI - TBD Based on Fleet Requirements FY27	2	2027	1	2028
Acquisition Milestones: Develop Code: ACMI - TBD Based on Fleet Requirements FY28	2	2028	4	2028
Test & Evaluation: Conduct Unit Test (CUT): TTR - 2022.1	3	2022	4	2022
Production Milestones: Software Documentation(SD): TTR - 2022.1	4	2022	1	2023
Production Milestones: Release Decision (RD): TTR - 2022.1	4	2022	1	2023
Ocean Systems				
System Development: Next Gen Technology Development Phase 6	1	2022	4	2022
System Development: Single Ping Detection and Tracking Prototype FY23	1	2023	1	2024
System Development: Portable Range Range of Future FY23	1	2023	1	2024
System Development: OS - TBD Based on Fleet Requirements FY24	1	2024	1	2025
System Development: OS - TBD Based on Fleet Requirements FY25	1	2025	1	2026
System Development: OS - TBD Based on Fleet Requirements FY26	1	2026	1	2027
System Development: OS - TBD Based on Fleet Requirements FY27	1	2027	1	2028
System Development: OS - TBD Based on Fleet Requirements FY28	1	2028	4	2028
Test & Evaluation: Product Qualification Test (PQT): Phase 6	3	2022	3	2022
Test & Evaluation: Deliver Test Report: Phase 6	3	2022	3	2022
Test & Evaluation: Initial Operation T&E: Phase 6	4	2022	4	2022

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0204571N / *Consolidated Trng Sys Dev*				Project (Number/Name) 1427 / *Surface Tactical Team Trainer (STTT)*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
1427: *Surface Tactical Team Trainer (STTT)*	278.719	30.322	13.721	33.057	-	33.057	56.108	43.786	25.779	24.878	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Department's submission reflects the results of a deep dive into Fleet Training Wholeness (FTW) and how to provide a means for Strike Group Training in a contested environment, in accordance with Chief of Naval Operations guidance and Fleet Training Wholeness 2025 objectives. The analysis determined the most cost effective means to provide this training is via a combination of Live Virtual Constructive (LVC) capabilities. The department of the Navy has identified 21 LVC Capabilities that began in FY19 leveraging combat system product line architecture components, contract vehicles, warfare center subject matter experts, and engineering practices for iterative development. The deep dive identified that there is no other cost effective way to train in a contested environment. The foundation for LVC has already been established and will continue to execute the investment strategy to provide initial underway LVC capability to train Strike Group(s) in an environment that they expect to fight in. The development, integration and testing of LVC's, along with ensuring interoperability with surface and air communities, will be accomplished across Integrated Warfare Systems (IWS), Navy Continuous Training Environment (NCTE), and the Navy's Tactical Training Network.

Surface Tactical Team Trainer (STTT) develops modifications during sustainment of Battle Force Tactical Training (BFTT) system and modernization into the Advanced Training Domain (ATD). Both BFTT and ATD are the core system that is used to integrate the weapon system elements, and combat system components to create the Total Ship Training Capability (TSTC). BFTT and ATD continue to integrate and update, as new tactical capabilities are being introduced, to enable crew operator proficiency training for basic and sustainment level training events, through distributed strike group certification fleet synthetic training (FST) events and including Composite Training Unit Exercise (COMPTUEX) FST underway LVC events. Continued Development is required to integrate new capabilities and interfaces to provide training for AEGIS and Ships Self Defense System (SSDS) combat system capability upgrades, and to address the Fleet's LVC FTW initiative. Additionally, modernization is needed to support the Department of Defense (DoD) Training Transformation Plan, the Chief of Naval Operations Fleet Response Plan and Commander United States Fleet Forces Command Fleet Readiness Training Plan.

The Advanced Training Domain (ATD) is being developed to combine BFTT and the AEGIS Combat Training System (ACTS) into a common system that integrates with AEGIS Base Line (BL) 9.2.2 And Follow (AF), and Ships Self Defense System (SSDS) BL 12.xAF. ATD is being hosted along with the AEGIS and SSDS combat system on Technical Insertion TI-12H & TI-16 common processing and display hardware. ATD is being designed to be the core of the Total Ship Training Capability, and is projected to be more reliable, simpler to use, and architecturally extensible to meet interoperability and capability enhancement challenges in the future.

The ATD is undergoing transformation to align with various virtualization and modernization efforts being accomplished within the surface combat systems. ATD is being augmented through the development and adaptation of high fidelity simulations used in the Combined Integrated Air and Missile Defense (IAMD) Anti-Submarine Warfare (ASW) Trainer (CIAT), for the purposes of providing high fidelity, LVC training capability that represents the high end fight in a contested environment. These enhancements will align to the combat systems Infrastructure as a Service (IaaS) virtualization efforts to provide the required training capability to the ships. This effort has been referred to as CIAT to SEA/Internal Training Domain (ITD).

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 1427 / *Surface Tactical Team Trainer (STTT)*

The BFTT and ATD are being updated to maintain integration and capability enhancements developed for the Cooperative Engagement Capability (CEC), Surface Electronic Warfare Improvement Program (SEWIP), Carrier Tactical Support Center (CV-TSC), and SSDS Fire Control Loop Improvement Program.

TSTC provides realistic joint warfare training across the spectrum of armed conflict, realistic unit level team training in all warfare areas (e.g. Naval Integrated Fire Control - Counter Air (NIFC-CA) and Ballistic Missile Defense (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 FST/LVC events.

Continue development and integration of MH-60R simulator to enable single ship basic and sustainment training, and distributed multi-ship pier-side Fleet Synthetic Training (FST) events. Changes align to tactical updates.

Continue development and integration of Cooperative Engagement Capability (CEC) Enhanced Training (CET) to enable single ship basic and sustainment training, and distributed multi-ship pier-side FST events. CET is an enabler for proficiency training of NIFC-CA capability. Changes align to tactical updates.

Complete development and integration of upgrades to Battleforce Electronic Warfare Trainer (BEWT) to support soft kill training with NULKA Decoys capability upgrades to AN/SLQ-32 Electronic Warfare System, in the areas of Softkill and Electronic Attack.

Complete development of Identification Friend or Foe (IFF) simulator to enable training of Modes 1, 2, 3A, 4, C, 5 and S on both AEGIS and SSDS ships. Capability will enable training of AEGIS and SSDS IFF MODE 5/S and address Mode 4 Inoculation.

Continue development to integrate commensurate training improvements to Ships Self Defense System in support of Enhanced Sea Sparrow Missile (ESSM) and Electronic Warfare (EW) tactical improvements.

Continue development and integration of Navy Continuous Training Environment (NCTE) networking and cyber security upgrades.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Surface Tactical Team Trainer (STTT)	11.926	9.056	9.600	0.000	9.600
Articles:	-	-	-	-	-
FY 2023 Plans: Complete Integration and Delivery of ATD with SSDS BL CP 1 and SSDS BL CP 2. Continue development, integration and testing ATD with AEGIS BL 10. Continue development and integration of ATD to incorporate training capabilities to support AEGIS and SSDS tactical capability updates.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 1427 / *Surface Tactical Team Trainer (STTT)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Continue developing and delivering threat data base updates to enable ships crews to train to relevant near-peer threats. ***FY 2024 Base Plans:*** Complete Integration and Delivery of ATD with SSDS BL CP 3. Continue development, integration and testing ATD with AEGIS BL 10. Continue development and integration of ATD to incorporate training capabilities to support AEGIS and SSDS tactical capability updates. Continue developing and delivering threat data base updates to enable ships crews to train to relevant near-peer threats. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY24 $0.544M increase due to inflation and work continuation.					
Title: Fleet Training Wholeness	14.396	4.665	13.932	0.000	13.932
Articles:	-	-	-	-	-
FY 2023 Plans: Continue development of integrated combat system data collection and after-action review products that will provide an effective means for instructors to assess crew performance. Complete Integration and testing of Strike Group CEC Underway Training Capability on AEGIS and SSDS ships. Fleet introduction of this capability begins in FY23. Complete Integration and testing of VTBeSR on AEGIS and SSDS ships. Complete Integration and testing of Simulation over Live capabilities implemented into shipboards sensor systems. ***FY 2024 Base Plans:*** Continue development of integrated combat system data collection and after-action review products that will provide an effective means for instructors to assess crew performance. Begin development of common ship/shore virtualized computing, networking and display infrastructure to allow shore operator training systems to be updated at the same time new combat system baselines are delivered. Begin updates to Cooperative Engagement Capability (CEC) Training capability updates to align with CEC Block II redesign.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 1427 / *Surface Tactical Team Trainer (STTT)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Begin updates to shipboard integrated training After-Action Review and Debrief capability. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY24 $9.267M increase provided to develop and field an AEGIS and SSDS integrated ship and shore LVC test and training architecture supporting all phases of training to enable Unit and Strike Group, in-port and at-sea high-end fight combat systems tactical training and debrief for 133 Aegis and SSDS FFG, DDG, CG, Amphibs and Carriers. Increase is to facilitate development of common computing infrastructure, software virtualization to allow shore operator training systems to be updated at the same time new combat system baselines are delivered. Additionally, to provide for CEC Training Capability redesign in support of CEC Block II development to enable ships to train remote engagements as done tactically. Finally, to update and integrate of After-Action Review and Debrief capability into shipboard combat systems to reinforce learning conducted during shipboard basic through strike group training and certification events.					
Title: ITD/Integrated Training Architecture	4.000	0.000	9.525	0.000	9.525
Articles:	-	-	-	-	-
FY 2023 Plans: N/A ***FY 2024 Base Plans:*** Conduct systems engineering and development activities to integrate Surface Training Advanced Virtual Environment (STAVE) high fidelity simulations and the Advanced Training Domain (ATD)/Internal Training Domain (ITD) Live, Virtual and Constructive (LVC) Training Capability within the Integrated Combat System (ICS) Infrastructure as a Service (IaaS) computing, networking and displays to enable realistic training within a contested environment, leveraging concepts and lessons learned from LVC integration efforts conducted in fleet training wholeness. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY24 $9.525M increase provided to integrate Surface Training Advanced Virtual Environment (STAVE) fidelity capabilities into the Total Ship Training Capability (TSTC) Advanced Training Domain (ATD)/Internal Training					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 1427 / *Surface Tactical Team Trainer (STTT)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Domain (ITD) LVC Training Capability as part of the shipboard IaaS computing, networking and displays to enhance realistic training within a contested environment.					
Accomplishments/Planned Programs Subtotals	30.322	13.721	33.057	0.000	33.057

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• RDTE/0604307N/3357: *Aegis Training Improvement Program*	6.932	6.379	8.187	-	8.187	11.105	10.009	7.688	7.484	Continuing	Continuing
• RDTE/0604755N/3358: *SSDS Training Improvement Program*	11.983	9.732	8.147	-	8.147	13.639	11.939	9.755	9.536	Continuing	Continuing
• OPN/5664/MB040/MB5IN: *Other Training Equipment (Surface BFTT/ TSTC portion only) New BLI FY17*	30.283	34.069	57.921	-	57.921	61.884	51.905	43.046	44.012	Continuing	Continuing

Remarks

D. Acquisition Strategy

The BFTT acquisition strategy for system development utilizes the Advanced Capability Build (ACB) development model, as mandated by the Office of the Chief of Naval Operations (OPNAV). Incremental acquisition and fielding, utilizing commercial off-the-shelf technology to the extent possible, is in accordance with OPNAV LTR Ser N86/9U179029 dtd 31 Jul 09.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204571N / *Consolidated Trng Sys Dev*	Project (Number/Name) 1427 / *Surface Tactical Team Trainer (STTT)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware Development	C/FFP	GTS : Virginia Beach, VA	17.828	0.610	Dec 2021	0.620	Dec 2022	2.948	Dec 2023	-		2.948	Continuing	Continuing	Continuing
Systems Engineering	WR	SEA02/NSWC Dam Neck/NSWC Dahlgren : NAVSEA/ Dam Neck/NSWC Dahlgren	96.451	14.600	Dec 2021	6.516	Dec 2022	12.085	Dec 2023	-		12.085	Continuing	Continuing	Continuing
Software Development	WR	NSWC Dam Neck/ SEA 02 : WR/REQN	114.642	11.261	Dec 2021	4.585	Dec 2022	15.079	Dec 2023	-		15.079	0.000	145.567	-
		Subtotal	228.921	26.471		11.721		30.112		-		30.112	Continuing	Continuing	N/A

Remarks

Software development moved into Product Development section.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation (OT&E)	WR	NSWC Dam Neck/ SEA 02 : WR/REQN	31.511	2.651	Dec 2021	1.000	Dec 2022	1.552	Dec 2023	-		1.552	Continuing	Continuing	Continuing
		Subtotal	31.511	2.651		1.000		1.552		-		1.552	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support	WR	NSWC Dam Neck/ SEA02 : WR/REQN	18.287	1.200	Dec 2021	1.000	Dec 2022	1.393	Dec 2023	-		1.393	Continuing	Continuing	Continuing
		Subtotal	18.287	1.200		1.000		1.393		-		1.393	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204571N / *Consolidated Trng Sys Dev*	Project (Number/Name) 1427 / *Surface Tactical Team Trainer (STTT)*	

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	278.719	30.322		13.721		33.057		-		33.057	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 1427 / *Surface Tactical Team Trainer (STTT)*

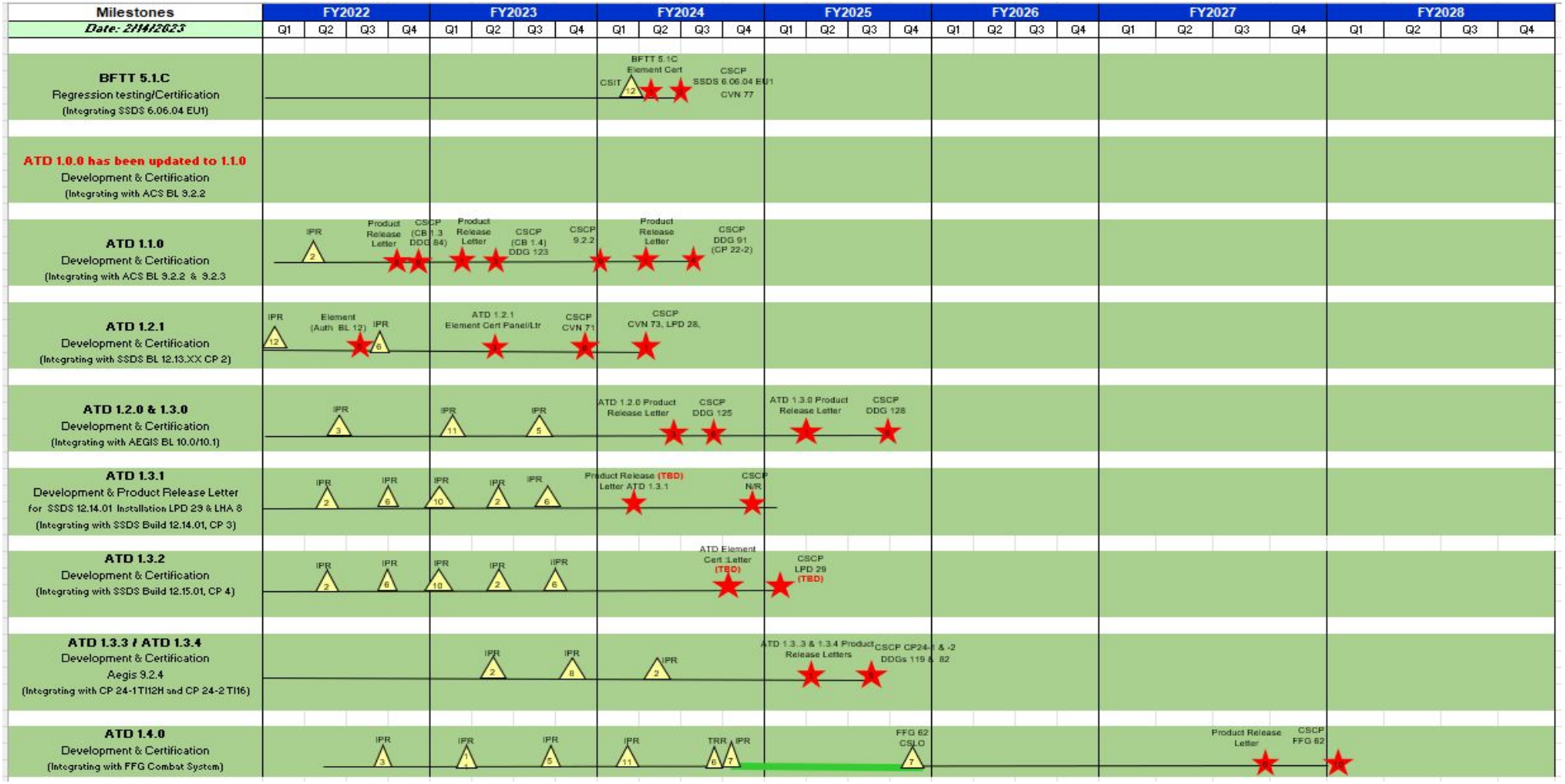


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 1427 / *Surface Tactical Team Trainer (STTT)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 1427				
ITD CB-1 IPR #1	2	2022	2	2022
ITD CB-1 IPR #2	3	2022	3	2022
ITD CB-1 IPR #3	4	2022	4	2022
ITD CB-1 CSCP DDG 123	1	2023	1	2023
ITD CB-1 IPR #4	1	2023	1	2023
ATD 1.1.0 CSCP #1	4	2022	4	2022
ATD 1.1.0 CSCP #2	1	2023	1	2023
ATD 1.2.1 CSIT	2	2022	2	2022
ATD 1.2.1 TRR CSIT	3	2022	3	2022
ATD 1.2.1 Element Cert Authorization	3	2022	3	2022
ATD 1.2.1 Element Cert for SSDS	1	2023	1	2023
ATD 1.2.1 CSCP for SSDS (CVN 73 LPD 28)	3	2023	3	2023
ATD 1.2.1 IPR	3	2022	3	2022
ATD 1.3.0 IPR for AWS BL10 #1	3	2022	3	2022
ATD 1.3.0 IPR for AWS BL10 #2	1	2023	1	2023
ATD 1.3.0 Element Release Ltr	4	2023	4	2023
ATD 1.3.0 CSCP for AWS BL10	4	2024	4	2024
ATD 1.3.x / 1.3.x CSIT	2	2022	2	2022
ATD 1.3.x /1.3.x IPR #1	3	2022	3	2022
ATD 1.3.x / 1.3.x CSIT/TRR	3	2022	3	2022
ATD 1.3.x /1.3.x IPR #2	1	2023	1	2023
ATD 1.3.x/ 1.3.x TRR	3	2023	3	2023

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 1427 / *Surface Tactical Team Trainer (STTT)*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
ATD 1.3.x/ 1.3.x Product Release Letter for AEGIS #1	4	2023	4	2023
ATD 1.3.x CSCP for DDG 113	1	2024	1	2024
ATD 1.3.x/ 1.3.x Product Release Letter for AEGIS #2	3	2024	3	2024
ATD 1.3.x CSCP for DDG 87	1	2024	1	2024
ATD 1.3.1 /1.3.2 IPR #1	3	2022	3	2022
ATD 1.3.1 /1.3.2 IPR #2	1	2023	1	2023
ATD 1.3.1 / 1.3.2 CSIT/TRR	1	2024	1	2024
ATD 1.3.1 / 1.3.2 CSIT	3	2024	3	2024
ATD 1.3.1 / 1.3.2 Element Cert for SSDS	3	2024	3	2024
ATD 1.3.1 /1.3.2 CSCP for SSDS CP 3/4	1	2025	1	2025
ATD 1.4.0 CSIT #1	2	2022	2	2022
ATD 1.4.0 CSIT #2	3	2022	3	2022
ATD 1.4.0 IPR #1	3	2022	3	2022
ATD 1.4.0 IPR #2	1	2023	1	2023
ATD 1.4.0 IPR #3	1	2024	1	2024
ATD 1.4.0 TRR	3	2024	3	2024
ATD 1.4.0 Product Release Letter	2	2027	2	2027
ATD 1.4.0 CSCP for FFG(X)	1	2028	1	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204571N / *Consolidated Trng Sys Dev*	Project (Number/Name) 1982 / *Adversary Mission Systems*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
1982: *Adversary Mission Systems*	0.000	0.000	0.000	5.140	-	5.140	5.290	5.948	4.000	4.600	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project is a New Start in FY 2024. Airborne Adversary Mission Systems builds upon existing RedNet architecture to allow classified software development and classified hardware integration with Tactical Combat Training System (TCTS) Increment II. This project will enable the aircrew to accurately emulate peer threat capabilities and provides a standalone Adversary 'Operational Flight Program (OFP)', that can be deployed on any aircraft with RedNet Multi-Layered Obstructed Brokered Hub (MOBHub) avionics architecture and TCTS Increment II pod. Primary platforms for development include the F-5, F-16 and F-18 within existing Naval Adversary Squadrons. These systems combined with a classified electronic kneeboard, allows for the development, integration and deployment of adversary mission hardware and software systems without modification of aircraft's existing OFP. This effort will provide for the future ability to participate fully in the LVC environment as well as provide physics and effects-based threat replications for the mission essential training of deploying Fleet aircrews.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Airborne Adversary Mission Systems	0.000	0.000	5.140	0.000	5.140
Articles:	-	-	-	-	-
FY 2023 Plans: N/A					
FY 2024 Base Plans: Commence program initiation activities and conduct Systems Requirements and Systems Functional Reviews (SRR/SFR) for Nonembedded Aircraft Processing Systems. Commence hardware and software development activities.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: This Project is a New Start in FY 2024. FY 2024 efforts include program initiation and documentation, awarding of supporting contracts to stand up Software Integration Lab (SIL) enabling classified application development and hardware integration.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	5.140	0.000	5.140

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 1982 / *Adversary Mission Systems*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The Airborne Adversary Mission Systems acquisition strategy for system development utilizes the Agile/Scrum development model. Incremental development, acquisition and fielding, will build on existing RedNet architecture and government off-the-shelf technology to the maximum extent possible. In order to keep pace with the rapidly evolving threat and peer adversary airborne capabilities, these efforts will incorporate incremental software and/or hardware improvements to future Airborne Adversary Mission System sensor capabilities, communications systems, electronic warfare, and weapons emulations capabilities built on RedNet and TCTS II infrastructure. FY 2024 contracting utilizes existing classified Multi-Award Contract (MAC) vehicle to support establishment of Software Integration Lab (SIL).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204571N / *Consolidated Trng Sys Dev*	Project (Number/Name) 1982 / *Adversary Mission Systems*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	C/CPFF	TBD : TBD	0.000	0.000		0.000		1.254	Dec 2023	-		1.254	Continuing	Continuing	Continuing
Software Development	WR	NAWCWD : China Lake, CA	0.000	0.000		0.000		0.375	Dec 2023	-		0.375	Continuing	Continuing	Continuing
Software Development	WR	FRCE : Cherry Point, NC	0.000	0.000		0.000		1.250	Nov 2023	-		1.250	Continuing	Continuing	Continuing
Hardware Development	WR	NAWCWD : China Lake, CA	0.000	0.000		0.000		0.105	Dec 2023	-		0.105	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.000		2.984		-		2.984	Continuing	Continuing	N/A

Remarks

FY 2024 Product Development funding for development of the components of the Airborne Adversary Mission Systems. $1.25M software development cost element will be applied to an existing classified contract to support Software Integration Lab (SIL) establishment. Funding provided to NAWCWD will support the development and integration of classified hardware and software elements.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.000		1.406	Nov 2023	-		1.406	Continuing	Continuing	Continuing
Program Management Support	WR	FRCE : Cherry Point, NC	0.000	0.000		0.000		0.750	Nov 2023	-		0.750	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.000		2.156		-		2.156	Continuing	Continuing	N/A

Remarks

FY 2024 Program Management Support provides required program establishment including personnel, facilities, development laboratories, cyber, and security environments. Funding also provides for technical design reviews and required efforts to establish and compete contracts to award in FY 2025 in support of Adversary Emulation system development efforts (e.g. Electronic Attack).

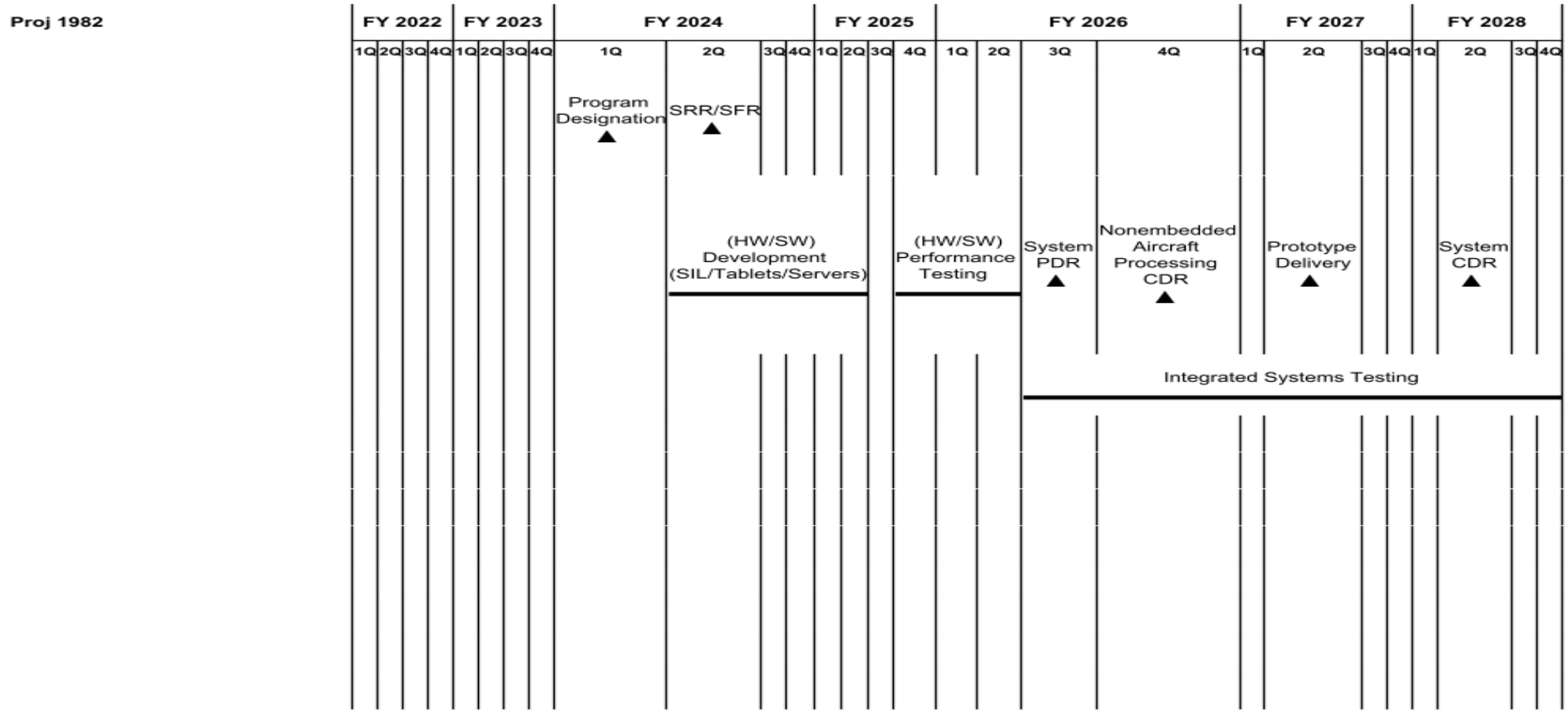
	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		0.000		5.140		-		5.140	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204571N / *Consolidated Trng Sys Dev*	Project (Number/Name) 1982 / *Adversary Mission Systems*	

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 1982 / *Adversary Mission Systems*



2024OSD - 0204571N - 1982

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 1982 / *Adversary Mission Systems*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 1982				
System Requirements Review (SRR)/System Functional Review (SFR)	2	2024	2	2024
Program Designation	1	2024	1	2024
Nonembedded Aircraft Processing (HW/SW) Development (SIL/Tablets/Servers)	2	2024	2	2025
Nonembedded Aircraft Processing (HW/SW) Performance Testing	4	2025	2	2026
System Preliminary Design Review (PDR)	3	2026	3	2026
Nonembedded Aircraft Processing Critical Design Review (CDR)	4	2026	4	2026
Nonembedded Aircraft Processing Prototype Delivery	2	2027	2	2027
Systems Critical Design Review (CDR)	2	2028	2	2028
Integrated Systems Testing	3	2026	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0204571N / *Consolidated Trng Sys Dev*				Project (Number/Name) 2124 / *Air Warfare Training*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
2124: *Air Warfare Training*	55.262	1.591	1.754	1.734	-	1.734	1.764	1.795	1.823	1.860	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project transitions new training and range system technologies for use in Naval Aviation training. Products from this effort are directly tied to the Navy Aviation Simulation Master Plan (NASMP), MH-60R/S master plan, Unmanned Aerial Systems (UAS) master plan, the PMA-205 Strategic Plan, the Live Virtual Constructive (LVC) program, component technologies, including the Multiplex Data Bus Controller Translator Transmitter, F/A-18C-F Requirements Procurement Plan (RPP), open architecture implementation, multiple technology refresh efforts and the Multi-Mission Maritime Aircraft/P-8 programs. These efforts will support training optimization of future naval aviation training/preview/mission rehearsal systems (fixed, deployed, and unmanned). Tasks include: specification development to provide for common, modular, High Level Architecture compliant, high fidelity Distributed Mission Training and mission rehearsal capabilities ashore and afloat. Technologies to be developed and integrated include: intelligent semi-automated forces (SAF) technologies, automated performance measurement technology, advanced net-ready weapons simulation, Air to Air/Air to Ground, visual/sensor enhancement, common post mission assessment technologies, tablet mission preview technology, advanced visual-sensor technology, high resolution helmet mounted, and/or flat panel displays, 20-20 visual acuity image generation, Augmented Reality (AR), Virtual Reality (VR) and Mixed Reality (MR) technology, NAVAIR Portable Source Initiative improvements, common correlated data set technologies and heterogeneous data fusion, common link, common software/database reuse technologies, advanced environmental effects modeling, fused radar/infra-red/electro-optic and acoustic sensor simulations, aerodynamic modeling, physics-based infra-red simulations, spatial disorientation and simulator sickness research, communications degradation modeling, and final Test and Evaluation (T&E) within the Aviation Training Technology Integration Facility (ATTIF), Naval Air Warfare Center-Aircraft Division. This Manned-Flight Simulator (MFS) ATTIF capability provides a window to fleet aviators for critical comment, evaluation and fine tuning of new, interoperable, and innovative technologies such as LVC before final transition to the fleet. Naval Aviation Distributed Training Center, debrief/After Action Review (AAR), and intelligent training tools for the virtual environment are focused on human performance and trend analysis enhancements for fleet readiness and distributed mission training at all levels.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**
Title: AIR WARFARE TRAINING DEVELOPMENT	1.591	1.754	1.734	0.000	1.734
Articles:	-	-	-	-	-
Description: Provide risk mitigation, test and evaluation, and prototype development for stand-alone, manned, un-manned, distributed, open systems and deployed training systems focused on addressing highest priority PMA-205 and Director, Air Warfare, Office of the Chief of Naval Operations (OPNAV N98) needs in the area of operational systems development. Develop advanced training and emerging technology prototypes for Navy and Marine Corps Training Systems that address the four key PMA-205 focus areas: Fidelity and scalability, Readiness, Analytics, and Live, Virtual, Constructive (LVC), to transition advanced component technologies to the Fleet. Develop and integrate emerging technologies, such as Extended Reality (XR) to improve training fidelity, reduce training costs, or increase access to training at the point of need. Develop and integrate emerging					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 2124 / *Air Warfare Training*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
technologies and methods to enhance warfighter readiness and performance to reduce time to train, lower training costs, and reduce the number of human factors related hazreps and mishaps. Develop data analytic improvements to the way the Navy captures data, measures performance, performs after action review, and conducts assessment. Develop LVC technologies to support integrated mission training to support the high-end fight. ***FY 2023 Plans:*** Complete Fleet Adaptive Multi-Level Measurement for LVC. Continue development of heterogenous data fusion capability to support intelligent, semi-automated performance measurement and debrief capability in support of Live, Virtual and Constructive (LVC) training environments. Continue to conduct evaluation of T-6, TH-57, T-45 Virtual Reality display technologies. Continue evaluations of Naval Aviation Training Next (NATN) syllabi. Continue development and evaluation of virtual adaptive instruction effects on training outcomes. Continue analytical and developmental support for emergent programs of record in Live, Virtual and Constructive (LVC), cross domain solution, integrated warfare, acoustic simulation environments, warfighter performance assessment and training analytics, threat system enhancements, and sensor/ visualization modeling. Continue to integrate expandable flight deck crew trainer with Virtual Wingman capability based on Commercial off the Shelf (COTS) virtual and augmented reality technology. Transition helicopter operations team trainer with expandable flight deck crew capability and compatibility. Continue development of tests and metrics to evaluate performance and utility of Mixed Reality training devices (i.e., HMD that integrates virtual world with real world). Complete Aviation Scheduling Optimization Tool (AESOP), which utilizes machine learning analytics to provide daily flight schedules optimized to reduce time to train. ***FY 2024 Base Plans:*** Continue development of data collection and fusion capability to support intelligent, semi-automated performance measurement and debrief capability in support of Live, Virtual and Constructive (LVC) training environments. Continue to conduct evaluation of T-6/TH-57/T-45 Virtual / Augmented /Mixed Reality display technologies. Continue analytical and developmental support for emergent programs of record in Live, Virtual and Constructive (LVC), cross domain solution, integrated warfare, acoustic simulation environments, warfighter performance assessment and training analytics, threat system enhancements, and sensor/ visualization modeling. Continue development of artificial intelligence training systems to augment aviation training pipelines and accelerate training pipeline throughput. Transition expandable flight deck crew trainer. ***FY 2024 OCO Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 2124 / *Air Warfare Training*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY24 $0.020M reduction reflects decreased contract software development efforts and deferral of fidelity improvements until FY25.					
Accomplishments/Planned Programs Subtotals	1.591	1.754	1.734	0.000	1.734

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• APN/0705: *COMMON GROUND EQUIPMENT - TRAINING*	232.085	286.439	304.568	-	304.568	317.574	337.042	346.652	343.430	Continuing	Continuing

Remarks

Includes APN BLI 0705 PE 0804731N General Skills Training and PE 0804743N Other Flight Training

D. Acquisition Strategy

Air Warfare Training Development (AWTD) is a BA 07 RDT&E joint technology transition program tied to the PMA-205 Strategic Plan, Navy Aviation Simulation Master Plan (NASMP), United States Marine Corps upgrades and the various platform simulation master plans with the purpose of transitioning advanced training and mission preview/rehearsal technologies. AWTD provides risk mitigation, test and evaluation, and prototype development for stand-alone, manned, un-manned, distributed, open systems and deployed training systems for the warfighter utilizing an Integrated Product Team approach and a combination of reimbursable and direct cite/cost-plus time and material (T&M) contracts.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204571N / *Consolidated Trng Sys Dev*	Project (Number/Name) 2124 / *Air Warfare Training*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development	C/CPFF	Bohemia Interactive : ORLANDO, FL	0.832	0.000		0.000		0.000		-		0.000	0.000	0.832	0.832
Software Development	C/CPFF	Aptima : WOBURN, MA	0.424	0.000		0.000		0.000		-		0.000	0.000	0.424	0.424
Software Development	C/CPFF	SOAR Tech : ORLANDO, FL	0.195	0.050	Mar 2022	0.101	Mar 2023	0.103	Mar 2024	-		0.103	0.000	0.449	0.449
Software Development	WR	NAWCTSD : ORLANDO, FL	27.182	0.351	Nov 2021	0.408	Nov 2022	0.488	Nov 2023	-		0.488	Continuing	Continuing	Continuing
Software Development	WR	NAMRU : Dayton, OH	0.045	0.000		0.000		0.030	Nov 2023	-		0.030	0.000	0.075	0.075
Software Development	C/CPFF	ACC : ROCK ISLAND, IL	0.388	0.000		0.000		0.000		-		0.000	0.000	0.388	0.388
Prior Year Prod Dev No Longer Funded in the Budget or Out Years	Various	Various : Various	10.692	0.000		0.000		0.000		-		0.000	0.000	10.692	-
		Subtotal	39.758	0.401		0.509		0.621		-		0.621	Continuing	Continuing	N/A

Remarks

FY24 $112K increase for software development support.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NAWCTSD : ORLANDO, FL	0.186	0.776	Nov 2021	0.798	Nov 2022	0.798	Nov 2023	-		0.798	Continuing	Continuing	Continuing
Prior Year Support No Longer Funded in the Budget or Out Years	Various	Various : Various	4.145	0.000		0.000		0.000		-		0.000	0.000	4.145	-
		Subtotal	4.331	0.776		0.798		0.798		-		0.798	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204571N / *Consolidated Trng Sys Dev*	Project (Number/Name) 2124 / *Air Warfare Training*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	NAWC AD : PAX RIVER, MD	7.648	0.124	Nov 2021	0.145	Nov 2022	0.060	Nov 2023	-		0.060	Continuing	Continuing	Continuing
		Subtotal	7.648	0.124		0.145		0.060		-		0.060	Continuing	Continuing	N/A

Remarks

FY24 decreased based on adjusted requirements in FY24.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPFF	Precise : LEXINGTON PARK, MD	1.058	0.145	Mar 2022	0.151	Mar 2023	0.075	Mar 2024	-		0.075	Continuing	Continuing	Continuing
Program Management Support	WR	NAWCTSD : ORLANDO, FL	0.351	0.130	Nov 2021	0.136	Nov 2022	0.172	Nov 2023	-		0.172	Continuing	Continuing	Continuing
Travel	Allot	NAVAIR : PAX RIVER, MD	0.572	0.015	Nov 2021	0.015	Nov 2022	0.008	Nov 2023	-		0.008	Continuing	Continuing	Continuing
Prior year Mgmt Sup no longer funded in the FYDP	Various	Various : Various	1.544	0.000		0.000		0.000		-		0.000	0.000	1.544	-
		Subtotal	3.525	0.290		0.302		0.255		-		0.255	Continuing	Continuing	N/A

Remarks

Reduced requirement for contract support and less travel in FY24.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	55.262	1.591		1.754		1.734		-		1.734	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 2124 / *Air Warfare Training*

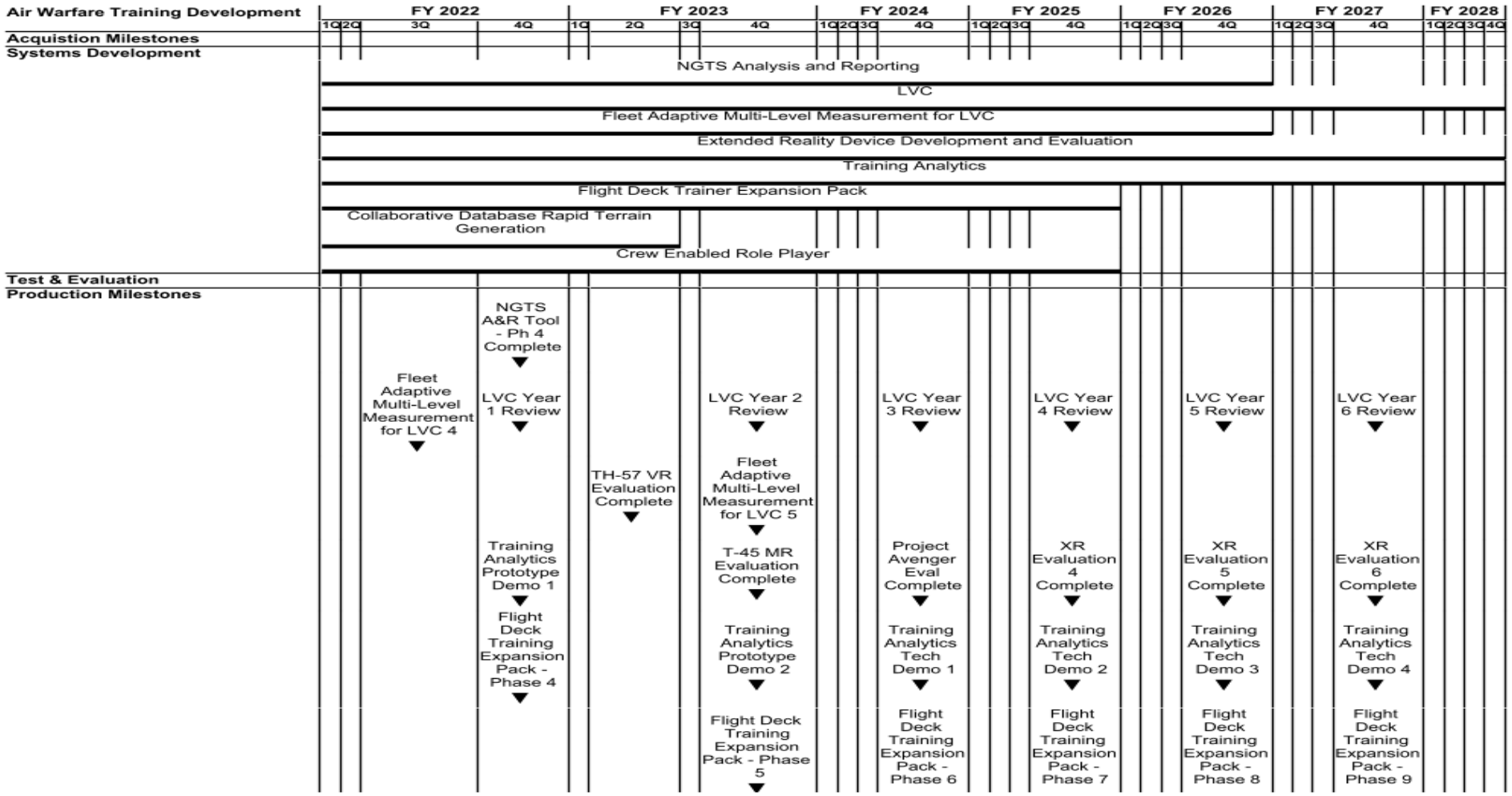
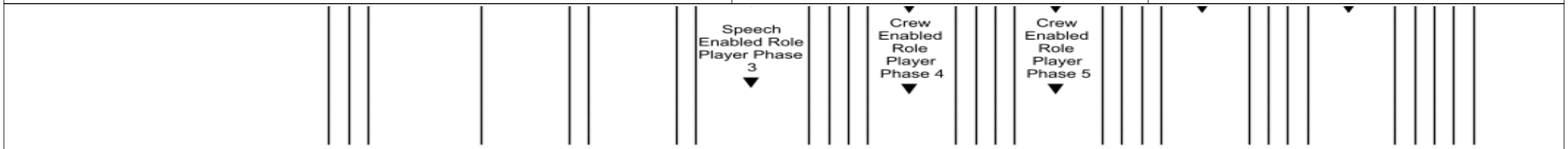


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 2124 / *Air Warfare Training*



2024OSD - 0204571N - 2124

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 2124 / *Air Warfare Training*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Air Warfare Training Development				
Systems Development: NGTS Analysis and Reporting	1	2022	4	2026
Systems Development: LVC	1	2022	4	2028
Systems Development: Fleet Adaptive Multi-Level Measurement for LVC	1	2022	4	2026
Systems Development: Extended Reality Device Development and Evaluation	1	2022	4	2028
Systems Development: Training Analytics	1	2022	4	2028
Systems Development: Flight Deck Trainer Expansion Pack	1	2022	4	2025
Systems Development: Helicopter Operations Trainer	1	2022	2	2023
Systems Development: Crew Enabled Role Player	1	2022	4	2025
Production Milestones: NGTS Analysis and Reporting - Phase 4	4	2022	4	2022
Production Milestones: NGTS Analysis and Reporting - Phase 5	4	2023	4	2023
Production Milestones: NGTS Analysis and Reporting - Phase 6	4	2024	4	2024
Production Milestones: NGTS Analysis and Reporting - Phase 7	4	2025	4	2025
Production Milestones: NGTS Analysis and Reporting - Phase 8	4	2026	4	2026
Production Milestones: NGTS Analysis and Reporting - Phase 9	4	2027	4	2027
Production Milestones: NGTS Analysis and Reporting - Phase 10	4	2028	4	2028
Production Milestones: LVC Year 1 Review	4	2022	4	2022
Production Milestones: LVC Year 2 Review	4	2023	4	2023
Production Milestones: LVC Year 3 Review	4	2024	4	2024
Production Milestones: LVC Year 4 Review	4	2025	4	2025
Production Milestones: LVC Year 5 Review	4	2026	4	2026
Production Milestones: LVC Year 6 Review	4	2027	4	2027
Production Milestones: LVC Year 7 Review	4	2028	4	2028

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 2124 / *Air Warfare Training*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Production Milestones: Fleet Adaptive Multi-Level Measurement for LVC 4	3	2022	3	2022
Production Milestones: Fleet Adaptive Multi-Level Measurement for LVC 5	4	2023	4	2023
Production Milestones: Fleet Adaptive Multi-Level Measurement for LVC 6	4	2024	4	2024
Production Milestones: TH-57 VR Evaluation Complete	2	2023	2	2023
Production Milestones: T-45 MR Evaluation Complete	4	2023	4	2023
Production Milestones: Project Avenger Eval Complete	4	2024	4	2024
Production Milestones: Project Corsair Eval Complete	4	2025	4	2025
Production Milestones: XR Evaluation 4 Complete	4	2025	4	2025
Production Milestones: XR Evaluation 5 Complete	4	2026	4	2026
Production Milestones: XR Evaluation 6 Complete	4	2027	4	2027
Production Milestones: XR Evaluation 7 Complete	4	2028	4	2028
Production Milestones: Training Analytics Prototype Demo 1	4	2022	4	2022
Production Milestones: Training Analytics Prototype Demo 2	4	2023	4	2023
Production Milestones: Training Analytics Tech Demo 1	4	2024	4	2024
Production Milestones: Training Analytics Tech Demo 2	4	2025	4	2025
Production Milestones: Training Analytics Tech Demo 3	4	2026	4	2026
Production Milestones: Training Analytics Tech Demo 4	4	2027	4	2027
Production Milestones: Training Analytics Eval 1	4	2024	4	2024
Production Milestones: Training Analytics Eval 2	4	2025	4	2025
Production Milestones: Training Analytics Eval 3	4	2026	4	2026
Production Milestones: Flight Deck Training Expansion Pack - Phase 4	4	2022	4	2022
Production Milestones: Flight Deck Training Expansion Pack - Phase 5	4	2023	4	2023
Production Milestones: Flight Deck Training Expansion Pack - Phase 6	4	2024	4	2024
Production Milestones: Flight Deck Training Expansion Pack - Phase 7	4	2025	4	2025
Production Milestones: Flight Deck Training Expansion Pack - Phase 8	4	2026	4	2026
Production Milestones: Flight Deck Training Expansion Pack - Phase 9	4	2027	4	2027

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 2124 / *Air Warfare Training*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Production Milestones: Speech Enabled Role Player Phase 3	4	2023	4	2023
Production Milestones: Crew Enabled Role Player Phase 4	4	2024	4	2024
Production Milestones: Crew Enabled Role Player Phase 5	4	2025	4	2025

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0204571N / *Consolidated Trng Sys Dev*				Project (Number/Name) 3093 / *TACTS/LATR Replacement*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
3093: *TACTS/LATR Replacement*	274.446	17.179	51.287	68.632	-	68.632	63.148	47.340	35.532	36.248	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Tactical Combat Training System (TCTS) Increment II will provide an improved environment for air combat training utilizing a secure air-to-air and air-to-ground data link, and will provide rangeless operation capability to Forward Deployed Naval Forces (FDNF). TCTS Increment II will provide encryption and an enhanced threat environment, as well as airborne participant instrumentation for multiple fixed and rotary wing platforms. Engineering Development Model (EDM) units in multiple form factors are being developed in FY19 through FY26 and will support Engineering and Developmental Testing events through FY27. The EDMs will be specifically utilized for testing in the following areas: Environmental Qualification, Software, High Accelerated Lifecycle, Ground System Integration, Airborne Subsystem Air Worthiness and Performance, Shipboard Ground Station, Internal Mount and Rack Mounted Subsystem (Internal Mount) Airworthiness and Performance and JSF Airworthiness and Performance. TCTS Increment II provides the foundational encrypted airborne network for implementation of Aviation Live Virtual Constructive (LVC) capabilities.

Aviation LVC Live Aircraft Integration (ALLAI) Phase 1 funds the integration of Live aircraft into the Live, Virtual, Constructive, blended training environment to close the Great Powers Competition training capability gap for mission rehearsal for the high end fight. Aviation LVC will establish an integrated System of Systems (SoS) training environment bringing already-developed capabilities together with new developmental efforts to form a cohesive architecture that accurately emulates the high end fight for warfighter training. LVC takes a hybrid approach to aviation and Fleet-wide training where the training audience in the form of Live personnel operating Live equipment (to include aircraft and surface vessels) on a Tactical Training Range (TTR) will be teamed with Live aircrew operating simulators to provide a Virtual complement in the "Blue Air" picture. The "Red" adversary for this training is made up of Live people operating Live aircraft complemented by computer generated "Red" Constructive Air and Surface threats that stimulate the "Blue" Air displays and sensors as if a "Red" Live adversary were present. Range Training Officers (RTO) operating at the TTR Operations Center monitor and oversee the overall mission picture while directing Live participants and controlling Constructive threats.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**
Title: TACTS/LATR REPLACEMENT	17.179	10.933	11.491	0.000	11.491
Articles:	-	7	-	-	-
Description: Qualify and complete the On-Range and Rangeless Pod system fielding for all USN Tactical Training Ranges and Carrier Air Wing Five (CVW-5) CVN installation, including the complete Integrated Logistics products and training. Define Test & Training Enabling Architecture (TENA) compliant interface between TCTS and an Advanced Display System (ADS). Develop system form factor variations for use on different fixed wing and rotary wing aircraft as well as surface vessels. Continue development of the encrypted data link. Develop related training range integration.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 3093 / *TACTS/LATR Replacement*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
FY 2023 Plans: Achieve IOC for Phase 1 for Participant Airborne Subsystems. System Authority to Operate (ATO) for the Participant Airborne Subsystems will be achieved. Development for Phase 3, which includes hardware and software development activities unique to implementing TCTS II capabilities into the Internal Mount (IM) form factor, rotary wing, and maritime aircraft (including LATR capability). Continue software development and integration into training and range networks. ***FY 2024 Base Plans:*** TCTS II Phase 3 will continue development which includes hardware and software development activities unique to implementing TCTS II capabilities in the Internal Mount (IM) form factor, rotary wing, and maritime aircraft (including LATR capability). Continue software development and integration into training and range networks. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY24 $0.558M increase for the support of the hardware and software development for the implementation of TCTS II.					
Title: Aviation LVC Live Aircraft Integration - Phase 1	0.000	40.354	57.141	0.000	57.141
Articles:	-	-	-	-	-
Description: Develop a System of Systems architecture to simultaneously host developed and developing capabilities in Live aircraft, simulators, and semi-automated forces (SAF) into a blended training environment focusing on Carrier Air Wing F/A-18, EA-18G, and E-2D platforms with flexibility to incorporate additional platforms. Integrate capability enhancements into the TCTS II, NGTS, NCTE and host platform systems to expand high end training capability and integrate system architectures. Mature and expand advanced SAF generation capabilities and integrate host systems to process SAF information to emulate actual threats. Implement system security for System of Systems environment. ***FY 2023 Plans:*** Commence integration of Live, Virtual, and Constructive (LVC) capability to the Tactical Combat Training System Increment II (TCTS II), including Internal Mount enhancement, interoperability with virtual entities, spectral efficiency, system security modifications, and advanced integration with constructive inject systems, Navy Continuous Training Environment (NCTE), and host platforms. Additional capability development will include					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 3093 / *TACTS/LATR Replacement*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Next Generation Threat System (NGTS) development, range live event display and debrief system updates, and development of an embeddable LVC software architecture. ***FY 2024 Base Plans:*** TCTS II will continue integration and start Developmental Test (DT) of LVC software capabilities (Synthetic Inject to Live) on the F/A-18, to include updated Next Generation Threat Simulator (NGTS) simulation capabilities and waveform optimization. Cross Domain Solutions (CDS) design updates are validation are required for the additional NGTS simulation capabilities. TCTS II will perform integration of TCTS II into the Navy Continuous Training Environment (NCTE) in FY24. Continue development of the TCTS II LVC Internal Mount (IM) capabilities. Sos Platform/Simulator Integration continues in FY24. NCTE/Next Generation Threat System LVC testing will begin in FY24. LVC integration with F-18 continues in FY24 and E-2D LVC integration starts in FY24. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY24 $16.787M increase supports the start of NCTE/Next Generation Threat System testing and E-2D LVC integration along with the continued development/integration/testing of current LVC capabilities.					
Accomplishments/Planned Programs Subtotals	17.179	51.287	68.632	0.000	68.632

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• OPN/4204: *Weapons Range Support Equipment (WRSE)*	87.748	106.209	147.556	-	147.556	143.807	162.621	162.970	166.339	Continuing	Continuing
• APN/0725: *Other Production Charges/Tactical Combat Training System (TCTS)*	21.374	46.403	49.907	-	49.907	65.637	65.760	66.166	67.649	Continuing	Continuing

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 3093 / *TACTS/LATR Replacement*

D. Acquisition Strategy

Tactical Combat Training System will employ an evolutionary incremental acquisition strategy. This strategy will provide for the development of a system that meets the Operational Requirements Document. Government purchase and validation of the TCTS tech data package in 2023 (APN BLI 0725) will allow for competition of production contracts in 2025 and beyond.

Aviation LVC will employ a phased evolutionary acquisition strategy. This strategy will integrate existing systems while enhancing the capabilities of those systems before incorporating new developmental items into the blended architecture to satisfy the LVC Capabilities Requirements Document.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204571N / *Consolidated Trng Sys Dev*	Project (Number/Name) 3093 / *TACTS/LATR Replacement*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware Development	C/CPIF	COLLINS AEROSPACE : CEDAR RAPIDS, IA	170.897	14.225	Oct 2021	10.450	Oct 2022	19.934	Oct 2023	-		19.934	0.000	215.506	215.506
Software Development	C/CPIF	COLLINS AEROSPACE : CEDAR RAPIDS, IA	0.000	0.000		7.500	Jan 2023	25.349	Jan 2024	-		25.349	0.000	32.849	32.849
Software Development	WR	NSWC Corona : Corona, CA	0.000	0.000		3.500	Nov 2022	2.000	Nov 2023	-		2.000	Continuing	Continuing	Continuing
Software Development	WR	NAWCAD : Patuxent River, MD	0.000	0.000		3.500	Nov 2022	5.000	Nov 2023	-		5.000	Continuing	Continuing	Continuing
Hardware Development	TBD	AFLCMC/HBZ : Hill AFB	0.000	0.000		7.500	Jan 2023	0.000		-		0.000	0.000	7.500	7.500
Software Development	TBD	TBD : TBD	0.000	0.000		7.500	Mar 2023	0.000		-		0.000	0.000	7.500	-
Prior Year Prod Dev No Longer Funded in the Budget or Out Years	Various	Various : Various	10.901	0.000		0.000		0.000		-		0.000	0.000	10.901	-
		Subtotal	181.798	14.225		39.950		52.283		-		52.283	Continuing	Continuing	N/A

Remarks

1 - Increase in Hardware Development to Collins in FY24 by $9.4M for continued of IRSS and additional support of F-18 IM with continued expected development. FY22 increase of $1.4M from BTR received from PMA-234 for additional Collins support.

2 - Collins SW development increase of $17.641M in FY24 is for the core LVC software development to the TCTS II system.

4 - NAWCAD PAX SW development increase of $1.5M in FY24 is for the core LVC software development to the TCTS II system.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NAWC-AD : PAX RIVER, MD	18.358	1.010	Nov 2021	4.000	Nov 2022	4.163	Nov 2023	-		4.163	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204571N / *Consolidated Trng Sys Dev*	Project (Number/Name) 3093 / *TACTS/LATR Replacement*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	C/CPFF	Precise : LEXINGTON PARK, MD	0.615	0.000		0.000		0.000		-		0.000	0.000	0.615	-
Systems Engineering	WR	NAWC-WD : China Lake, CA	0.891	0.000		0.000		1.347	Nov 2023	-		1.347	Continuing	Continuing	Continuing
Systems Engineering	WR	Various : Various	0.755	0.000		0.000		0.000		-		0.000	0.000	0.755	-
Logistics	WR	NAWC-AD : PAX RIVER, MD	3.573	0.500	Nov 2021	0.000		0.000		-		0.000	0.000	4.073	-
Logistics	WR	FRC SW : San Diego, CA	0.344	0.100	Nov 2021	0.000		0.000		-		0.000	0.000	0.444	-
Logistics	C/CPFF	Synectic Solutions, Inc. : LEXINGTON PARK, MD	0.683	0.000		0.000		0.000		-		0.000	0.000	0.683	-
Systems Engineering	FFRDC	Mitre : Various	0.000	0.000		2.114	Oct 2022	2.156	Oct 2023	-		2.156	0.000	4.270	4.270
Systems Engineering	SS/CPFF	ASEC : Patuxent River, MD	0.000	0.000		0.600	Apr 2023	0.612	Apr 2024	-		0.612	Continuing	Continuing	Continuing
Prior Year Support No Longer Funded in the Budget or Out Years	Various	Various : Various	29.989	0.000		0.000		0.000		-		0.000	0.000	29.989	-
		Subtotal	55.208	1.610		6.714		8.278		-		8.278	Continuing	Continuing	N/A

Remarks

Additional support from China Lake TARIF SSA needed to support ALLAI requirements.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	NAWC-AD : PAX RIVER, MD	5.575	0.197	Nov 2021	2.000	Nov 2022	4.640	Nov 2023	-		4.640	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	NAWC-WD : China Lake, MD	0.351	0.000		0.000		0.000		-		0.000	0.000	0.351	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204571N / *Consolidated Trng Sys Dev*	Project (Number/Name) 3093 / *TACTS/LATR Replacement*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	C/CPFF	BAH : McLean, VA	0.000	0.381	Feb 2022	0.000		0.000		-		0.000	0.000	0.381	0.381
Developmental Test & Evaluation (DT&E)	WR	Various : Various	1.407	0.369	Nov 2021	0.000		0.000		-		0.000	0.000	1.776	-
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	Various	Various : Various	3.425	0.000		0.000		0.000		-		0.000	0.000	3.425	-
		Subtotal	10.758	0.947		2.000		4.640		-		4.640	Continuing	Continuing	N/A

Remarks

T&E NAWCAD PAX - $2.64M increase to continue testing ALLAI capabilities that were developed in FY23.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prog Mgnt Sup	WR	NAWC-AD : PAX RIVER, MD	9.248	0.381	Nov 2021	1.500	Nov 2022	2.659	Nov 2023	-		2.659	Continuing	Continuing	Continuing
Travel	Allot	NAVAIR : PAX RIVER, MD	0.170	0.016	Oct 2021	0.200	Oct 2022	0.250	Oct 2023	-		0.250	Continuing	Continuing	Continuing
Prog Mgnt Sup	C/CPFF	Precise : LEXINGTON PARK, MD	0.955	0.000		0.000		0.000		-		0.000	0.000	0.955	0.955
Prog Mgnt Sup	WR	Various : Various	0.250	0.000		0.000		0.000		-		0.000	0.000	0.250	-
Prog Mgnt Sup	WR	NAWCTSD : Orlando, FL	0.000	0.000		0.500	Nov 2022	0.522	Nov 2023	-		0.522	Continuing	Continuing	Continuing
Prog Mgnt Sup	TBD	TBD : TBD	0.000	0.000		0.423	Nov 2022	0.000		-		0.000	0.000	0.423	-
Prior Year Mgmt No Longer Funded in the Budget or Out Years	Various	Various : Various	16.059	0.000		0.000		0.000		-		0.000	0.000	16.059	-
		Subtotal	26.682	0.397		2.623		3.431		-		3.431	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204571N / *Consolidated Trng Sys Dev*	Project (Number/Name) 3093 / *TACTS/LATR Replacement*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Prog Mgnt Sup increase $0.793M for anticipated team growth to support oversight of development and testing of ALLAI program.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	274.446	17.179		51.287		68.632		-		68.632	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 3093 / *TACTS/LATR Replacement*

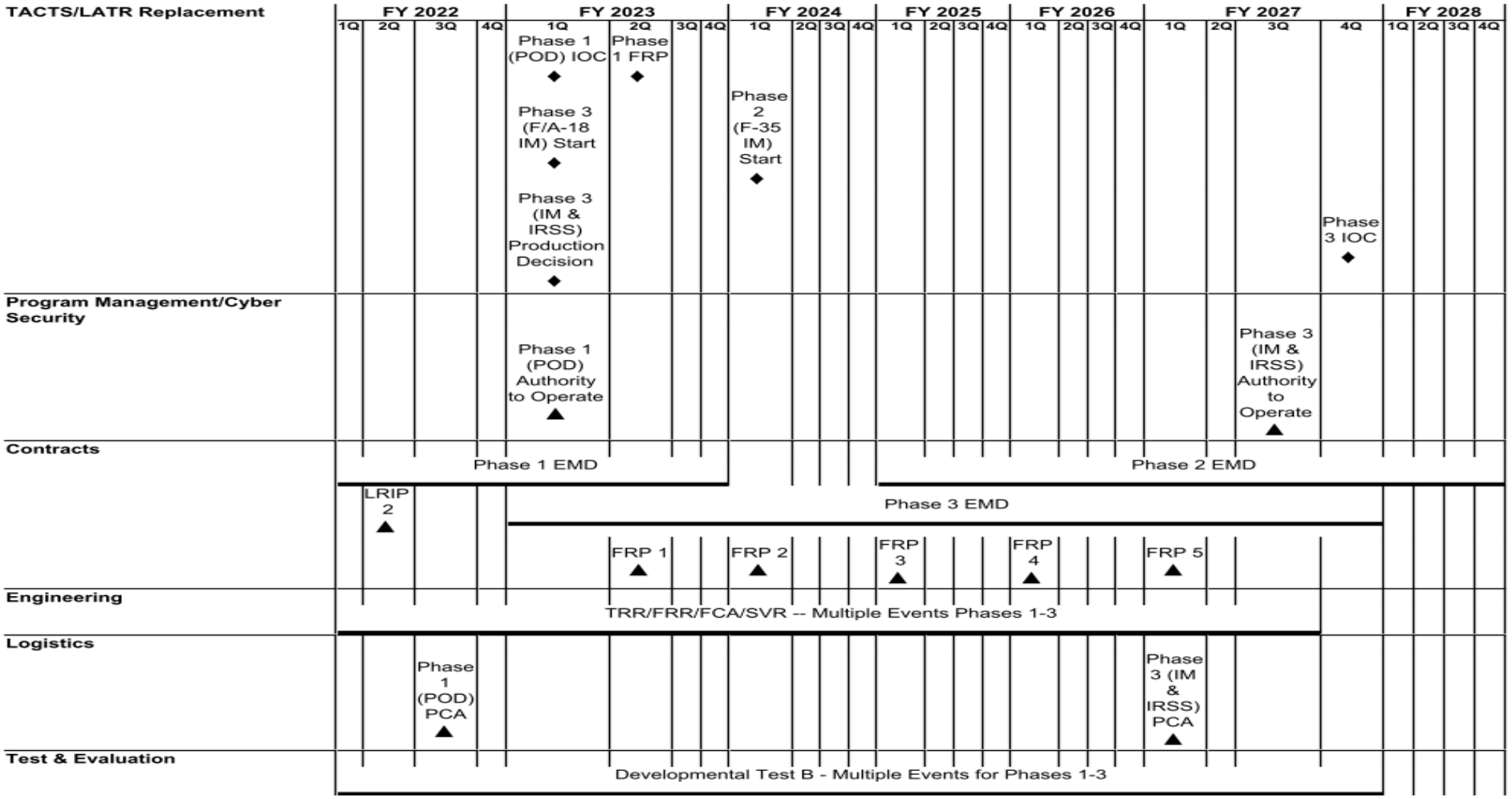
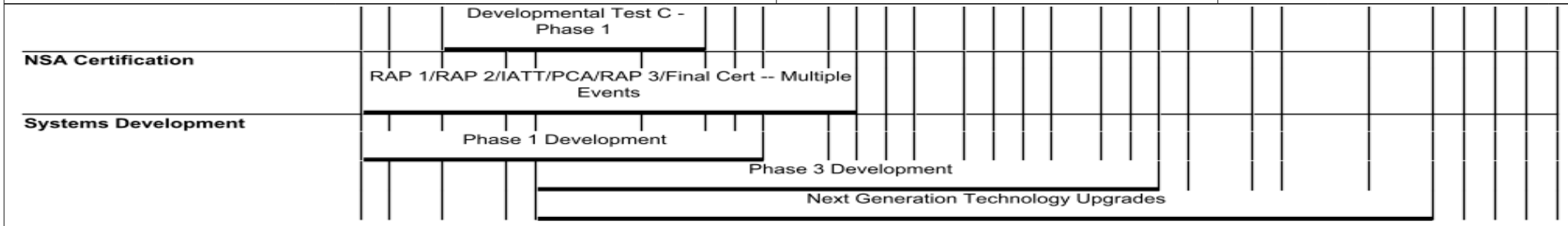
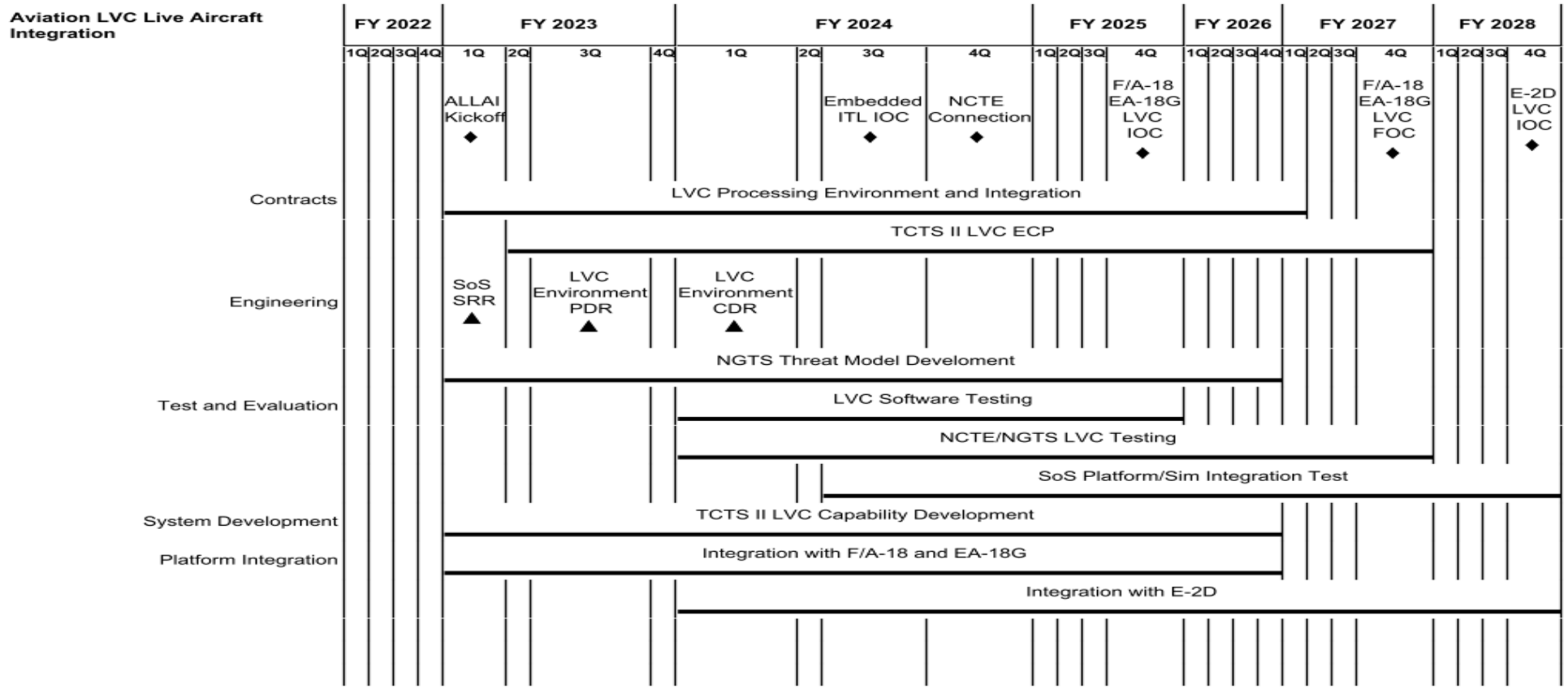


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 3093 / *TACTS/LATR Replacement*



2024DON - 0204571N - 3093

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 3093 / *TACTS/LATR Replacement*



2024DON - 0204571N - 3093

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 3093 / *TACTS/LATR Replacement*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
TACTS/LATR Replacement				
Phase 1 (POD) IOC	1	2023	1	2023
Phase 1 FRP	2	2023	2	2023
Phase 3 (IM) Start	2	2023	2	2023
Phase 2 (F-35 IM) Start	1	2025	1	2025
Phase 3 (IM) Production Decision	4	2025	4	2025
Phase 3 IOC	4	2027	4	2027
Program Management/Cyber Security: Phase 1 (POD) Authority to Operate	1	2023	1	2023
Program Management/Cyber Security: Phase 3 (IM & IRSS) Authority to Operate	3	2027	3	2027
Contracts: Phase 1 LRIP 2	2	2022	2	2022
Contracts: Phase 1 Full Rate Production 1	2	2023	2	2023
Contracts: Phase 1Full Rate Production 2	1	2024	1	2024
Contracts: Phase 1 Full Rate Production 3	1	2025	1	2025
Contracts: Phase 1 Full Rate Production 4	1	2026	1	2026
Contracts: Phase 1 Full Rate Production 5	1	2027	1	2027
Engineering: Test Readiness Review / Flight Readiness Review / Functional Configuration Audit / System Verification Review	1	2022	3	2027
Logistics: Phase 1 (POD) Physical Configuration Audit	3	2022	3	2022
Logistics: Phase 3 (IM & IRSS) Physical Configuration Audit	1	2027	1	2027
Test & Evaluation: Developmental Test B - Multiple Events for Phases 1-3	1	2022	4	2027
Test & Evaluation: Developmental Test C - Phase 1	3	2022	1	2023
Test & Evaluation: Developmental Test C - Phase 3	1	2027	3	2027
NSA Certification: RAP 1/RAP 2/IATT/PCA/RAP 3/Final Cert	1	2022	2	2023

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 3093 / *TACTS/LATR Replacement*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Systems Development: Phase 1 Development	1	2022	4	2023
Systems Development: LATR Capability Gap Development (Phase 3)	1	2023	3	2026
Systems Development: Next Generation Technology Upgrades	1	2023	4	2027
Aviation LVC Live Aircraft Integration				
Aviation LVC Live Aircraft Integration Kickoff	1	2023	1	2023
NCTE Connection	4	2024	4	2024
F/A-18 EA-18G LVC IOC	4	2025	4	2025
F/A-18 EA-18G LVC FOC	4	2027	4	2027
E-2D LVC IOC	4	2028	4	2028
Contracts: LVC Processing Environment and Integration	1	2023	1	2027
Contracts: TCTS II LVC ECP	2	2023	4	2027
Engineering: System of Systems SRR	3	2023	3	2023
Engineering: LVC Environment PDR	1	2024	1	2024
Engineering: LVC Environment CDR	4	2024	4	2024
Engineering: Threat Model Develoment	1	2023	4	2026
Test and Evaluation: LVC Software Testing	1	2024	4	2025
Test and Evaluation: NCTE/NGTS LVC Testing	1	2024	4	2027
Test and Evaluation: System of Systems Platform and Simulator Integration Testing	3	2024	4	2028
System Development: TCTS II LVC Capability Development	1	2023	4	2026
Platform Integration: Integration with F/A-18 and EA-18G	1	2023	4	2026
Platform Integration: Integration with E-2D	1	2024	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy										Date: March 2023		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0204571N / *Consolidated Trng Sys Dev*				Project (Number/Name) 3356 / *High Fidelity Surface Trainers*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
3356: *High Fidelity Surface Trainers*	35.363	1.589	0.197	3.031	-	3.031	0.051	0.059	0.053	0.056	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This line funds high fidelity Aegis Integrated Air and Missile Defense (IAMD) individual, instructor, strike group and team trainers to support all Advanced Capability Build (ACB) and below Aegis baselines. This line provides funds for development of a High Fidelity Aegis Combined Integrated Air and Missile Defense (IAMD) and Anti-Submarine Warfare (ASW)
Trainer (CIAT) to enable tactics, techniques, and procedure development and allow advanced warfare training (AWT) Phase II and Surface Warfare Advanced Tactical training objectives to be accomplished ashore and to support Active and Passive Sonar Operations, Target Motion Analysis, Sonobuoy Localization, Command and Control, and execution of ASW Kill chain. Funds are provided for advanced component technology development, prototype evaluation, and technology readiness level assessment. Development of these trainers is in response to CNO Wholeness Review and Department of the Navy requirements. This line supports Surface Training Advanced Virtual Environment (STAVE) methodology by researching and developing trainers that will create an immersive and interactive learning environment and support both CNO High Velocity Learning and Ready Relevant Learning intent. It includes development of the Surface Training and Readiness Management System (STRMS) required for the identification of quantifiable operator and maintainer competencies for each mission area and associated tracking system development and testing. Funds provide for alignment with DON Chief Information Officer (CIO) Cyber requirements.

NOTE: In FY18, Mine Warfare Synthetic Training requirements previously captured within PE 0204571N / Proj 3356 (High Fidelity Surface Trainer) were realigned to PE 0603502N Surface & Shallow Water MCM / Proj 1235 (Mine Warfare Planning and Analysis).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**
Title: Combined IAMD ASW Trainer (CIAT)	0.210	0.197	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2023 Plans: Continuing research and development of the Combat System Simulator/Stimulator (CS3) and Joint Advanced Warfare Scenarios (JAWS) in to future CIAT Software versions.					
FY 2024 Base Plans: N/A					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 3356 / *High Fidelity Surface Trainers*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
FY24 decrease associated with the completion of the development phase of the Joint Advanced Warfare Scenarios (JAWS) in to future CIAT Software versions.					
Title: Surface Training Readiness Management System (STRMS) ***Articles:*** ***FY 2023 Plans:*** N/A ***FY 2024 Base Plans:*** Research and develop advanced technologies that will enable development of capability to identify quantifiable operator and maintainer competencies for each mission area and an associated shipboard training management and tracking system for the purpose of determining training effectiveness ashore and at sea. Refine Phase II design and continue Phase II capability development. Communicate and collaborate in development of IT architecture and data integration supportive of Surface Training Advanced Virtual Environment (STAVE), STRMS and My Navy Learning (MNL) requirements. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY24 $3.031M increase covers Phase II of STRMS development, which will support Shore Side IT architecture development and Advance User Case development.	1.379 -	0.000 -	3.031 -	0.000 -	3.031 -
Accomplishments/Planned Programs Subtotals	1.589	0.197	3.031	0.000	3.031

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The software development and advanced technology upgrades for High Fidelity Surface Trainers are accounted for in this RDT&E line. These upgrades will provide an enabling technology to an existing training system.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204571N / *Consolidated Trng Sys Dev*	Project (Number/Name) 3356 / *High Fidelity Surface Trainers*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SYSTEMS ENG	WR	NSWC DAHLGREN : DAHLGREN,VA	20.989	1.206	Dec 2021	0.000		0.300	Nov 2023	-		0.300	Continuing	Continuing	Continuing
SYSTEMS ENG	WR	NSWC CARDEROCK : CARDEROCK, MD	6.320	0.000		0.000		0.000		-		0.000	0.000	6.320	-
SYSTEMS ENG	WR	NUWC NEWPORT : NEWPORT, RI	2.076	0.000		0.000		0.000		-		0.000	0.000	2.076	-
SYSTEMS ENG	MIPR	U.S. ARMY SMDC : HUNTSVILLE, AL	0.147	0.000		0.000		0.000		-		0.000	0.000	0.147	-
SYSTEMS ENG	WR	NAWCTSD : ORLANDO, FL	1.698	0.000		0.000		2.481	Nov 2023	-		2.481	0.000	4.179	-
SYSTEMS ENG	TBD	LOCKHEED MARTIN : TBD	3.416	0.000		0.000		0.000		-		0.000	0.000	3.416	-
SYSTEMS ENG	WR	NSWC, Corona : CORONA, CA	0.717	0.223	Oct 2021	0.000		0.250	Nov 2023	-		0.250	0.000	1.190	-
SYSTEMS ENG	TBD	Innovative Defense Technologies : ARLINGTON, VA	0.000	0.110	May 2022	0.176	Nov 2022	0.000		-		0.000	0.000	0.286	-
SYSTEMS ENG	TBD	Applied Physics Laboratory / Johns Hopkins Univers : BALTIMORE, MD	0.000	0.050	Jun 2022	0.021	Nov 2022	0.000		-		0.000	0.000	0.071	-
		Subtotal	35.363	1.589		0.197		3.031		-		3.031	Continuing	Continuing	N/A

Remarks

FY24 Program changes associated with the following:
1) Support of Phase II of STRMS development, which will support Shore Side IT architecture development and Advance User Case development.
2) Completion of the development phase of the Joint Advanced Warfare Scenarios (JAWS) in to future CIAT Software versions.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	35.363	1.589		0.197		3.031		-		3.031	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 3356 / *High Fidelity Surface Trainers*

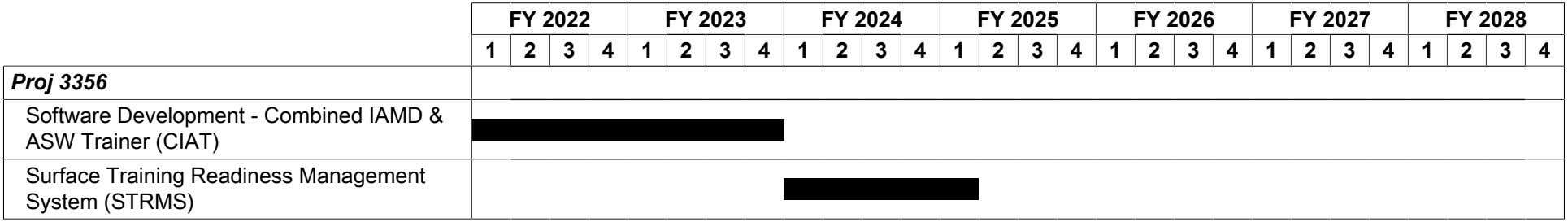


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 3356 / *High Fidelity Surface Trainers*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3356				
Software Development - Combined IAMD & ASW Trainer (CIAT)	1	2022	4	2023
Surface Training Readiness Management System (STRMS)	1	2024	1	2025

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204571N / *Consolidated Trng Sys Dev*	Project (Number/Name) 9999 / *Congressional Adds*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
9999: *Congressional Adds*	0.000	0.000	30.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	30.000
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

C913: Advance the development of Live Virtual Constructive (LVC) capabilities to the Fallon Training Range Complex to provide aircrews the capability to train combined Carrier Air Wing (CVW) tactics against near-peer advisories. Implement Synthetic Inject to Live (SITL) capability to enable training with realistic threat presentations. Continue development of 5th generation aircraft capability to conduct fighter integration training between F-35 and Department of Defense (DoD) 4th generation platforms.

C917: Procurement of cable and associated support for Barking Sands Undersea Range Extension cable for accelerated test and evaluation capabilities.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023
Congressional Add: Secure LVC advanced training environment ***FY 2022 Accomplishments:*** N/A ***FY 2023 Plans:*** Continue development of 5th generation capability to conduct fighter integration training between F-22, F-35 and Department of Defense (DoD) 4th generation platforms.	0.000	20.000
Congressional Add: Test capabilities acceleration - Barking Sands Undersea Range Extension ***FY 2022 Accomplishments:*** N/A ***FY 2023 Plans:*** Purchase Barking Sands Undersea Range Extension cables and installation at the range.	0.000	10.000
Congressional Adds Subtotals	0.000	30.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204571N / *Consolidated Trng Sys Dev*	Project (Number/Name) 9999 / *Congressional Adds*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hardware Development	C/FFP	L3Harris : Goleta, CA	0.000	0.000		10.000	Jun 2023	0.000		-		0.000	0.000	10.000	-
Software Development	TBD	ACC FEDLAB : Beale AFB, CA	0.000	0.000		4.000	Jun 2023	0.000		-		0.000	0.000	4.000	-
Hardware Development	Various	TBD : TBD	0.000	0.000		16.000	Aug 2023	0.000		-		0.000	0.000	16.000	-
		Subtotal	0.000	0.000		30.000		0.000		-		0.000	0.000	30.000	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		30.000		0.000		-		0.000	0.000	30.000	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 9999 / *Congressional Adds*

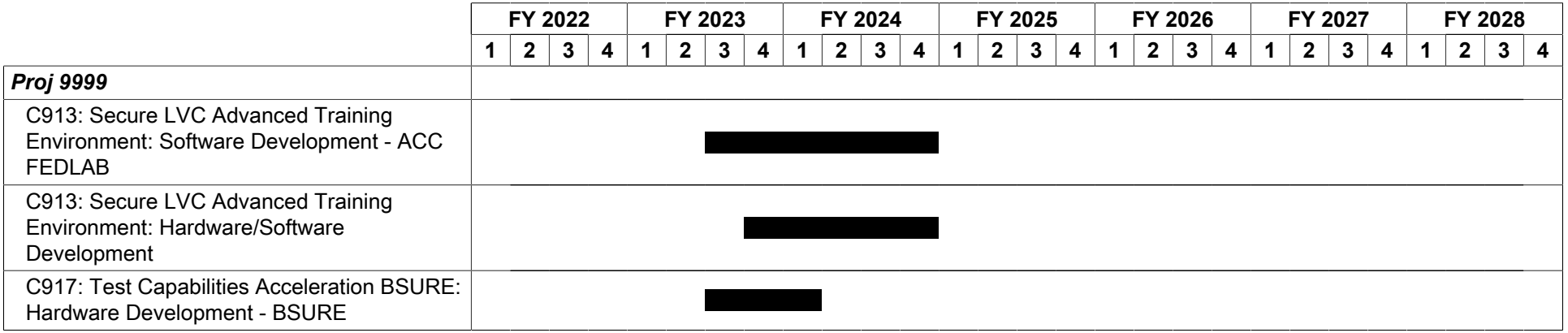


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204571N / *Consolidated Trng Sys Dev*	**Project (Number/Name)** 9999 / *Congressional Adds*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 9999				
C913: Secure LVC Advanced Training Environment: Software Development - ACC FEDLAB	3	2023	4	2024
C913: Secure LVC Advanced Training Environment: Hardware/Software Development	4	2023	4	2024
C917: Test Capabilities Acceleration BSURE: Hardware Development - BSURE	3	2023	1	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0204575N *I Elect Warfare Readiness Supt*

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	304.417	53.412	45.936	61.677	-	61.677	66.393	66.224	66.366	67.694	Continuing	Continuing
2263: *Information Warfare System*	262.308	35.927	31.624	46.300	-	46.300	48.601	48.072	47.617	48.570	Continuing	Continuing
3426: *Maritime Cyber*	42.109	17.485	14.312	15.377	-	15.377	17.792	18.152	18.749	19.124	Continuing	Continuing

A. Mission Description and Budget Item Justification

To develop Cyber and Electronic Warfare capabilities that will deny, disrupt, degrade, destroy and manipulate target adversary platfoms and Command, Control, Communications, Computer, Cyber, Intelligence, Surveillance, Reconnaissance and Targeting (C5ISRT). This budget item funds countermeasure development, intelligence support, and program management.

Please refer to Top Secret//Sensitive Compartmented Information (TS//SCI) Supplement for more details.

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	55.528	47.436	65.575	-	65.575
Current President's Budget	53.412	45.936	61.677	-	61.677
Total Adjustments	-2.116	-1.500	-3.898	-	-3.898
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-1.500			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-2.116	0.000			
• Rate/Misc Adjustments	0.000	0.000	-3.898	-	-3.898

Change Summary Explanation

Funding decrease for support of acquisition, exploitation, and intelligence; and shifting of long lead hardware to FY25 as a result of contract award delays associated with classified contracting award process.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204575N / *Elect Warfare Readiness Supt*	Project (Number/Name) 2263 / *Information Warfare System*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2263: *Information Warfare System*	262.308	35.927	31.624	46.300	-	46.300	48.601	48.072	47.617	48.570	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

To develop Cyber and Electronic Warfare capabilities that will counter adversary platforms and counter command, control, communications, computers, combat systems, intelligence, surveillance, reconnaissance, and targeting (C-C5ISRT). This budget item funds countermeasure development, intelligence support, test and evaluation, and program management. Please refer to Top Secret//Sensitive Compartmented Information (TS//SCI) Supplement for more details.

Specific countermeasure activities include:
* Project GRANDSTAND: Provide Indications and Warnings (I&W) of adversary communications. Provide warning of impending fires and targeting solutions for potential kinetic solution. Details held at higher classification.
* Project KUBOTAN: Provide I&W of adversary communications. Employment would force adversary to change operating posture to a more favorable position. Details held at higher classification.
* Project PACIFIC HAZE: Countermeasure against adversarial C5ISRT collection systems. Employment would support Blue force disposition and assist in Tactical Situation (TACSIT). Details held at higher classification.
* Project COPPERFIELD: Countermeasure against adversary C5ISRT Over the Horizon (OTHR) systems. Employment would support Blue force disposition and assist in Tactical Situation (TACSIT). Details held at higher classification.
* Project CHATTERBOX: Countermeasure against adversary C5ISRT Command and Control (C2) systems. Employment would support Blue force disposition and assist in Tactical Situation (TACSIT). Details held at higher classification.
* Project VIRTUOSO III: Provide I&W of adversary communications. Countermeasure against adversary C5ISRT C2 systems. Employment would force adversary to change operating posture to a more favorable position. Details held at higher classification.
* Project BECKHAM: Provide I&W of adversary communications. Countermeasure against adversary C5ISRT C2 systems. Employment would support Blue force disposition and assist in Tactical Situation (TACSIT), in addition to forcing the adversary to change operating posture to a more favorable position. Details held at higher classification.
* Project QUIZZIFY: Countermeasure against adversary C5ISRT C2 systems. Employment would force adversary to change operating posture to a more favorable method. Details held at higher classification.
* Project SIREN SONG: Countermeasure against adversary C5ISRT collection systems. Employment would support Blue force disposition and assist in Tactical Situation (TACSIT). Details held at higher classification.
* Emerging Signal Development: Provide collection development for new and emerging technologies through vulnerability research and exploitation development. Employment supports Blue force I&W against adversary communications. Details held at higher classification.
* Emerging Technology Development: Provide C5ISRT countermeasure development for new and emerging technologies through vulnerability research and exploitation development. Details held at higher classification.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204575N / *Elect Warfare Readiness Supt*	**Project (Number/Name)** 2263 / *Information Warfare System*

Specific countermeasure intelligence support activities include:
* FOLKVANGR and VALHALLA: Terrestrial technology research and target development (TRTD) facilities used to identify vulnerabilities associated with adversarial C5ISRT systems and communications that lead to countermeasure development at Navy Cyber Warfare Development Group (NCWDG). Details held at higher classification.
* MADHATTER and WHITERABBIT: Terrestrial TRTD facilities used to identify vulnerabilities in adversarial C5ISRT systems and communications that lead to countermeasure development at NCWDG. Provide I&W to fleet and national customers against adversarial communications. Details held at higher classification.
* TRTD maintenance and upgrades. Support the contractual labor for hardware and software upgrades, system administrative support, and Authority to Operate (ATO) compliance in accordance with Risk Management Framework. Provide the requisite test and evaluation of TRTD systems to support modeling and simulation.

Specific program support activities include:
* Army Special Access Program (SAP) Enterprise Program (ASEP). Provide the hardware, software, and helpdesk support for NCWDG SAP networks to support the management of contractual work.
* Program Management Services and Support. Support the contractual acquirement of personnel to fulfill critical labor requirements associated with NCWDG's mission.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Electronic Warfare/Information, Computer Network Operations (IO & CNO), Countermeasure Capability Research & Development NAVIFOR	35.927	31.624	46.300	0.000	46.300
Articles:	-	-	-	-	-
Description: Please refer to Top Secret//Sensitive Compartmented Information Supplement for more details.					
FY 2023 Plans: * Project GRANDSTAND: Refurbishment of Outside the Continental U.S. (OCOCNUS) site to support Level Of Effort (LOE) 1 and LOE 2 - I&W and geolocation to fleet and national customers. Procurement of additional hardware to support sustained, near real-time I&W. * Project KUBOTAN: Integration testing to support design and development of the optimal delivery system. Explore transition opportunities and expansion of target set. Continue Artificial Intelligence/Machine Learning (AI/ML) efforts for network reconstruction. Continue analysis of adversary communications system. Continue RF propagation modeling software. * Project PACIFIC HAZE: Commencement of the Base study to support design and development of a prototype for lab demonstration of the countermeasure. * Project COPPERFIELD: Completion of the lab demonstration to support feasibility assessments of employment locations and mechanisms. Commencement of work towards the field demonstration.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204575N / *Elect Warfare Readiness Supt*	**Project (Number/Name)** 2263 / *Information Warfare System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
* Project CHATTERBOX: Commencement of the Study to support the development of countermeasure prototype, design of the optimal prototype interface, and explore optimal mission employment. * Project VIRTUOSO III: Completion of the Base - hardware and software upgrades to support future countermeasure employment (options 3 and 4). Continue countermeasure development against adversarial C5ISRT C2. Integrate and test countermeasure. * Project BECKHAM: Completion of the study against adversarial C2 systems. Commence development of simple countermeasure techniques. Develop countermeasure test and calibration system. * FOLKVANGR and VALHALLA: Upgraded and maintain facilities to provide additional capabilities against evolving adversarial C5ISRT systems. * MADHATTER and WHITERABBIT: Technology refresh and capability upgrade of systems to increase capability against evolving adversary C5ISRT systems, integrate new advanced technologies and capabilities to reduce manpower intensive tasks, and to maintain security compliance. Support attainment of full three year ATO.					
FY 2024 Base Plans: * Project GRANDSTAND: Delivery of LOE 1 and LOE 2, I&W and geolocation to fleet and national customers. Procurement of additional hardware to support sustained, near real-time I&W. * Project KUBOTAN: Completion and demonstration of integration testing of optimal delivery system. Explore transition opportunities and expansion of target set. Continue AI/ML efforts for network reconstruction against evolving adversarial threat. Continue analysis of adversary communications systems to support future work . Continue RF propagation modeling software to support future work and integration. Leverage Applied Research Laboratory (ARL) to support subsequent testing, integration, and operationalization. * Project PACIFIC HAZE: Development of a prototype for field demonstration for the countermeasure. * Project COPPERFIELD: Conduct field demo and acceptance test of countermeasure. Commence transition of capability. * Project CHATTERBOX: Conduct field demonstration and acceptance test of countermeasure. Commence transition of capability. * Project VIRTUOSO III: Conduct field demonstration and acceptance test of countermeasure. Commence transition of capability. Integrate and test countermeasure on NCWDG TRTD site. Continue future study for future iterations against evolving adversarial threats. * Project BECKHAM: Conduct field demonstration and acceptance test of countermeasure. Commence transition of capability. Integrate and test countermeasure on NCWDG TRTD site. Continue future study for future iterations against evolving adversarial threats.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204575N / *Elect Warfare Readiness Supt*	**Project (Number/Name)** 2263 / *Information Warfare System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
* FOLKVANGR and VALHALLA: Continue upgrades and maintenance of facilities to provide additional capabilities against evolving adversary C5ISRT systems. * MADHATTER and WHITERABBIT: Continue technology refresh and capability upgrade of systems to increase capability against evolving adversary C5ISRT systems. Support sustainment of the ATO. * QUIZZIFY: Continue countermeasure techniques against adversarial C2. Develop countermeasure test and calibration system. * SIREN SONG: Commence countermeasure techniques against adversarial C2 in study and lab demo proof of concept. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY24 increase provides additional development of offensive Cyber and Electronic Warfare capabilities against adversary platforms and C5ISRT. It further supports the shifting from research and intelligence studies to prototyping and demonstrations. (Please refer to TS//SCI Supplement for more details).					
Accomplishments/Planned Programs Subtotals	35.927	31.624	46.300	0.000	46.300

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Projects under this program are designated non-Acquisition Category (ACAT). Defense Acquisition Program Models described in Department of Defense Instruction (DoDI) 5000.2 and guidance are the starting basis used with tailored approaches for the unique character of the product being acquired or the need for accelerated acquisition to streamline acquisition processes as appropriate.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204575N / *Elect Warfare Readiness Supt*	Project (Number/Name) 2263 / *Information Warfare System*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development(1)	Various	Classified : Classified	74.366	0.000		0.000		0.000		-		0.000	0.000	74.366	-
Development	WR	NRL : Washington, DC	30.321	0.000		0.000		0.000		-		0.000	0.000	30.321	-
Support Development	C/FFP	CWG-6 : Ft. Meade	2.123	0.000		0.000		0.000		-		0.000	0.000	2.123	-
System Engineering	C/CPFF	SAIC : Wash D.C.	1.292	0.000		0.000		0.000		-		0.000	0.000	1.292	-
General Development(1)	Various	Classified : Classified	1.800	0.000		0.000		0.000		-		0.000	0.000	1.800	-
Technical Data	C/FFP	Various : Various	3.030	0.000		0.000		0.000		-		0.000	0.000	3.030	-
Software Development	WR	NRL : Washington, DC	1.900	0.000		0.000		0.000		-		0.000	0.000	1.900	-
Hardware/Equipment	Various	DLA, NSA, NAVAIR, GSA : Various	11.551	0.000		0.000		0.000		-		0.000	0.000	11.551	-
System Engineering	WR	NRL : Washington, DC	22.203	0.000		0.000		0.000		-		0.000	0.000	22.203	-
Engineering(1)	Various	Classified : Classified	15.873	0.000		0.000		0.000		-		0.000	0.000	15.873	-
Software Development(1)	Various	Classified : Classified	4.904	0.000		0.000		0.000		-		0.000	0.000	4.904	-
Program	C/CPFF	OakleaSimpon : Ft. Meade	1.283	0.000		0.000		0.000		-		0.000	0.000	1.283	-
Development	MIPR	DOE/INL : Various	1.183	0.000		0.000		0.000		-		0.000	0.000	1.183	-
Countermeasures Development	Various	Various : Various	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Grandstand	SS/CPFF	ICR : CO	5.760	4.127	Jun 2022	4.982	Dec 2022	4.773	Dec 2023	-		4.773	Continuing	Continuing	Continuing
Kubotan	SS/CPFF	PSU : PA	4.301	4.503	Dec 2022	4.310	Dec 2022	4.973	Dec 2023	-		4.973	Continuing	Continuing	Continuing
Pacific Haze	SS/CPFF	Northrup Grumman : OH	1.848	4.100	May 2022	0.000		0.000		-		0.000	0.000	5.948	5.948
Copperfield	SS/CPFF	Lockheed Martin : PA	1.200	1.656	Apr 2022	0.977	Apr 2023	0.500	Apr 2024	-		0.500	Continuing	Continuing	Continuing
Chatterbox	SS/CPFF	ICR : CO	0.000	1.100	Aug 2022	0.514	Aug 2023	1.500	Aug 2024	-		1.500	Continuing	Continuing	Continuing
Virtuoso III	SS/CPFF	Argon : VA	1.249	2.288	Nov 2021	1.295	Nov 2022	1.326	Nov 2023	-		1.326	Continuing	Continuing	Continuing
Beckham	SS/CPFF	Argon : VA	0.997	0.000		0.430	Nov 2022	2.000	Nov 2023	-		2.000	Continuing	Continuing	Continuing
Emerging Technology	SS/CPFF	Argon : VA	1.765	9.452	Jun 2022	10.095	Jun 2023	13.650	Jun 2024	-		13.650	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204575N / *Elect Warfare Readiness Su pt*	**Project (Number/Name)** 2263 / *Information Warfare System*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Quizzify	SS/CPFF	PSU : PA	0.600	0.000		0.000		1.000	Nov 2023	-		1.000	0.000	1.600	-
SIren Song	SS/CPFF	PSU : PA	0.000	0.000		0.000		2.000	Nov 2023	-		2.000	0.000	2.000	-
		Subtotal	189.549	27.226		22.603		31.722		-		31.722	Continuing	Continuing	N/A

Remarks

1-Due to classification category, will not be on Defense Message System General Service (GENSER) classified exhibits. Renaming cost category item beginning in FY22 to align spending against countermeasure development. Please refer to TS//SCI Supplement for more details.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software	WR	NRL : Wash DC	1.538	0.000		0.000		0.000		-		0.000	0.000	1.538	-
Software	WR	NAVWAR : San Diego CA	2.121	0.000		0.000		0.000		-		0.000	0.000	2.121	-
Studies/Analysis	WR	NPS : Monterey CA	1.193	0.000		0.000		0.000		-		0.000	0.000	1.193	-
Program Support - ASEP	MIPR	Army : Ft. Detrick MD	10.148	2.032	Nov 2021	1.893	Nov 2022	2.800	Nov 2023	-		2.800	0.000	16.873	12.558
Software Support	MIPR	JHU APL : Various	1.033	0.000		0.000		0.000		-		0.000	0.000	1.033	-
Software Support	WR	NIWC : Various	1.035	0.000		0.000		0.000		-		0.000	0.000	1.035	-
Software Support	C/CPFF	CMU SEI : Pittsburgh PA	2.700	0.000		0.000		0.000		-		0.000	0.000	2.700	-
General Engineering Support	C/CPFF	PSU ARL : Pittsburgh PA	0.350	0.000		0.000		0.000		-		0.000	0.000	0.350	-
General Engineering Support(1)	C/CPFF	Classified : Classified	0.924	0.000		0.000		0.000		-		0.000	0.000	0.924	-
Test & Evaluation	C/CPFF	PSU ARL : Pittsburgh PA	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Studies/Analysis	C/FFP	Various : Various	1.250	0.000		0.000		0.000		-		0.000	0.000	1.250	-
Development Support	C/CPFF	SNS One : Maryland	1.430	0.000		0.000		0.000		-		0.000	0.000	1.430	-
Development Support	C/CPFF	MITRE : McLean, VA	0.750	0.000		0.000		0.000		-		0.000	0.000	0.750	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204575N / *Elect Warfare Readiness Supt*	Project (Number/Name) 2263 / *Information Warfare System*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Logistics	Various	NAVFAC : MIDLANT VA	0.704	0.000		0.000		0.000		-		0.000	0.000	0.704	-
DEV NET Support(1)	C/CPFF	Classified : Classified	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Intelligence Support	Various	Classified : Classified	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Countermeasure Intel Support/BINDER	MIPR	NRL : Washington, DC	8.448	2.000	Dec 2021	3.282	Dec 2022	3.564	Dec 2023	-		3.564	Continuing	Continuing	Continuing
		Subtotal	33.624	4.032		5.175		6.364		-		6.364	Continuing	Continuing	N/A

Remarks

1-Due to classification category, will not be on Defense Message System General Service (GENSER) classified exhibits. Renaming cost category item beginning in FY23 to align spending against intelligence support. Please refer to TS//SCI Supplement for more details.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	Various	Classified : Classified	9.374	0.000		0.000		0.000		-		0.000	0.000	9.374	-
Developmental Test & Evaluation (DT&E)	Various	Various : Various	1.834	0.000		0.000		3.514	Nov 2023	-		3.514	0.000	5.348	-
Developmental Test & Evaluation (DT&E)	SS/CPFF	PSU : PA	0.629	1.087	Dec 2021	1.075	Dec 2022	1.200	Dec 2023	-		1.200	Continuing	Continuing	Continuing
		Subtotal	11.837	1.087		1.075		4.714		-		4.714	Continuing	Continuing	N/A

Remarks

1-Due to classification category, will not be on Defense Message System General Service (GENSER) classified exhibits.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204575N / *Elect Warfare Readiness Supt*	Project (Number/Name) 2263 / *Information Warfare System*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Services	Various	Classified : Classified	27.298	3.582	Nov 2021	2.771	Nov 2022	3.500	Nov 2023	-		3.500	Continuing	Continuing	Continuing
		Subtotal	27.298	3.582		2.771		3.500		-		3.500	Continuing	Continuing	N/A

Remarks

1-Due to classification category, will not be on Defense Message System General Service (GENSER) classified exhibits. Please refer to TS//SCI Supplement for more details.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	262.308	35.927		31.624		46.300		-		46.300	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204575N / *Elect Warfare Readiness Supt*	**Project (Number/Name)** 2263 / *Information Warfare System*

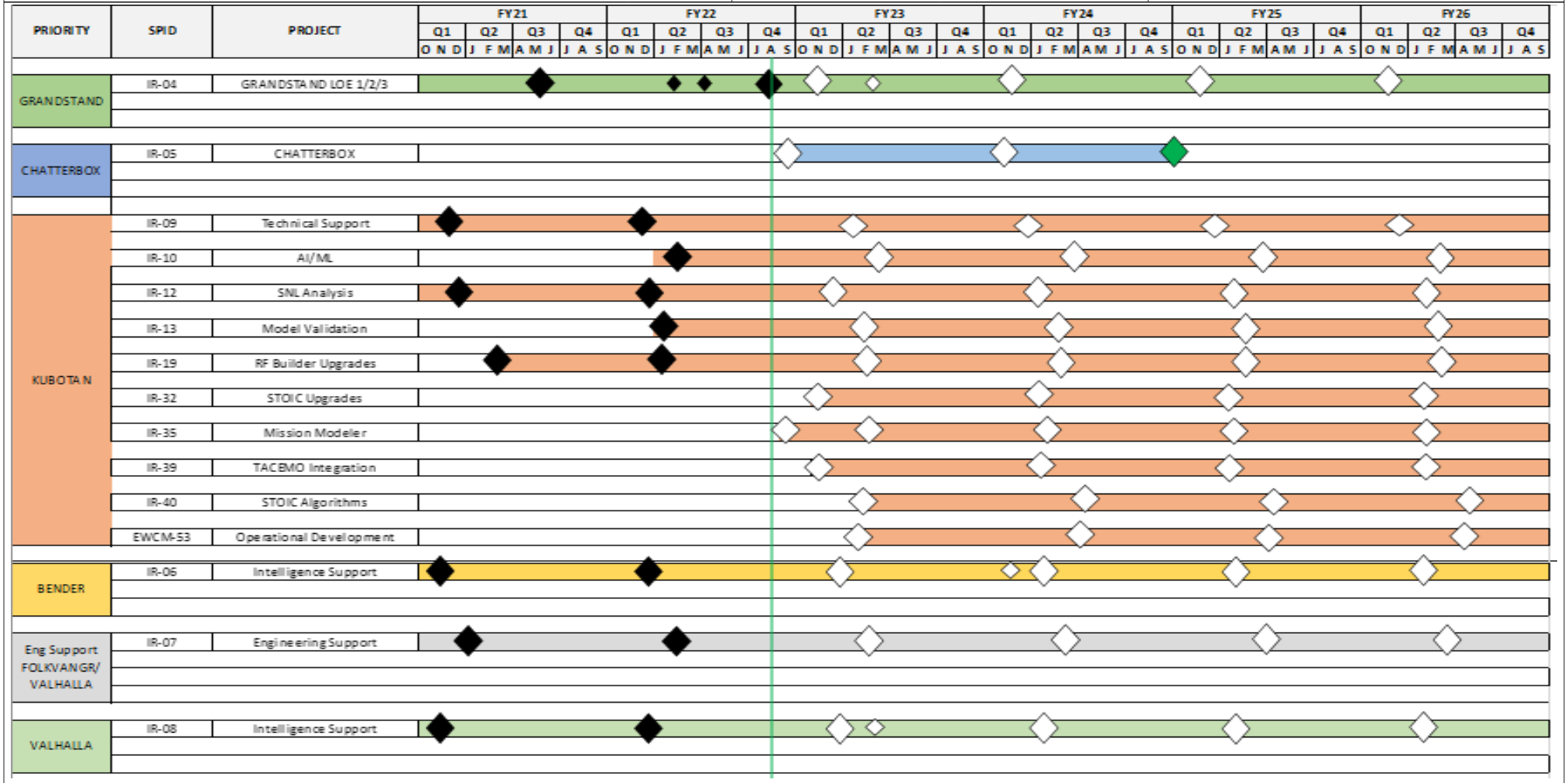

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204575N / *Elect Warfare Readiness Su pt*	**Project (Number/Name)** 2263 / *Information Warfare System*

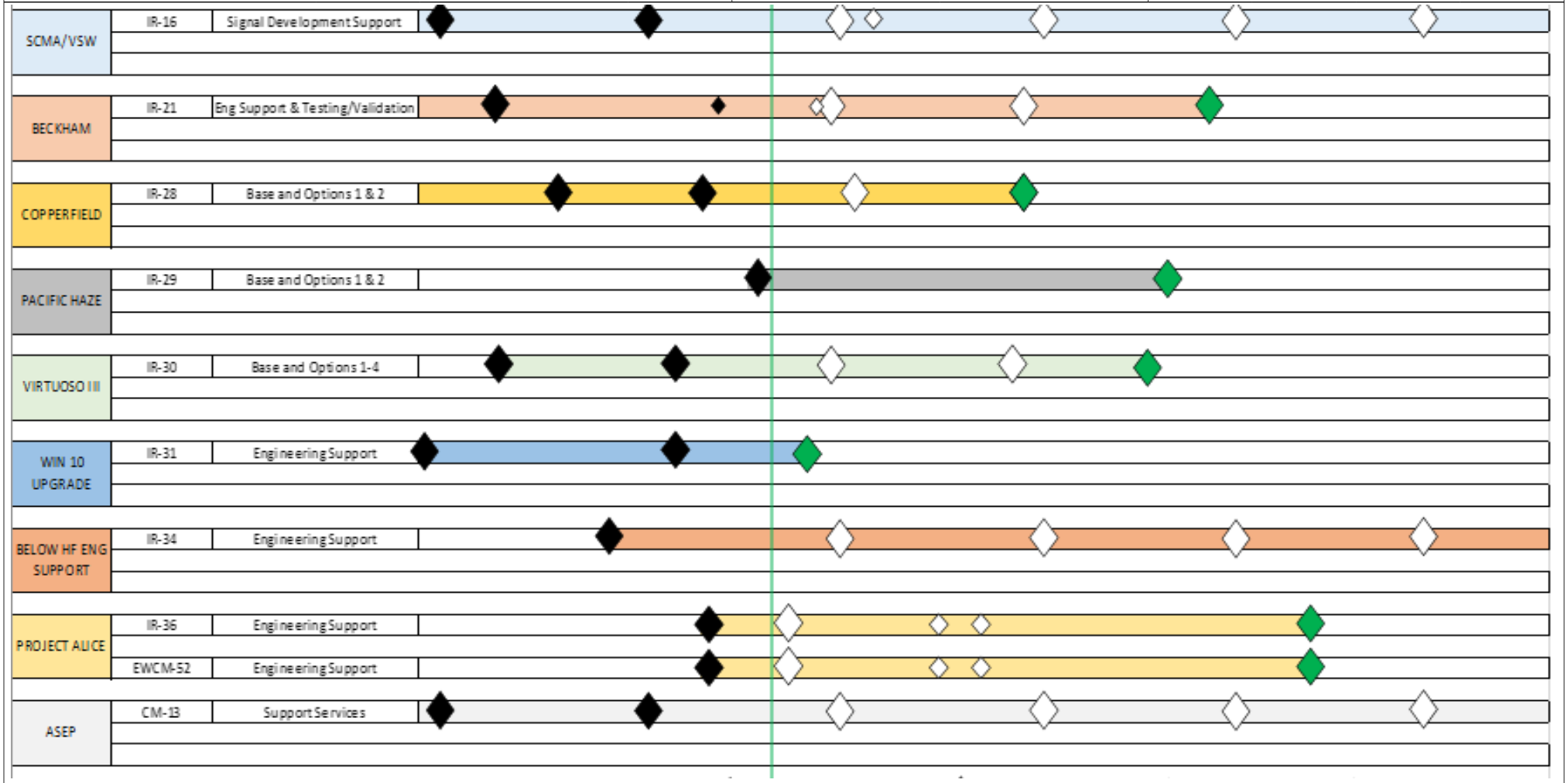

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204575N / *Elect Warfare Readiness Su pt*	**Project (Number/Name)** 2263 / *Information Warfare System*

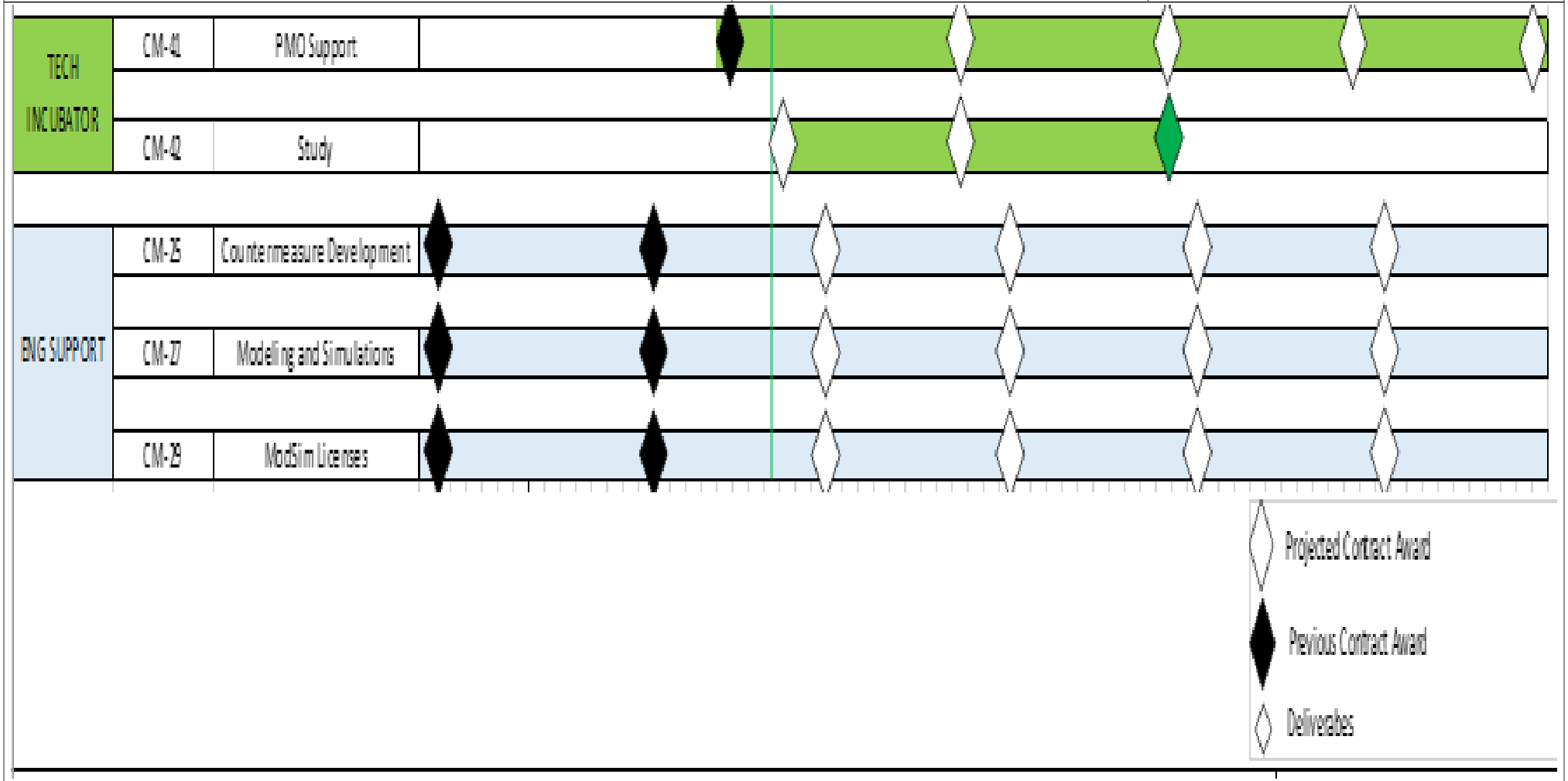

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204575N / *Elect Warfare Readiness Supt*	**Project (Number/Name)** 2263 / *Information Warfare System*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2263				
Product Development: Grandstand	1	2022	4	2026
Product Development: Kubotan	1	2022	4	2026
Product Development: Pacific Haze	4	2022	4	2024
Product Development: Copperfield	1	2022	1	2024
Product Development: Chatterbox	4	2022	4	2024
Product Development: Virtuoso III	1	2022	4	2024
Product Development: Beckham	1	2022	4	2024
Product Development: Siren Song	1	2023	4	2025
Product Development: Quizzify	1	2022	4	2024
Product Development: Emerging Technology	1	2022	4	2028
Support: Countermeasures Intel Support / Binder	1	2022	4	2028
Test and Evaluation: Mod/Sim	1	2022	4	2028
Management Services: Program Management Services	1	2022	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204575N / *Elect Warfare Readiness Supt*	Project (Number/Name) 3426 / *Maritime Cyber*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
3426: *Maritime Cyber*	42.109	17.485	14.312	15.377	-	15.377	17.792	18.152	18.749	19.124	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Please refer to Top Secret//Sensitive Compartmented Information (TS//SCI) Supplement for more details.

A. Mission Description and Budget Item Justification

Maritime Cyber (Project 3426) - The mission is to develop offensive maritime cyber capabilities to deny, degrade, disrupt, destroy (D4) Great Power Competition (GPC) adversarial maritime systems. This budget item funds intelligence support for tool development as well as tool development to access, maneuver through, and deliver a controlled effect against adversarial maritime assets, in support of U.S. Cyber Command (USCC) and U.S. Indo-Pacific Command (USINDOPACOM) requirements.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Maritime Cyber	17.485	14.312	15.377	0.000	15.377
Articles:	-	-	-	-	-
Description: Please refer to Top Secret//Sensitive Compartmented Information Supplement for more details.					
FY 2023 Plans: * OLD FORESTER - Funds integration of elements of cyber command and control with a developed cyber tool that causes an effect of an adversarial system. * WIDOW JANE - Funding supports capabilities to analyze adversarial networks. * BUFFALO TRACE - Funding supports analysis and development of cyber tools to cause an effect against adversarial platforms. * Naval Postgraduate School (NPS) - Funding supports Engineering Enclave for Maritime Security (EEMS) lab and vulnerability analysis, as well as supports Naval Officer continuing education and professional development. * EAGLE RARE - Funding supports the development of tools focused on maneuvering and delivering effects against adversarial maritime platforms. * WHISTLE PIG - Funding supports intelligence support to ensure capability development is focused and applicable to current adversarial capabilities. * HEAVEN HILL - Funding supports continued development of access vectors and command and control methods to operate on maritime networks. * ADDITIONAL CAPABILITY DEVELOPMENT - Funding supports new, innovative methods for integrating and executing an end-to-end kill chain.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204575N / *Elect Warfare Readiness Supt*	**Project (Number/Name)** 3426 / *Maritime Cyber*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
* Conduct intelligence analysis and vulnerability research to support future development and cyber operations. ***FY 2024 Base Plans:*** * Continue development of multiple maritime cyber capabilities against adversary systems. * Conduct intelligence analysis and vulnerability research to support future development and cyber operations. * Expand scope and survivability of kill chain while maintaining previously developed tools. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY2024 increase supports continued development of Maritime Cyber D4 capabilities and the testing of operational prototypes.					
Accomplishments/Planned Programs Subtotals	17.485	14.312	15.377	0.000	15.377

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Projects are designated non-Acquisition Category (ACAT). Defense Acquisition Program Models described in Department of Defense Instruction (DoDI) 5000.2 and guidance are the starting basis used with tailored approaches for the unique character of the product being acquired or the need for accelerated acquisition to streamline acquisition processes as appropriate.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204575N / *Elect Warfare Readiness Supt*	Project (Number/Name) 3426 / *Maritime Cyber*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CARBONAXE	MIPR	AF/iCR : Auora, CO	0.000	1.020	Dec 2021	0.000		0.000		-		0.000	0.000	1.020	Continuing
CARBONBLADE	MIPR	AF/iCR : Aurora, CO	0.000	0.935	Dec 2021	0.000		0.000		-		0.000	0.000	0.935	Continuing
CARBONCUTLASS	C/BOA	NSMA/iCR : Aurora, CO	0.000	1.258	Jun 2022	0.000		0.000		-		0.000	0.000	1.258	Continuing
ATRALKELPIE	MIPR	MIT/LL : Boston, MA	0.690	0.500	Dec 2021	0.257	Dec 2022	0.581	Dec 2023	-		0.581	Continuing	Continuing	Continuing
PETREL	MIPR	MIT/LL : Boston, MA	0.460	0.400	Dec 2021	0.171	Dec 2022	0.387	Dec 2023	-		0.387	Continuing	Continuing	Continuing
REDWAGON	C/BOA	PSU : PA	0.000	0.512	Nov 2021	0.000		0.000		-		0.000	0.000	0.512	Continuing
BLACKTEMPEST	Various	DOE : Classified	0.100	0.500	Dec 2021	0.095	Dec 2022	0.100	Dec 2023	-		0.100	0.500	1.295	Continuing
BLACKTHUNDER	Various	DOE : Classified	0.000	0.500	Dec 2021	0.000		0.000		-		0.000	0.500	1.000	Continuing
BLACKTORNADO	Various	DOE : Classified	0.000	0.500	Dec 2021	0.000		0.000		-		0.000	0.500	1.000	-
BLACKTRANQUILIZER	Various	DOE : Classified	0.100	1.000	Dec 2021	0.095	Dec 2022	0.100	Dec 2023	-		0.100	1.000	2.295	-
BLACKZOMBIE	Various	DOE : Classified	0.000	1.500	Dec 2021	0.238	Dec 2022	0.100	Dec 2023	-		0.100	0.100	1.938	-
BLACKYIELD	WR	NSWC : Philadelphia, PA	0.000	0.250	Dec 2021	0.000		0.000		-		0.000	0.000	0.250	-
NIGHTLOCK	WR	NSWC : Philadelphia, PA	0.000	0.175	Dec 2021	0.950	Dec 2022	0.000		-		0.000	0.000	1.125	-
HTI (YETI)	Various	DOE : LANL: NM	2.735	0.675	Feb 2022	0.285	Dec 2022	0.000		-		0.000	0.000	3.695	-
POSEIDONSPEAR	C/BOA	NSMA : MD	0.200	0.600	May 2022	0.000		0.000		-		0.000	0.000	0.800	-
GARTERSNAKE	MIPR	MITRE : VA	0.625	0.198	Jan 2022	0.000		0.000		-		0.000	0.000	0.823	-
Additional Classified Tools	Various	Various : Various	0.000	0.000		3.991	Dec 2022	4.256	Dec 2023	-		4.256	0.000	8.247	-
Research and Vulnerability Analysis	WR	NPS : Monterey, CA	1.117	0.800	Nov 2021	0.760	Dec 2022	1.000	Dec 2023	-		1.000	Continuing	Continuing	Continuing
Additional Capability Development Efforts	Various	Various : Various	2.430	2.807	Dec 2021	3.112	Dec 2022	4.057	Dec 2023	-		4.057	Continuing	Continuing	Continuing
Previous Tool Development	Various	Various : Various	20.982	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	29.439	14.130		9.954		10.581		-		10.581	Continuing	Continuing	N/A

Remarks

See TS//SCI Addendum for details.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0204575N / *Elect Warfare Readiness Supt*	Project (Number/Name) 3426 / *Maritime Cyber*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Intelligence Analysis	Various	Various : Various	11.638	2.367	Dec 2021	2.690	Dec 2022	2.896	Dec 2023	-		2.896	Continuing	Continuing	Continuing
		Subtotal	11.638	2.367		2.690		2.896		-		2.896	Continuing	Continuing	N/A

Remarks

See TS//SCI Addendum for details.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	MIPR	USAF : San Antonio, TX	0.065	0.120	Nov 2021	0.238	Dec 2022	0.300	Dec 2023	-		0.300	Continuing	Continuing	Continuing
		Subtotal	0.065	0.120		0.238		0.300		-		0.300	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Managment	Various	Various : Various	0.967	0.868	Jan 2022	1.430	Dec 2022	1.600	Dec 2023	-		1.600	Continuing	Continuing	Continuing
		Subtotal	0.967	0.868		1.430		1.600		-		1.600	Continuing	Continuing	N/A

Remarks

1-Due to classification category, will not be on GENSER classified exhibits. (See Top Secret//Sensitive Compartmented Information Addendum for details).

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	42.109	17.485		14.312		15.377		-		15.377	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204575N / *Elect Warfare Readiness Supt*	**Project (Number/Name)** 3426 / *Maritime Cyber*

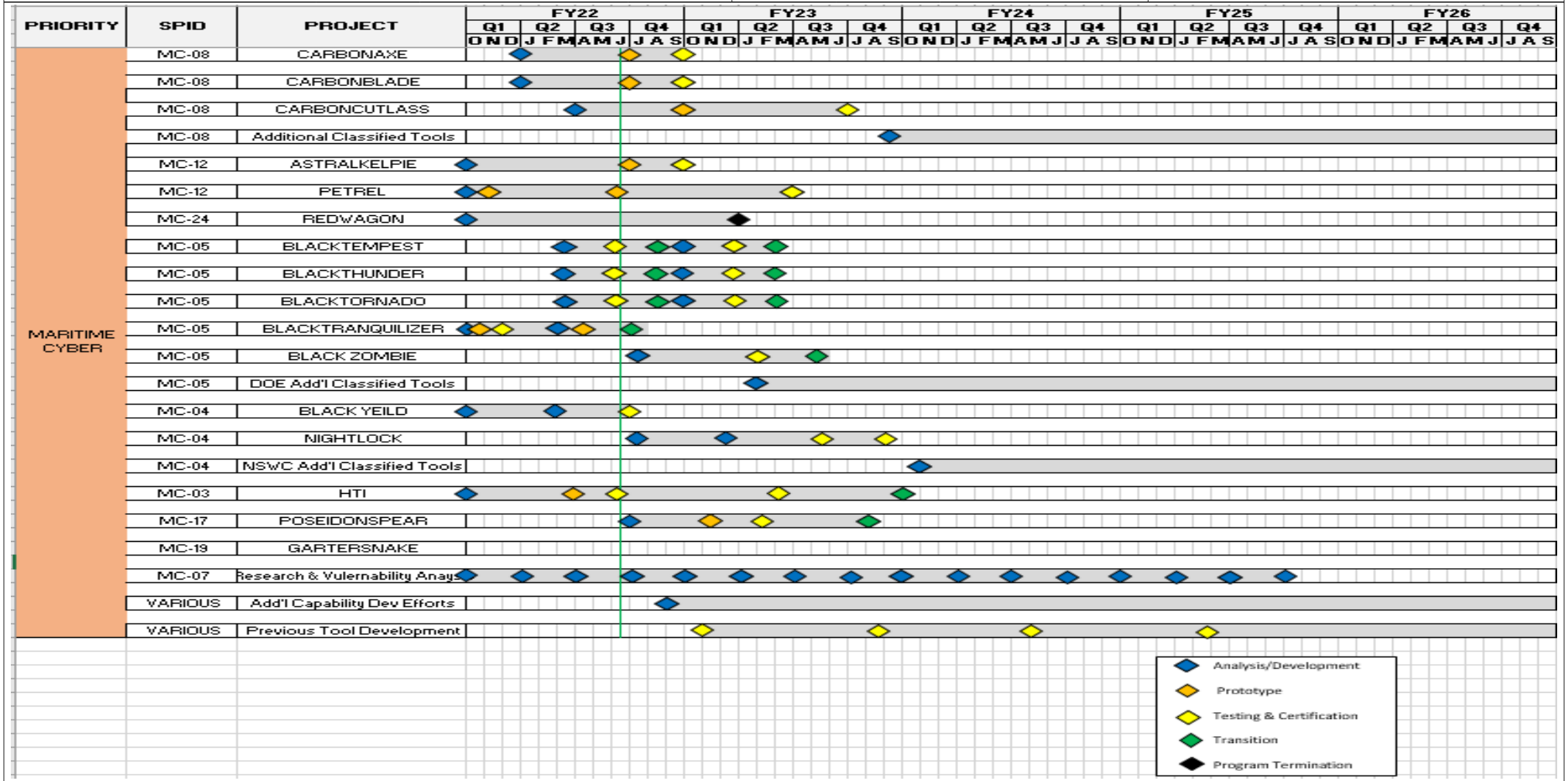

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0204575N / *Elect Warfare Readiness Supt*	**Project (Number/Name)** 3426 / *Maritime Cyber*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3426				
Product Development: CARBONAXE	1	2022	4	2028
Product Development: CARBONBLADE	1	2022	4	2028
Product Development: CARBONCUTLASS	1	2022	4	2028
Product Development: ATRALKELPIE	1	2022	4	2028
Product Development: PETREL	1	2022	4	2028
Product Development: REDWAGON	1	2022	1	2023
Product Development: BLACKTEMPEST	1	2022	4	2028
Product Development: BLACKTHUNDER	1	2022	4	2028
Product Development: BLACKTRANQUILIZER	1	2022	4	2028
Product Development: BLACKZOMBIE	1	2022	4	2028
Product Development: BLACKYIELD	1	2022	4	2028
Product Development: NIGHTLOCK	1	2022	4	2028
Product Development: Studies & Analysis	1	2022	4	2028
Product Development: HTI (YETI)	1	2022	3	2023
Product Development: Development Support	1	2022	4	2028
Product Development: POSEIDONSPEAR	1	2022	4	2023
Product Development: GARTERSNAKE	1	2022	4	2023
Product Development: Additional Classified Tools	1	2022	4	2028
Support: Intelligence Analysis	1	2022	4	2028
Test and Evaluation: Test and Evaluation	1	2022	4	2028
Management Services: Program Management	1	2022	4	2028

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0205601N *I ANTI-RADIATION MISSILE IMPROVEMENT*

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	1,285.933	133.315	89.479	59.555	-	59.555	34.681	30.691	19.049	18.353	Continuing	Continuing
1780: *ARM Improvement*	75.670	6.129	7.144	6.718	-	6.718	7.268	7.396	7.531	7.682	Continuing	Continuing
2185: *AARGM*	773.099	1.918	1.021	1.030	-	1.030	1.032	1.031	1.018	1.038	Continuing	Continuing
2189: *AARGM ER*	423.635	120.568	76.314	51.807	-	51.807	26.381	22.264	10.500	9.633	Continuing	Continuing
9999: *Congressional Adds*	13.529	4.700	5.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	23.229

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): 607

A. Mission Description and Budget Item Justification

Research, Development, Test and Evaluation funding for the Joint Service Anti-Radiation Missile (ARM) program, which will include near and far term performance improvements, cost reduction, and studies that establish future development requirements.

JUSTIFICATION FOR BUDGET ACTIVITY: These projects are funded under Operational Systems Development because they include 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. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	138.520	90.779	49.137	-	49.137
Current President's Budget	133.315	89.479	59.555	-	59.555
Total Adjustments	-5.205	-1.300	10.418	-	10.418
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-6.300			
• Congressional Rescissions	-	-			
• Congressional Adds	-	5.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-1.813	0.000			
• SBIR/STTR Transfer	-3.393	0.000			
• Program Adjustments	0.000	0.000	9.806	-	9.806
• Rate/Misc Adjustments	0.001	0.000	0.612	-	0.612

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2022	FY 2023
Project: 9999: *Congressional Adds*		

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0205601N *I ANTI-RADIATION MISSILE IMPROVEMENT*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2022	FY 2023
Congressional Add: *Advanced Anti-Radiation Guided Missile (AARGM) and the Extended Range (ER)*	4.700	0.000
Congressional Add: *AARGM improvements*	0.000	5.000
Congressional Add Subtotals for Project: 9999	4.700	5.000
Congressional Add Totals for all Projects	4.700	5.000

Change Summary Explanation

Program increase of $9.806M in FY 2024 as indicated on the Program Change Summary includes adding a Virtual Store capability and Next Generation Naval Mission Planning System (NGNMPS) as follow-on development efforts to the AARGM-ER.

Rate/misc adjustments of $0.612M in FY 2024 is for inflationary and rate adjustments.

Project Unit 2185 Schedule Changes since the previous President's Budget submission:
-NGNMPS will begin in 1 QTR FY 2024 and end in 4 QTR FY 2028.
-FRP-8 delivery end date has been moved from 3 QTR FY 2022 to 4 QTR FY 2022.
-FRP-9 delivery start date has been moved from 3 QTR FY 2022 to 3 QTR FY 2023 and end date has been moved from 2 QTR FY 2023 to 2 QTR FY 2024.
-FRP-10 delivery end date has been moved from 2 QTR FY 2024 to 3 QTR FY 2024.
-M-Code ECP award date has been moved from 2 QTR FY 2022 to 3 QTR FY 2023.

Project Unit 2189 Schedule Changes since the previous President's Budget submission:
-Initial Operational Capability date has moved from 4 QTR FY 2023 to 2 QTR FY 2024.
-Engineering & Manufacturing Development end date has moved from 4 QTR FY 2023 to 2 QTR FY 2024 to reflect completion of EMD.
-Test Asset deliveries end date has moved from 1 QTR FY 23 to 2 QTR FY 2024 to include delivery of FY 2022 procured AARGM-ER Live Fire Test and Evaluation (LFT&E) assets.
-M-Code/GP Redesign start date has moved from 2 QTR FY 2022 to 3 QTR FY 2022 to reflect actual contract award.
-Virtual Store and NGNMPS added as follow-on development efforts. Virtual Store will begin in 1 QTR FY 2024 and end in 3 QTR FY 2026. NGNMPS will begin in 1 QTR FY 2024 and end in 4 QTR FY 2028.
-Aircraft Integration end date has moved from 4 QTR FY 2023 to 2 QTR FY 2024.
-Developmental Test end date has moved from 1 QTR FY 2023 to 2 QTR FY 2023.
-Developmental Test & Evaluation for Stations 2 and 10 Aircraft Integration has been added. This will start in 4 QTR FY 2023 and end in 2 QTR FY 2025.
-Operational Test end date has moved from 4 QTR FY 2023 to 2 QTR FY 2024.
-Correction of Deficiencies (CoD) start date has moved from 1 QTR FY 2024 to 1 QTR FY 2025. The start of CoD has slid due to extension of Operational testing into FY 2024.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0205601N *I ANTI-RADIATION MISSILE IMPROVEMENT*

-FOT&E start date has moved from 1 QTR FY 2024 to 2 QTR FY 2024.

Project Unit 9999 Changes:
-Schedule Changes: Control Design Analysis and Surface Launch Demonstration start dates were moved from 2 QTR FY 2022 to 3 QTR FY 2022 to reflect actual contract award and end dates were moved from 2 QTR FY 2023 to 3 QTR FY 2023.
- FY 2023 Congressional Add increases funds for research and study activities related to incorporating Solid Fuel Ramjet into the AARGM-ER.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205601N / *ANTI-RADIATION MISSILE IMPROVEMENT*	Project (Number/Name) 1780 / *ARM Improvement*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
1780: *ARM Improvement*	75.670	6.129	7.144	6.718	-	6.718	7.268	7.396	7.531	7.682	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Anti-Radiation Missile (ARM) Improvement is a combination of the Navy-led High Speed Anti-Radiation Missile (HARM) program, the Advanced Anti-Radiation Guide Missile (AARGM) program and the Advanced Anti-Radiation Guided Missile Extended Range (AARGM-ER). HARM is a Navy led joint service program with the United States Air Force. AARGM is a program derived from a Small Business Innovative Research (SBIR) program that developed a dual mode guidance section, incorporating Millimeter Wave (MMW) radar with an advanced anti-radiation homing seeker. Additional AARGM capabilities include Global Positioning System (GPS) enabled point-to-point weapon engagement and missile impact avoidance/missile impact zones, MMW terminal guidance, and a Weapon Impact Assessment (WIA) transmitter to provide Battle Damage Assessment (BDA) cueing. AARGM-ER is a derivative of the AARGM program that repackages the seeker electronics and all of weapon engagement capabilities from AARGM into a new missile shape with a new rocket motor to achieve greater speed, range and survivability.

AGM-88 ARM weapon systems require periodic updates to the user database to remain relevant based on changing threat parameters, enhanced air defense engagement tactics and modern complex emerging systems. These funds provide the means to conduct ground and flight testing against actual and surrogate threat systems. Procurement deliverables include surrogate threat system MMW radar shapes and surrogate complex emitter systems. Foreign Material Assessment (FMA) evaluates AGM-88 ARM performance against threat systems to develop alternative Concept of Operations (CONOPs) against emerging threat capabilities. FMA testing also includes assessment of special project efforts to support advanced kill-chain capability development against threat systems.

FMA deliverables include analytical reports on findings, critical updates to fleet tactics manuals, curriculum changes to the Suppression of Enemy Air Defenses / Destruction of Enemy Air Defenses lead Air Combat Training Curriculum course work and weapon school tactics/training and procedure briefs. FMA focuses on air defense weapon system exploitation, analysis and subsequent integration and response to ensure that the AGM-88 ARM weapon systems family remains relevant in the planned operational environment.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: ARM Foreign Material Assessment (FMA)	6.129	7.144	6.718	0.000	6.718
Articles:	-	-	-	-	-
FY 2023 Plans: The FMA team will continue to conduct FMA testing (both ground-based and captive flight testing), data analysis, and systems engineering to maximize ARM family of weapons effectiveness against threat air defense systems in FY 2023.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205601N / *ANTI-RADIATION MISSILE IMPROVEMENT*	**Project (Number/Name)** 1780 / *ARM Improvement*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
ARM FMA laboratory, ground and flight testing will evaluate AARGM and AARGM-ER capabilities against threat systems to evaluate lethality improvement options. FMA assessments will remain focused on emerging modern complex threat systems as they become available for evaluation as well as theater/country-specific systems of interest. FMA HW procurements will continue as an important element to support threat system evaluations for AARGM/AARGM-ER digital Anti-Radiation Homing (ARH) seekers and Millimeter Wave (MMW) terminal seekers. Priorities are coordinated through the Fleet ARM Steering Committee. Expect continued testing and evaluation on advanced Surface-to-Air weapons and related IADS, jammers, and ARM countermeasures. Fleet engagement will continue as a key element of testing, engineering, and analytical efforts, which includes funding for threat assessment, algorithm update recommendations, operational updates, and integration efforts. Additional test priorities include characterizing emerging complex threat systems in the field, so that FMA assessments can directly populate missile threat data libraries with updated attributes to enhance lethality for ARM family of weapons along with continued assessment of special projects developmental improvements against foreign material.					
FY 2024 Base Plans: FMA will continue to maximize AGM-88 ARM weapon effectiveness against threat air defense systems through laboratory, ground-based, captive and live-fire flight test events, data analysis, and systems engineering to improve weapon employment lethality. FMA testing via laboratory, ground and flight events will evaluate AARGM and AARGM-ER digital Anti-Radiation Homing (ARH) seeker and Millimeter Wave (MMW) terminal seeker capabilities against threat systems to evaluate lethality improvement options. FMA assessments will remain focused on emerging modern complex threat systems as well as theater/country-specific systems of interest. Expect continued testing and evaluation on advanced Surface-to-Air weapons and related IADS, jammers, and ARM countermeasures. FMA HW procurements are an important element to enable threat system evaluations. Threat system HW procurement priorities are coordinated through the Fleet ARM Steering Committee. Fleet engagement will also continue as a key element of testing, engineering, and analytical efforts, which includes funding for threat assessment, algorithm update recommendations, operational updates, and integration efforts. Fleet testing priorities include characterizing emerging complex threat systems in the field, so FMA assessments can directly populate missile threat data libraries with updated attributes to enhance lethality for AGM-88 ARM weapons.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205601N / *ANTI-RADIATION MISSILE IMPROVEMENT*	**Project (Number/Name)** 1780 / *ARM Improvement*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
FMA will also assess special project efforts to support over the horizon (OTH)/advanced kill-chain capability development against threat systems. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY 2023 to FY 2024 decreased due to reduced algorithm development and system engineering support.					
Accomplishments/Planned Programs Subtotals	6.129	7.144	6.718	0.000	6.718

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

ARM system updates are provided through the System Support Activity (SSA) at Naval Air Warfare Center - Weapons Division (NAWCWD), China Lake, CA. ARM fleet priorities are set by the Fleet ARM Steering Committee. FMA procurement of surrogate threat system hardware components are executed through supplier contracts and deliver to the Government team for integration into complete surrogate threat systems. Hardware components expense upon the delivery of end items, which normally take 8-12 months to deliver.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205601N / *ANTI-RADIATION MISSILE IMPROVEMENT*	Project (Number/Name) 1780 / *ARM Improvement*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NAWCWD : China Lake, CA	14.600	1.802	Nov 2021	2.266	Nov 2022	1.971	Nov 2023	-		1.971	Continuing	Continuing	Continuing
Systems Engineering	Various	Various : Various	1.233	0.300	Dec 2021	0.420	Jul 2023	0.320	Jul 2024	-		0.320	Continuing	Continuing	Continuing
Hardware Procurement	C/IDIQ	DTIC : FT Belvoir, VA	5.195	2.074	Dec 2021	2.222	Jan 2023	2.376	Nov 2023	-		2.376	Continuing	Continuing	Continuing
Algorithm Development	C/IDIQ	Northrop Grumman Defense Systems : Northridge, CA	0.000	0.808	Nov 2021	0.810	Mar 2023	0.619	Nov 2023	-		0.619	0.000	2.237	-
Prior Year Prod Dev no longer funded in FYDP	Various	Various : Various	24.732	0.000		0.000		0.000		-		0.000	0.000	24.732	-
		Subtotal	45.760	4.984		5.718		5.286		-		5.286	Continuing	Continuing	N/A

Remarks

FY 2024 funding supports hardware procurement as well as manpower, system engineering, analysis and software development updates resulting from the evaluation of foreign material assessment data. Vendor software updates are required when threat library or user data file updates are unable to provide critical missile improvements. Fleet engagement will continue as a key element of testing, engineering, and analytical efforts, which includes funding for threat assessment, algorithm update recommendations, operational updates, and integration efforts.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	NAWCWD : China Lake, CA	9.740	0.877	Nov 2021	1.150	Nov 2022	1.155	Nov 2023	-		1.155	0.000	12.922	-
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	Various	Various : Various	18.701	0.000		0.000		0.000		-		0.000	0.000	18.701	-
		Subtotal	28.441	0.877		1.150		1.155		-		1.155	0.000	31.623	N/A

Remarks

FY 2024 funding supports laboratory, ground, and flight testing that leverages previous investments in ARM laboratory capabilities.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205601N / *ANTI-RADIATION MISSILE IMPROVEMENT*	**Project (Number/Name)** 1780 / *ARM Improvement*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	NAWCAD : Patuxent River, MD	1.008	0.260	Nov 2021	0.260	Nov 2022	0.262	Nov 2023	-		0.262	0.000	1.790	-
Travel	WR	Various : Various	0.461	0.008	Nov 2021	0.016	Nov 2022	0.015	Dec 2023	-		0.015	0.000	0.500	-
		Subtotal	1.469	0.268		0.276		0.277		-		0.277	0.000	2.290	N/A

Remarks

Contract Type for Travel is Travel Order (TO).

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	75.670	6.129		7.144		6.718		-		6.718	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205601N / *ANTI-RADIATION MISSILE IMPROVEMENT*	**Project (Number/Name)** 1780 / *ARM Improvement*

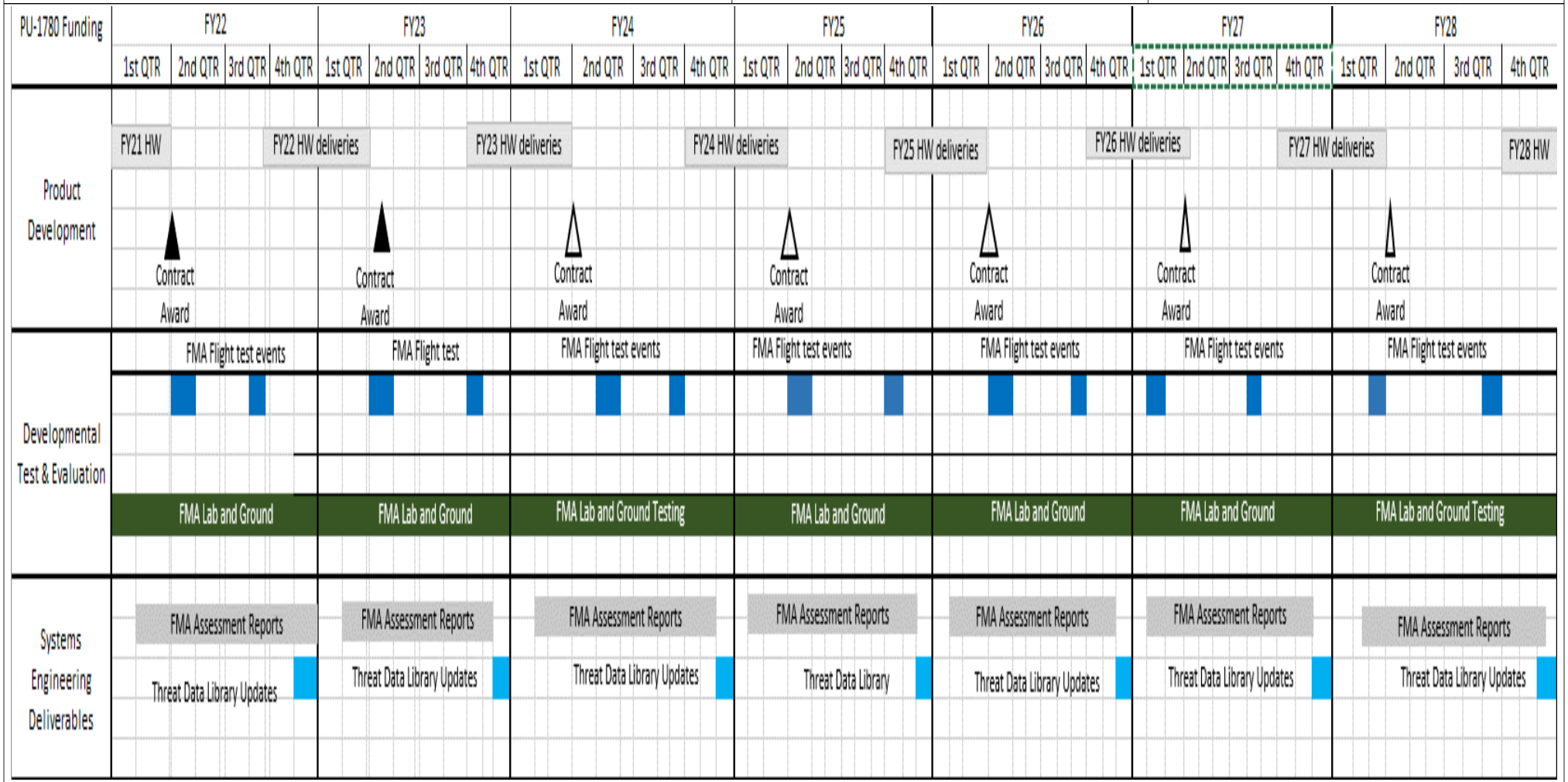

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205601N / *ANTI-RADIATION MISSILE IMPROVEMENT*	**Project (Number/Name)** 1780 / *ARM Improvement*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
ARM IMPROVEMENT				
Product Development: Shape and Transmitter procurements: Contract award FY 2022	1	2022	1	2022
Product Development: Shape and Transmitter procurements: Contract award FY 2023	1	2023	1	2023
Product Development: Shape and Transmitter procurements: Contract award FY 2024	1	2024	1	2024
Product Development: Shape and Transmitter procurements: Contract award FY 2025	1	2025	1	2025
Product Development: Shape and Transmitter procurements: Contract award FY 2026	1	2026	1	2026
Product Development: Shape and Transmitter procurements: Contract award FY 2027	1	2027	1	2027
Product Development: Shape and Transmitter procurements: Contract award FY 2028	1	2028	1	2028
Product Development: Shape and Transmitter procurements: Hardware deliveries FY 2021	1	2022	1	2022
Product Development: Shape and Transmitter procurements: Hardware deliveries FY 2022	4	2022	1	2023
Product Development: Shape and Transmitter procurements: Hardware deliveries FY 2023	4	2023	1	2024
Product Development: Shape and Transmitter procurements: Hardware deliveries FY 2024	4	2024	1	2025
Product Development: Shape and Transmitter procurements: Hardware deliveries FY 2025	4	2025	1	2026
Product Development: Shape and Transmitter procurements: Hardware deliveries FY 2026	4	2026	1	2027
Product Development: Shape and Transmitter procurements: Hardware deliveries FY 2027	4	2027	1	2028
Product Development: Shape and Transmitter procurements: Hardware deliveries FY 2028	4	2028	4	2028

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205601N / *ANTI-RADIATION MISSILE IMPROVEMENT*	**Project (Number/Name)** 1780 / *ARM Improvement*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Test & Evaluation: FMA Flight Testing: FMA Flight Testing	1	2022	4	2028
Test & Evaluation: FMA Lab & Ground Testing: FMA Lab & Ground Testing	1	2022	4	2028
Systems Engineering Deliveries: Threat Data Library Update: Threat Data Library Update FY 2022	4	2022	4	2022
Systems Engineering Deliveries: Threat Data Library Update: Threat Data Library Update FY 2023	4	2023	4	2023
Systems Engineering Deliveries: Threat Data Library Update: Threat Data Library Update FY 2024	4	2024	4	2024
Systems Engineering Deliveries: Threat Data Library Update: Threat Data Library Update FY 2025	4	2025	4	2025
Systems Engineering Deliveries: Threat Data Library Update: Threat Data Library Update FY 2026	4	2026	4	2026
Systems Engineering Deliveries: Threat Data Library Update: Threat Data Library Update FY 2027	4	2027	4	2027
Systems Engineering Deliveries: Threat Data Library Update: Threat Data Library Update FY 2028	4	2028	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy										Date: March 2023		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0205601N / *ANTI-RADIATION MISSILE IMPROVEMENT*				Project (Number/Name) 2185 / *AARGM*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
2185: *AARGM*	773.099	1.918	1.021	1.030	-	1.030	1.032	1.031	1.018	1.038	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Advanced Anti-Radiation Guided Missile (AARGM) transitioned a Phase III Small Business Innovation Research (SBIR) program to develop and demonstrate a multi-mode guidance section on a High Speed Anti-Radiation Missile (HARM) airframe to System Development and Demonstration (SD&D) in FY 2003. The AARGM SD&D program was designed to integrate multi-mode guidance (passive Anti-Radiation Homing (ARH)/active Millimeter Wave (MMW) Radar/Global Positioning System (GPS)/Inertial Navigation System) on the HARM Air-to-Ground Missile (AGM)-88. Planned AARGM weapon system capabilities include: active MMW terminal guidance to counter shutdown, expanded threat coverage, enhanced ARH, Weapon Impact Assessment (WIA) transmitted prior to detonation, GPS/point-to-point weapon navigation, enhanced navigational performance in denied environments and weapon employment with impact avoidance zone/missile impact zones.

The AARGM program includes 40 SD&D test articles with follow on production modification kits. Milestone C was achieved 4Q FY 2008, followed by a combined FY 2008/FY 2009 Low-Rate Initial Production (LRIP) contract award in 1Q FY 2009. Developmental testing was completed in 2009. Initial Operational Test and Evaluation (IOT&E) was completed in 3Q FY 2012. Full-Rate Production (FRP) decision was received 4 September 2012, with FRP contract award on 10 September 2012, and deliveries began in January 2014.

The AARGM Block 1 Upgrade program began in FY 2012 and consists of a software only upgrade to implement deferred Key Performance Parameter 3 and to correct IOT&E deficiencies in the AGM-88E All-Up-Round as well as the Common Munitions Built-in Test (BIT) Reprogramming Equipment (CMBRE). Follow-on Operational Test and Evaluation/Integrated Test (FOT&E/IT) of the Block 1 Upgrade completed with Fleet Release approval in July 2017, and fielding completed in January 2018.

The AARGM program continues to upgrade Electronic Intelligence (ELINT) files for missile updates and testing against advanced Integrated Air Defense System (IADS) over the FY 2023 - FY 2028 timeframe.

FY 2024 funding will continue to support AARGM ELINT file upgrades, lab ground and flight tests, commencement of AARGM integration into the new mission planning tool, and technology infusion for obsolescence mitigations.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**
Title: Threat Data Library / System Updates	0.343	0.417	0.419	0.000	0.419
Articles:	-	-	-	-	-
FY 2023 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205601N / *ANTI-RADIATION MISSILE IMPROVEMENT*	**Project (Number/Name)** 2185 / *AARGM*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
FY 2023 activities continue to include efforts to upgrade and prioritize ELINT as well as test and assessment of threat systems that impact already fielded weapons, development of threat data for new target sets, and test and evaluation on advanced Surface-to-Air weapons and related IADS, jammers, ARM countermeasures, and human system interface improvements to mission planning. ***FY 2024 Base Plans:*** FY 2024 activities include continuation of AARGM ELINT file upgrades as well as lab ground and flight tests. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY 2023 to FY 2024 increased due to inflation.					
Title: Follow-on Test and Evaluation and Correction of Deficiencies	0.100	0.504	0.611	0.000	0.611
Articles:	-	-	-	-	-
FY 2023 Plans: Continue assessing software and hardware anomalies, as well as testing verification and validation of E2 Hardware algorithms and software. ***FY 2024 Base Plans:*** FY 2024 activities include continuation of software and hardware anomaly and technology infusion assessment for obsolescence mitigation. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY 2023 to FY 2024 increased due to technology infusion assessment for obsolescence mitigation.					
Title: Advanced Development	1.475	0.100	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2023 Plans: Funds will support corrections for ADP software. ***FY 2024 Base Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205601N / *ANTI-RADIATION MISSILE IMPROVEMENT*	**Project (Number/Name)** 2185 / *AARGM*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY 2023 to FY 2024 decreased due to completion of Advanced Development software corrections.					
Accomplishments/Planned Programs Subtotals	1.918	1.021	1.030	0.000	1.030

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• WPN/2327: *AARGM*	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1,468.086

Remarks

AARGM procurement funding ended in FY 2021.

D. Acquisition Strategy

The AARGM program started as a Phase I Small Business Innovative Research (SBIR) Advanced Technology Program and evolved into a Phase III SBIR program that transitioned into a System Development and Demonstration (SD&D) Acquisition Category 1C program in June 2003. The AARGM SD&D met most U.S. Navy operational requirements. AARGM Block 1 fulfills the rest of the operational requirements. Block 1 Fleet Release was approved in 4Q FY 2017. The AARGM program added GPS M-code in FY 2018 - FY 2021. For FY 2022 and out, the program will continue follow-on development efforts, ELINT file upgrades, and obsolescence mitigation for the AARGM missile.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205601N / *ANTI-RADIATION MISSILE IMPROVEMENT*	Project (Number/Name) 2185 / *AARGM*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NAWCWD : China Lake, CA	90.232	0.250	Nov 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Mission Planning	WR	Various : Various	1.133	0.000		0.087	Nov 2022	0.088	Nov 2023	-		0.088	Continuing	Continuing	Continuing
Advanced Threats Development	SS/CPIF	Northrop Grumman Defense Systems : Northridge, CA	6.000	0.000		0.000		0.000		-		0.000	0.000	6.000	6.000
Software Efforts & Advanced Development	WR	NAWCWD : China Lake, CA	0.000	0.970	Nov 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Prior year Prod Dev no longer funded in the FYDP	Various	Various : Various	576.922	0.000		0.000		0.000		-		0.000	0.000	576.922	-
		Subtotal	674.287	1.220		0.087		0.088		-		0.088	Continuing	Continuing	N/A

Remarks

Mission Planning has increased in FY 2024 due to commencement of Next Generation Navy Mission Planning System (NGNMPS) program that transitions all USN/USMC platforms from Joint Mission Planning System (JMPS) to NGNMPS due to obsolescence, ensuring mission planning for AARGM.

The following lines have been moved to Prior year no longer funded: Primary Hardware Development, M-Code, Software Development (Block 1A), ADP Development.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior year Support no longer funded in the FYDP	Various	Various : Various	7.147	0.000		0.000		0.000		-		0.000	0.000	7.147	-
		Subtotal	7.147	0.000		0.000		0.000		-		0.000	0.000	7.147	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	NAWCWD : China Lake, CA	27.102	0.000		0.604	Dec 2022	0.610	Dec 2023	-		0.610	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205601N / *ANTI-RADIATION MISSILE IMPROVEMENT*	Project (Number/Name) 2185 / *AARGM*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	Various	Various : Various	40.210	0.000		0.000		0.000		-		0.000	0.000	40.210	-
		Subtotal	67.312	0.000		0.604		0.610		-		0.610	Continuing	Continuing	N/A

Remarks

Development Test & Evaluation funding in FY 2024 is to support ELINT and User Data File updates and flight testing required to verify and validate updates to the weapon.

The following lines have been moved to Prior year no longer funded: Operational and Integrated Test & Evaluation, and Test Support and Planning.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	Various	Various : Various	7.600	0.250	Feb 2022	0.150	Feb 2023	0.150	Feb 2024	-		0.150	Continuing	Continuing	Continuing
Travel	WR	NAVAIR HQ : Patuxent River, MD	1.800	0.003	Oct 2021	0.010	Oct 2022	0.011	Oct 2023	-		0.011	Continuing	Continuing	Continuing
Government Engineering Support	WR	NAWCAD : Patuxent River, MD	3.503	0.445	Nov 2021	0.170	Nov 2022	0.171	Nov 2023	-		0.171	Continuing	Continuing	Continuing
Prior year Mgmt no longer funded in the FYDP	Various	Various : Various	11.450	0.000		0.000		0.000		-		0.000	0.000	11.450	11.450
		Subtotal	24.353	0.698		0.330		0.332		-		0.332	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	773.099	1.918		1.021		1.030		-		1.030	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205601N / *ANTI-RADIATION MISSILE IMPROVEMENT*	**Project (Number/Name)** 2185 / *AARGM*

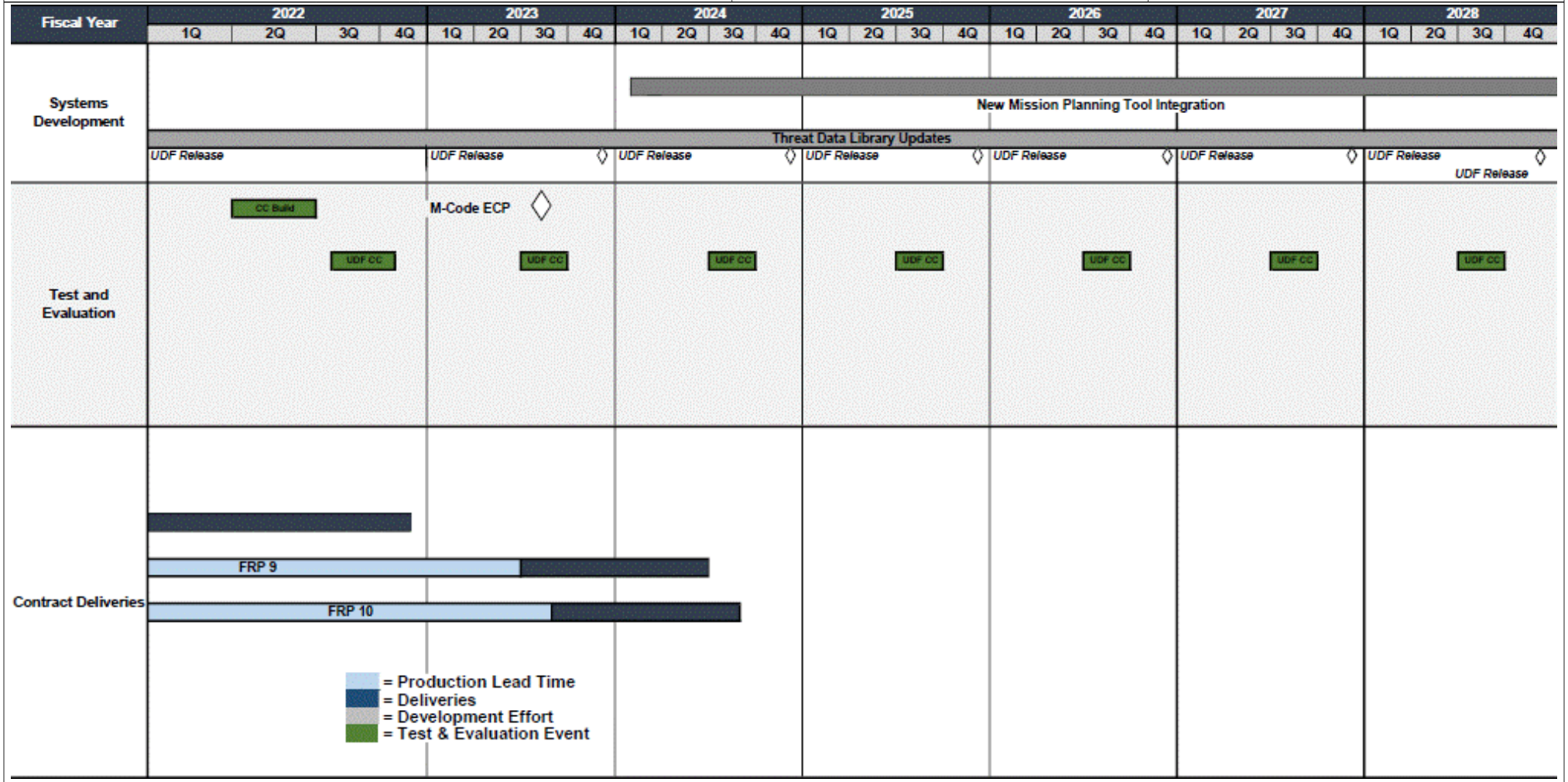

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205601N / *ANTI-RADIATION MISSILE IMPROVEMENT*	**Project (Number/Name)** 2185 / *AARGM*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
AARGM				
M-Code: M-Code Captive Carry Flight	1	2022	2	2022
M-Code: M-Code ECP	3	2023	3	2023
Systems Development: New Mission Planning Tool Integration	1	2024	4	2028
Test & Evaluation: Threat Data Captive Flight Test FY 2022	3	2022	4	2022
Test & Evaluation: Threat Data Captive Flight Test FY 2023	3	2023	4	2023
Test & Evaluation: Threat Data Captive Flight Test FY 2024	3	2024	4	2024
Test & Evaluation: Threat Data Captive Flight Test FY 2025	3	2025	4	2025
Test & Evaluation: Threat Data Captive Flight Test FY 2026	3	2026	4	2026
Test & Evaluation: Threat Data Captive Flight Test FY 2027	3	2027	4	2027
Test & Evaluation: Threat Data Captive Flight Test FY 2028	3	2028	4	2028
Threat Data Library Updates: Threat Data Library Updates	1	2022	4	2028
Threat Data Library Updates: Threat Data File Release FY 2022	4	2022	4	2022
Threat Data Library Updates: Threat Data File Release FY 2023	4	2023	4	2023
Threat Data Library Updates: Threat Data File Release FY 2024	4	2024	4	2024
Threat Data Library Updates: Threat Data File Release FY 2025	4	2025	4	2025
Threat Data Library Updates: Threat Data File Release FY 2026	4	2026	4	2026
Threat Data Library Updates: Threat Data File Release FY 2027	4	2027	4	2027
Threat Data Library Updates: Threat Data File Release FY 2028	4	2028	4	2028
Full-Rate Production Deliveries: Full-Rate Production Deliveries - Lot 8 (WPN)	1	2022	4	2022
Full-Rate Production Deliveries: Full-Rate Production Deliveries - Lot 9 (WPN)	3	2023	2	2024
Full-Rate Production Deliveries: Full-Rate Production Deliveries - Lot 10 (WPN)	3	2023	3	2024

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205601N / *ANTI-RADIATION MISSILE IMPROVEMENT*	Project (Number/Name) 2189 / *AARGM ER*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2189: *AARGM ER*	423.635	120.568	76.314	51.807	-	51.807	26.381	22.264	10.500	9.633	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 607

A. Mission Description and Budget Item Justification

The Air-to-Ground (AGM)-88G AARGM-ER Upgrade was a new start in FY 2016. The purpose of this effort is to develop hardware and software modifications to improve the Advanced Anti-Radiation Guided Missile (AARGM)'s operational capabilities, including extended range, survivability and effectiveness against complex, new, and emerging threats. This budget line item funds a new rocket motor design, system development and integration, test asset procurement, testing, correction of deficiencies, and associated software updates for the AARGM-ER to ensure these capabilities perform in accordance with established requirements. FY 2024 activities include conclusion of the Engineering and Manufacturing Development contract, system-level operational testing of production-representative missiles, and integration and test of the Guidance Processor redesign. FY 2024 activities also include continuing expansion of the F/A-18 employment envelope onto stations 2 and 10 through follow-on test and evaluation, development of a virtual store training capability, and commencement of AARGM-ER integration into the new mission planning tool. AARGM-ER retains the same guidance and sensor capabilities of the AARGM.

The AARGM-ER program is part of the Navy's approach to address advanced threat capabilities in the Anti-Access/Area-Denial (A2/AD) environment. 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. Solutions that push engagement distances beyond the launch platform's radar horizon and allows the U.S. Navy to operate in, and control, contested battle space in littoral waters and A2/AD environments are increasingly critical as more scenarios require compressed and coordinated fire control timelines.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: AARGM ER Development	120.568	76.314	37.294	0.000	37.294
Articles:	-	-	-	-	-
FY 2023 Plans: FY 2023 activities include continuation of the Engineering and Manufacturing Development contract, system-level operational testing of production-representative missiles, completion of insensitive munition testing for shipboard certification, expansion of the F/A-18 employment envelope onto stations 2 and 10, and integration of M-code capability and redesign of Guidance Processor for Advanced Threats. Manufacturing of missile components and missiles will continue in support of contractor and government test plans. Testing conducted by the government will assess system-level performance and substantiate readiness for Initial Operational Capability (IOC). Results from an IOC Supportability Review (IOCSR) will inform the IOC event.					
FY 2024 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205601N / *ANTI-RADIATION MISSILE IMPROVEMENT*	**Project (Number/Name)** 2189 / *AARGM ER*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
FY 2024 activities include conclusion of the Engineering and Manufacturing Development contract, system-level operational testing of production-representative missiles, and integration and test of the Guidance Processor redesign. Activities also include continuing expansion of the F/A-18 employment envelope onto stations 2 and 10 through follow-on test and evaluation, development of a virtual store training capability, and commencement of AARGM-ER integration into the new mission planning tool. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding decrease in FY 2024 is due to conclusion of the Engineering and Manufacturing Development phase.					
Title: Next Generation Naval Mission Planning System (NGNMPS) ***Articles:*** ***FY 2023 Plans:*** N/A ***FY 2024 Base Plans:*** FY 2024 activities include commencement of development and integration of an AARGM-ER NGNMPS capability to ensure mission planning for AARGM-ER on the F/A-18E/F and EA-18G. NGNMPS transitions all USN/USMC platforms from Joint Mission Planning System (JMPS) to NGNMPS due to obsolescence. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding increase in FY 2024 is due to development of NGNMPS capability for the AARGM-ER program.	0.000 -	0.000 -	5.400 -	0.000 -	5.400 -
Title: Virtual Store ***Articles:*** ***FY 2023 Plans:*** N/A ***FY 2024 Base Plans:*** FY 2024 activities include development of an AARGM-ER Virtual Store capability to provide the F/A-18E/F and EA-18G with improved Anti-Surface/Strike Warfare training capability. It will provide the fleet with a training capability when CATMs and/or Command Launch Computer (CLC) are unavailable or cannot be carried during	0.000 -	0.000 -	9.113 -	0.000 -	9.113 -

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205601N / *ANTI-RADIATION MISSILE IMPROVEMENT*	**Project (Number/Name)** 2189 / *AARGM ER*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
training due to incompatible stores configuration or lack of CLC. This capability will be further developed to include Live-Virtual-Constructive (LVC) surface threats for a more realistic training environment. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding increase in FY 2024 is due to development of a Virtual Store training capability for the AARGM-ER program.					
Accomplishments/Planned Programs Subtotals	120.568	76.314	51.807	0.000	51.807

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• WPN/2327: *AARGM*	108.661	181.275	162.429	-	162.429	247.942	260.053	275.502	265.964	1,976.210	3,523.228

Remarks

Additional AARGM-ER funding is also contained in USAF PE 0207328F.

D. Acquisition Strategy

The AARGM-ER Program will provide hardware and software modifications to improve the AARGM's operational capabilities, including extended range, survivability, and effectiveness against complex, new, and emerging threats. The program's objective requirement for Initial Operational Capability is FY 2023. The AARGM-ER program will develop a virtual store training capability in FY 2024 - FY 2026 and will integrate AARGM-ER into the new mission planning tool beginning in FY 2024. Follow-on development activities also include correction of deficiencies resulting from operational testing, which may include software updates and follow-on testing to ensure corrections meet required capability.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205601N / *ANTI-RADIATION MISSILE IMPROVEMENT*	**Project (Number/Name)** 2189 / *AARGM ER*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering & Manufacturing Development	SS/CPIF	Northrop Grumman Defense Systems : Northridge, CA	179.165	71.201	Nov 2021	23.833	Jan 2023	10.899	Nov 2023	-		10.899	0.000	285.098	285.098
Aircraft Integration	WR	NAWCWD : China Lake, CA	16.055	1.500	Nov 2021	0.155	Nov 2022	0.000		-		0.000	0.000	17.710	-
Aircraft Integration	Various	Various : Various	0.783	0.000	Nov 2021	1.167	Nov 2022	0.000		-		0.000	0.000	1.950	-
Aircraft Integration	SS/CPIF	Boeing : St. Louis, MO	15.432	0.309	Dec 2021	3.304	Dec 2022	2.072	Dec 2023	-		2.072	0.000	21.117	21.117
Systems Engineering	WR	NAWCWD : China Lake, CA	40.034	14.182	Nov 2021	7.525	Nov 2022	3.877	Nov 2023	-		3.877	6.955	72.573	-
Systems Engineering	WR	NAWCAD : Patuxent River, MD	15.235	3.525	Nov 2021	2.564	Nov 2022	1.815	Nov 2023	-		1.815	1.972	25.111	-
Systems Engineering	Various	Various : Various	0.000	0.178	Jan 2022	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
AUR Containers	WR	NSWC : Indian Head, MD	1.389	0.480	Nov 2021	0.559	Nov 2022	0.000		-		0.000	0.000	2.428	-
M-Code/GP Redesign	SS/CPFF	Northrop Grumman Defense Systems : Northridge, CA	2.281	2.000	Apr 2022	4.553	Nov 2022	0.000		-		0.000	0.000	8.834	8.834
Virtual Store	WR	NAWCWD : China Lake, CA	0.000	0.000		0.000		5.663	Nov 2023	-		5.663	Continuing	Continuing	Continuing
Virtual Store	C/CPIF	Boeing : St. Louis, MO	0.000	0.000		0.000		3.032	Dec 2023	-		3.032	Continuing	Continuing	Continuing
Mission Planning (NGNMPS)	WR	NAWCWD : China Lake, CA	0.000	0.000		0.000		4.957	Nov 2023	-		4.957	Continuing	Continuing	Continuing
Prior year Prod Dev no longer funded in the FYDP	Various	Various : Various	80.770	0.000		0.000		0.000		-		0.000	0.000	80.770	-
		Subtotal	351.144	93.375		43.660		32.315		-		32.315	Continuing	Continuing	N/A

Remarks

The Engineering and Manufacturing Development (EMD) funding decrease in FY 2024 is due to completion of EMD in 2QTR24.

Aircraft Integration (Boeing) will continue with physical and logical aircraft interface development and testing, mainly in support of Aircraft Integration on stations 2 and 10 in FY 2024.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205601N / *ANTI-RADIATION MISSILE IMPROVEMENT*	Project (Number/Name) 2189 / *AARGM ER*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Systems Engineering (NAWCWD and NAWCAD) will decrease in FY 2024 due to completion of EMD and system-level testing of production representative missiles.

M-Code/GP Redesign will decrease in FY 2024 due to completion of integration and test of the Guidance Processor redesign.

New cost categories for Virtual Store were added to support increased training capability of the AARGM-ER on the F/A-18E/F and EA-18G. Updates will take place from FY 2024 - FY 2026 to code virtual store into aircraft software for AARGM-ER. The addition is a follow-on development effort to the AARGM-ER Program of Record.

A new cost category for Next Generation Navy Mission Planning System (NGNMPS) was added in FY 2024 and beyond. NGNMPS transitions all USN/USMC platforms from Joint Mission Planning System (JMPS) to NGNMPS due to obsolescence and ensures mission planning system for AARGM-ER on the F/A-18E/F and EA-18G. The addition is a follow-on development effort to the AARGM-ER Program of Record.

A new cost category for Prior Year Product Development was added in to capture efforts no longer funded in the FYDP, including Rocket Motor Risk Initiatives ($1.947M), Front End Design Analysis ($15.221M), Missile Section Integration ($57.675M), Telemetry Sections ($5.447M), and PSE Development ($0.480M).

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Studies & Analysis	Various	Various : Various	6.371	0.000		0.000		0.000		-		0.000	0.000	6.371	-
		Subtotal	6.371	0.000		0.000		0.000		-		0.000	0.000	6.371	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	NAWCAD : Patuxent River, MD	13.484	5.493	Nov 2021	4.538	Nov 2022	12.516	Nov 2023	-		12.516	6.213	42.244	-
Developmental Test & Evaluation (DT&E)	WR	NAWCWD : China Lake, CA	5.893	12.139	Nov 2021	4.618	Nov 2022	0.623	Nov 2023	-		0.623	9.719	32.992	-
Developmental Test & Evaluation (DT&E)	Various	Various : Various	0.604	0.582	Nov 2021	0.000		0.000		-		0.000	0.000	1.186	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205601N / *ANTI-RADIATION MISSILE IMPROVEMENT*	Project (Number/Name) 2189 / *AARGM ER*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	SS/CPIF	Northrop Grumman Defense Systems : Northridge, CA	28.968	6.295	Apr 2022	0.000		0.000		-		0.000	0.000	35.263	35.263
Developmental Test & Evaluation (DT&E)	WR	COTF : Norfolk, VA	0.385	0.288	Dec 2021	1.670	Nov 2022	0.176	Nov 2023	-		0.176	0.000	2.519	-
Operational Test & Evaluation (OT&E)	WR	NAWCWD : China Lake, CA	0.000	0.880	Jul 2022	17.180	Dec 2022	0.448	Dec 2023	-		0.448	0.000	18.508	-
Operational Test & Evaluation (OT&E)	WR	WSMR : White Sands Missile Range, NM	0.000	0.000		2.645	Dec 2022	4.160	Dec 2023	-		4.160	0.000	6.805	-
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	Various	Various : Various	4.471	0.000		0.000		0.000		-		0.000	0.000	4.471	-
		Subtotal	53.805	25.677		30.651		17.923		-		17.923	15.932	143.988	N/A

Remarks

Developmental Test and Evaluation (NAWCAD) will increase in FY 2024 due to F/A-18 employment expansion and integration on stations 2 and 10.

Developmental Test and Evaluation (NAWCWD) will decrease in FY 2024 due to completion of system-level testing of production-representative missiles.

Operational Test and Evaluation will decrease in FY 2024 as the program completes testing in support of Full Rate Production, following IOC in FY 2023. New cost categories for Operational Test and Evaluation were created to reflect the breakout of funds between NAWCWD China Lake and WSMR.

A new cost category for Prior Year T&E was added to capture efforts no longer funded in the FYDP, including DT&E at NASA Ames Research Center ($1.972M) and AEDC ($2.499M).

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	Various	Various : Various	7.115	0.620	Nov 2021	0.984	Nov 2022	0.363	Nov 2023	-		0.363	0.370	9.452	-
Program Management Support	WR	NAWCAD : Patuxent River, MD	4.723	0.844	Nov 2021	0.598	Nov 2022	0.309	Nov 2023	-		0.309	0.315	6.789	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205601N / *ANTI-RADIATION MISSILE IMPROVEMENT*	**Project (Number/Name)** 2189 / *AARGM ER*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support Follow-on Development	Various	Various : Various	0.000	0.000		0.000		0.861	Nov 2023	-		0.861	Continuing	Continuing	Continuing
Government Engineering & Information Technology Support	WR	NSWC : Dahlgren, VA	0.296	0.010	Oct 2021	0.356	Oct 2022	0.011	Oct 2023	-		0.011	0.000	0.673	-
Travel	WR	NAVAIR HQ : Patuxent River, MD	0.181	0.042	Nov 2021	0.065	Nov 2022	0.025	Nov 2023	-		0.025	0.026	0.339	-
		Subtotal	12.315	1.516		2.003		1.569		-		1.569	Continuing	Continuing	N/A

Remarks

A new cost category was created for Program Management Support of Follow-on Development efforts to the AARGM-ER Program of Record, including Virtual Store, Mission Planning and Correction of Deficiencies.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	423.635	120.568		76.314		51.807		-		51.807	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205601N / *ANTI-RADIATION MISSILE IMPROVEMENT*	**Project (Number/Name)** 2189 / *AARGM ER*

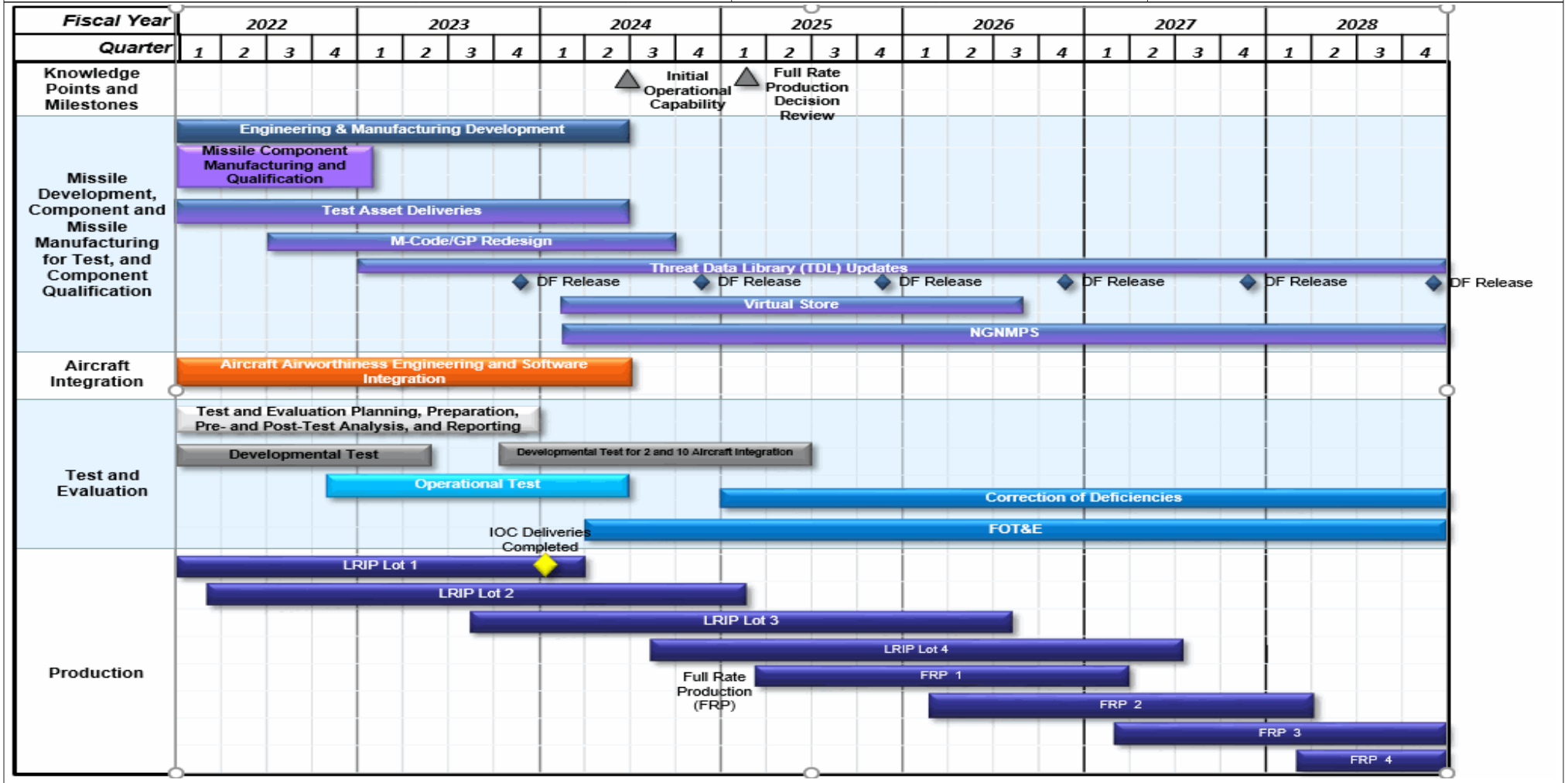

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205601N / *ANTI-RADIATION MISSILE IMPROVEMENT*	**Project (Number/Name)** 2189 / *AARGM ER*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
AARGM ER				
Acquisition Milestones: Milestones: IOC	2	2024	2	2024
Acquisition Milestones: Milestones: FRP Decision Review	1	2025	1	2025
Systems Development: Engineering & Manufacturing Development: Engineering & Manufacturing Development	1	2022	2	2024
Systems Development: M-Code/GP Redesign: M-Code/GP Redesign	3	2022	3	2024
Systems Development: Threat Data Library: Threat Data Library (TDL) Updates	1	2023	4	2028
Systems Development: Virtual Store: Virtual Store	1	2024	3	2026
Systems Development: Mission Planning (NGNMPS): Mission Planning (NGNMPS)	1	2024	4	2028
Test & Evaluation: Aircraft Integration: Aircraft Integration	1	2022	2	2024
Test & Evaluation: Technical Evaluation: Developmental Test & Evaluation (DT&E)	1	2022	2	2023
Test & Evaluation: Technical Evaluation: Developmental Test & Evaluation (DT&E) for Stations 2 and 10 Aircraft Integration	4	2023	2	2025
Test & Evaluation: Operational Evaluation: Operational Test & Evaluation (OT&E)	4	2022	2	2024
Test & Evaluation: Follow on Test & Evaluation: Follow on Test & Evaluation (FOT&E)	2	2024	4	2028
Production Milestones: Contract Awards: LRIP 2 WPN	1	2022	1	2022
Production Milestones: Contract Awards: LRIP 3 WPN	3	2023	3	2023
Production Milestones: Contract Awards: LRIP 4 WPN	3	2024	3	2024
Production Milestones: Contract Awards: FRP 1 WPN	1	2025	1	2025
Production Milestones: Contract Awards: FRP 2 WPN	1	2026	1	2026
Production Milestones: Contract Awards: FRP 3 WPN	1	2027	1	2027
Production Milestones: Contract Awards: FRP 4 WPN	1	2028	1	2028
Deliveries: Test Assets	1	2022	2	2024

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205601N / *ANTI-RADIATION MISSILE IMPROVEMENT*	**Project (Number/Name)** 2189 / *AARGM ER*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Deliveries: LRIP 1 WPN	4	2023	1	2024
Deliveries: LRIP 2 WPN	1	2024	1	2025
Deliveries: LRIP 3 WPN	4	2026	3	2027
Deliveries: LRIP 4 WPN	4	2027	3	2028
Deliveries: FRP 1 WPN	1	2027	1	2028
Deliveries: FRP 2 WPN	1	2028	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205601N / *ANTI-RADIATION MISSILE IMPROVEMENT*	Project (Number/Name) 9999 / *Congressional Adds*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
9999: *Congressional Adds*	13.529	4.700	5.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	23.229
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Advanced Anti-Radiation Guided Missile Extended Range (AARGM-ER) integrates hardware and software upgrades to the AARGM missile guidance and control sections, a new rocket motor, and Control Actuation System (CAS) into a new outer mold line able to be launched from tactical aircraft. AARGM-ER's capabilities will add extended range, increased survivability, and improve effectiveness against complex, new, and emerging threats.

The FY 2022 program increase funds research and study activities to determine whether the AARGM weapon system family can be integrated on other long endurance platforms, such as the Navy's P-8.

The FY 2023 program increase funds research and study activities related to incorporating Solid Fuel Ramjet into the AARGM-ER, which would enable flight at supersonic speeds and leverage existing manufacturing processes and affordable materials, helping to increase capabilities while keeping costs low relative to comparable engines.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023
Congressional Add: Advanced Anti-Radiation Guided Missile (AARGM) and the Extended Range (ER) ***FY 2022 Accomplishments:*** Fund research and study activities to determine whether the AARGM can be equipped on other long endurance platforms. ***FY 2023 Plans:*** N/A	4.700	0.000
Congressional Add: AARGM improvements ***FY 2022 Accomplishments:*** N/A ***FY 2023 Plans:*** Fund research and study activities related to incorporating Solid Fuel Ramjet into the AARGM-ER, which would enable flight at supersonic speeds and leverage existing manufacturing processes and affordable materials, helping to increase capabilities while keeping costs low relative to comparable engines.	0.000	5.000
Congressional Adds Subtotals	4.700	5.000

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205601N / *ANTI-RADIATION MISSILE IMPROVEMENT*	**Project (Number/Name)** 9999 / *Congressional Adds*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

This demonstration effort will leverage the AARGM-ER Program of Record to develop initial hardware and software modifications that could provide for a surface-launched variant. These efforts will leverage the AARGM-ER program of record to research and study activities to make AARGM-ER more lethal against advancing threats.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205601N / *ANTI-RADIATION MISSILE IMPROVEMENT*	Project (Number/Name) 9999 / *Congressional Adds*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Control Design Analysis	SS/CPFF	Northrop Grumman Defense Systems : Northridge, CA	7.824	0.000		0.000		0.000		-		0.000	0.000	7.824	7.824
Surface Launch Demonstration	SS/CPFF	Northrop Grumman Defense Systems : Northridge, CA	5.012	0.000		0.000		0.000		-		0.000	0.000	5.012	5.012
Systems Engineering	WR	NAWCWD : China Lake, CA	0.338	0.400	Aug 2022	0.435	Aug 2023	0.000		-		0.000	0.000	1.173	-
Systems Engineering	WR	NAWCAD : Patuxent River, MD	0.105	0.300	Aug 2022	0.065	Aug 2023	0.000		-		0.000	0.000	0.470	-
AARGM/AARGMER Integration Efforts	SS/CPFF	Northrop Grumman Defense Systems : Northridge, CA	0.000	4.000	Jan 2023	0.000		0.000		-		0.000	0.000	4.000	4.000
AARGM/AARGMER Ramjet Efforts	SS/CPFF	Northrop Grumman Defense Systems : Northridge, CA	0.000	0.000		4.500	Jan 2024	0.000		-		0.000	0.000	4.500	4.500
		Subtotal	13.279	4.700		5.000		0.000		-		0.000	0.000	22.979	N/A

Remarks

Prior Year changes are due to a $1.471M SBIR reduction in FY 2021 and a reflection of actual negotiated contract values.

FY 2022 funding for research and study activities to determine whether the AARGM weapon system family can be integrated on long endurance platforms, such as the Navy's P-8.

FY 2023 funding for research and study activities to incorporate Solid Fuel Ramjet into the AARGM-ER, which would enable flight at supersonic speeds and leverage existing manufacturing processes and affordable materials, helping to increase capabilities while keeping costs low relative to comparable engines.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	NAWCAD : Patuxent River, MD	0.250	0.000		0.000		0.000		-		0.000	0.000	0.250	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205601N / *ANTI-RADIATION MISSILE IMPROVEMENT*	**Project (Number/Name)** 9999 / *Congressional Adds*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	0.250	0.000		0.000		0.000		-		0.000	0.000	0.250	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	13.529	4.700		5.000		0.000		-		0.000	0.000	23.229	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205601N / *ANTI-RADIATION MISSILE IMPROVEMENT*	**Project (Number/Name)** 9999 / *Congressional Adds*

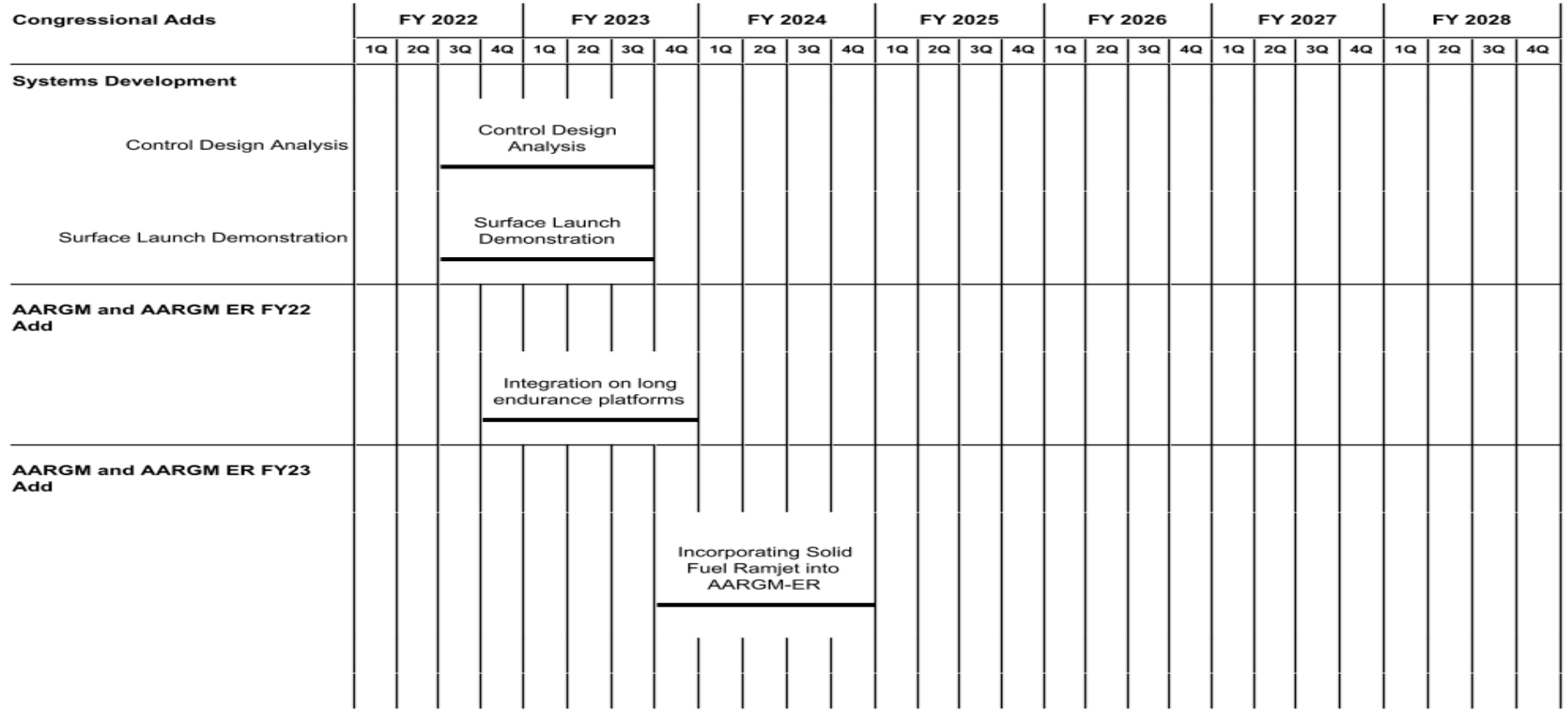

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205601N / *ANTI-RADIATION MISSILE IMPROVEMENT*	**Project (Number/Name)** 9999 / *Congressional Adds*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Congressional Adds				
Systems Development: Control Design Analysis: Control Design Analysis	3	2022	3	2023
Systems Development: Surface Launch Demonstration: Surface Launch Demonstration	3	2022	3	2023
AARGM and AARGM ER FY 2022 Add: Integration on long endurance platforms	4	2022	4	2023
AARGM and AARGM ER FY 2023 Add: Incorporating Solid Fuel Ramjet into AARGM-ER	4	2023	4	2024

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0205620N *I Surface ASW Cmbt Sys Integr*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	375.946	27.781	28.999	29.973	-	29.973	30.077	30.542	30.822	31.311	Continuing	Continuing
1916: *Surface ASW System Improvement*	375.946	27.781	28.999	29.973	-	29.973	30.077	30.542	30.822	31.311	Continuing	Continuing

A. Mission Description and Budget Item Justification

The objective of this Program Element (PE) is to significantly improve existing AN/SQQ-89A(V)15 Surface Ship Anti-Submarine Warfare (ASW) sonar system capabilities through quick and affordable development and integration of emergent, transformational technologies in support of Surface Ship and Theater ASW (TASW) as required to pace the threat. Detection and classification play uniquely vital roles in the success of any ASW campaign. The Advanced Capability Build (ACB) spiral development process is the primary means by which these improvements are developed.

ASW remains a Navy core competency in a dynamic and uncertain maritime environment. U.S. adversaries continue to develop asymmetric capabilities and capacities to deter, disrupt, or delay the entry of U.S. and allied naval forces, and pose a constant challenge as we implement the Maritime Strategy. Evolving submarine technologies offer enhanced stealth, speed, endurance, weapons, and operational proficiency, foretelling that the adversary submarine of the future will have a significantly larger sphere of influence, while presenting less vulnerability to U.S. forces. The effective offensive engagement range of the adversary submarine of the future will continue to match or outrange individual U.S. and multinational platform sensors and weapons in many tactical environments. Submarines are an increasing threat to all Naval and Allied ships, particularly modern diesel subs and faster torpedoes. Not only can the presence of potential hostile submarines delay naval combatant action until they are located and neutralized, submarines can also disrupt all seaborne logistics supply for any ground campaign as well as maritime commerce. U.S. forces must be effective in all operating environments, ranging from the deep open ocean to the littorals, and are key to countering adversarial anti-access and area denial strategies.

This PE takes advantage of the AN/SQQ-89A(V)15 Open System Architecture (OSA) and Acoustic Rapid Commercial-Off-The-Shelf (COTS) Insertion (ARCI) initiatives to integrate Torpedo Detection, Classification, and Localization (TDCL) and ASW sonar combat system capability improvements. The AN/SQQ-89A(V)15 COTS-based Surface Ship ASW Combat System is planned as a backfit program for all DDG51 class ships. The Open Architecture (OA) system enables the ACB process and provides budget flexibility to make COTS/OA technology solutions and ARCI-type initiatives affordable. Improvements are tested in the laboratory and at-sea.

Undersea Warfare (USW) technology implementation will take advantage of improvements developed under the submarine Advanced Processing Build (APB) and Advanced Surveillance Build (ASB) programs and will in turn share unique improvements developed under this program with the submarine and surveillance USW communities. The ACB and APB programs are managed under a common development organization and process titled AxB. While each platform retains its uniqueness and focus in functional domains essential to mission success, a premium is placed on development of common capabilities and modular architecture technologies to maximize commonality and cost effectiveness.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0205620N *I Surface ASW Cmbt Sys Integr*

This PE includes funding for the AN/SQQ-89A(V)15 Surface Ship ASW Test & Evaluation (T&E) program, which conducts testing and analysis to support certification of AN/SQQ-89A(V)15 Surface Ship ASW Combat System ACBs prior to fielding. Additionally, finalization of Test & Evaluation Master Plans (TEMPs) and AN/SQQ-89(V) Developmental Test (DT) and Operational Test (OT) events are conducted under this program.

This PE includes funding for the AN/SQQ-89A(V)15 Surface Ship Engineering Measurement Program (SSEMP), which will measure the performance of existing and new AN/SQQ-89A(V)15 Surface Ship ASW Combat System Technical Insertion (TI)/ACB baselines and enables data-based assessment of the capabilities and shortfalls in the performance of these systems in realistic scenarios.

This PE includes funding to support cyber security initiatives to align future AN/SQQ-89A(V)15 Surface Ship ASW Combat System baselines with future AEGIS Integrated Combat Systems.

This PE contributes to the development of the ASW component of the guided missile Frigate (CONSTELLATION Class, FFG 62) program.

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	28.804	28.999	30.086	-	30.086
Current President's Budget	27.781	28.999	29.973	-	29.973
Total Adjustments	-1.023	0.000	-0.113	-	-0.113
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.023	0.000			
• Program Adjustments	0.000	0.000	-0.298	-	-0.298
• Rate/Misc Adjustments	0.000	0.000	0.185	-	0.185

Change Summary Explanation

FUNDING CHANGES SINCE PREVIOUS PRESIDENT'S BUDGET:
- FY 2024 decrease of $-0.113M reflects the incorporation of a miscellaneous program/rate adjustments.

FY 2023 TO FY 2024 BUDGET REQUEST INCREASE:
The FY 2023 ($28.999M) to FY 2024 ($29.973M) increase ($+0.974M), in addition to the inflation expected with the RDT&EN appropriation, is required for the development of signal processing improvements and downstream integration of sonobuoy acoustic data for incorporation into future ACBs.

SCHEDULE CHANGES:

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0205620N *I Surface ASW Cmbt Sys Integr*

- The ACB program has transitioned its software development practices to an Agile/DevSecOps framework. Within this construct, Step-3 land-based testing will be conducted on a continuing basis in parallel with integration as opposed to the legacy approach of testing at the conclusion of integration activities. The schedule has been revised to capture Step-3 as an on-going process vice a singular milestone.
- The ACB program is also migrating to state-of-the-art virtualized Hypervisor Technology (HT) to enable longer hardware lifetimes, ease of software updates, and reduced number of fielded AN/SQQ-89A(V)15 variants, thereby reducing life-cycle costs. Supply chain delays of HT hardware components have driven the delivery of ACB-21 beyond the planned 2Q23 Step-4 at-sea test date. ACB-21 Step-4 will therefore be deferred, and content combined with ACB-23 for a single 1Q24 Step-4 at-sea test as an ACB-23 product. Facilitated by our Agile framework, this will allow more content for ACB-23 and will further reduce the number of AN/SQQ-89A(V)15 variants in the Fleet.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205620N / *Surface ASW Cmbt Sys Integr*	Project (Number/Name) 1916 / *Surface ASW System Improvement*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
1916: *Surface ASW System Improvement*	375.946	27.781	28.999	29.973	-	29.973	30.077	30.542	30.822	31.311	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Surface Anti-Submarine Warfare (ASW) Systems Improvements project will support essential performance enhancements to the AN/SQQ-89A(V)15 Surface Ship ASW Combat System. This project will improve Measures of Performance (MOP) by enhancing operator interface methods and tools; active and passive detection; tracking, classification, and localization; Torpedo Detection, Classification, and Localization (TDCL); sonobuoy data processing and display capabilities; and increasing acoustic sensor frequency bandwidth (Operational Requirements Document (ORD) #667-76-05 titled 'AN/SQQ-89 Improvement Program' and Test & Evaluation Master Plan (TEMP) 802-2).

This project will take advantage of the AN/SQQ-89A(V)15 Surface Ship ASW Combat System Open System Architecture (OSA) and Acoustic Rapid Commercial-Off-The-Shelf (COTS) Insertion (ARCI) initiatives to integrate TDCL and ASW sonar and combat system capability improvements. The AN/SQQ-89A(V)15 Surface Ship ASW Combat System is planned as a backfit program for CG47 (select CG59-73 Baseline 3 and 4 ships) and all DDG51 class ships.

The OSA and high performance COTS processing hardware on ships fielded with the AN/SQQ-89A(V)15 Surface Ship ASW Combat System provides an opportunity to integrate emergent, transformational ASW and Undersea Warfare (USW) technological improvements that were previously unachievable. The ASW/USW suites on these ships will require periodic upgrades to remain effective well into the 21st century and to pace the threat. Software upgrades developed under this project will target capability increases in high interest areas as prescribed by the Fleet and captured in campaign analysis. To achieve this, the project will package and deliver incremental upgrades every two (2) years to the AN/SQQ-89A(V)15 Surface Ship ASW Combat System production program via an Advanced Capability Build (ACB) spiral development process (ACB-19, ACB-21, etc.).

The project is currently undergoing a transition in software development methodology from a legacy waterfall approach to an Agile DevSecOps approach. This new Agile approach involves modern Continuous Integration/Continuous Delivery (CI/CD) modular software architectures, coding, and automated testing to enable much more rapid delivery of updated capabilities as required to address cyber or operational performance needs. The Navy is pursuing a transformation across all Tactical Systems to maximize cyber-resiliency and the speed of capability delivery. The transformation will be accomplished through a transition to an agile development processes comprised of a continuous series of 12-week software program increments in a development, security, and operations (DevSecOps) environment. This process will better align with industry practice and enable the AN/SQQ-89 combat systems to leverage industry capability improvements in Artificial Intelligence (AI) and Machine Learning (ML) and other emerging technologies, while also being more responsive to cyber needs. As ACB delivers, changes are required in the project's software development and integration methodologies to remain well synchronized with the production programs. Instead of delivering an improved ACB to the production programs at the end of development (which the production program then had to integrate, mature, test, and certify), development capabilities will now be integrated into the latest production hardware baseline as they are ready, on a continuing basis. This adds flexibility to the program, allowing urgent changes to be fielded more rapidly

than the previous every-two-years cycle, and provides an integrated software build requiring less effort at the end of development. For major capability updates, the project will maintain an every-other-year delivery posture to ensure mature products are supporting Fleet Integrated Logistic Support (ILS) and Training.

Primary areas of ASW and USW improvements are as follows:

- Undersea Fire Control/Engagement
- Medium Frequency (MF) Pulsed Active Sonar
- Continuous Active Sonar (CAS)
- Acoustic Communications
- TDCL
- Torpedo Defense
- Passive Sonar
- Sonar Tactical Decision Aids (STDA)

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: AN/SQQ-89A(V)15 Surface Ship ASW Advanced Capability Build (ACB) Development	19.605	20.594	21.406	0.000	21.406
Articles:	-	-	-	-	-
Description: Develop enhancements to the AN/SQQ-89A(V)15 Surface Ship Anti-Submarine Warfare (ASW) Combat System Open System Architecture (OSA) via the integration of transformational technologies through the four step ACB spiral development process. These items will be integrated and delivered to DDG51 class AN/SQQ-89A(V)15 Surface Ship ASW Combat System backfit production programs via ACB updates. The ACB Four Step Process: Step 1 - Algorithm/technology assessment by peer review panels of Subject Matter Experts (SME) to down-select technologies and assist developers with technical guidance. Step 2 - Algorithm/technology testing with open and closed data sets to further down-select and refine capabilities prior to integration and testing. Step 3 - Land-based system-level testing in a realistic tactical environment. Step 4 - At-sea testing on an operational surface combatant. Step 4 is conducted only if an appropriate platform is available. ACB rapidly addresses problems/deficiencies in processing, capability, or operations within the following areas of the AN/SQQ-89A(V)15 Surface Ship ASW Combat System architecture; sensor processing, acoustics, fire control, contact management, performance prediction, operator productivity and on-board training, Multi-					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205620N / *Surface ASW Cmbt Sys Integr*	**Project (Number/Name)** 1916 / *Surface ASW System Improvement*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Function Towed Array (MFTA), Digital Fire Control Interface (DFCI), Mid-Frequency Active (MFA) processing, Torpedo Detection Classification and Localization (TDCL), Torpedo Defense (TD), and adaptive beamforming. ACB requirements are generated through discussions with the Fleet, then vetted and provided as direction by the Chief of Naval Operations (CNO), OPNAV N96. Steps 1 and 2 are conducted in a pipeline style parallel to system integration and production. This makes Steps 1 and 2 independent of any particular Build (e.g ACB-21, ACB-23, ACB-25) and allows for development of longer lead technologies. The content of a specific ACB build (every two years on the odd year) is then determined through a series of discussions with the Fleet aimed at selecting the most relevant and mature technologies available in the ACB pipeline. Integration at the string and system level is then performed followed by Steps 3 and 4, as applicable, and transitioned to production. Additionally, advanced development capabilities from the submarine Advanced Processing Build (APB) and Advanced Surveillance Build (ASB) projects are re-used in ACB, as appropriate. ACB capabilities are also shared with submarine APB and ASB. The ACB development program also resolves issues/deficiencies discovered through the AN/SQQ-89(V) Test & Evaluation program. ***FY 2023 Plans:*** - Continue execution of Step 3 land-based testing of ACB-23. - Continue planning Step 4 at-sea test to incorporate ACB-21 and ACB-23 content. - Continue development and integration of enhancements to AN/SQQ-89A(V)15 for ACB-23. - Continue planning and initiate execution of ACB-23 Return on Investment (ROI) testing. - Initiated planning of enhancements for ACB-25. - Continue refining DevSecOps framework. ***FY 2024 Base Plans:*** - Continue planning and conduct Step 4 at-sea test of ACB-21 and ACB-23 content. - Continue execution of ACB-23 ROI testing. - Continue development and integration of enhancements to AN/SQQ-89A(V)15 for ACB-25. Anticipate developing capabilities to continue to improve the attack/engage phase of the kill chain, improve passive and active detection, improve contact localization, and increase performance of a ship as a contributor to strike group performance. - Initiate execution of Step 3 land-based testing of ACB-25.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205620N / *Surface ASW Cmbt Sys Integr*	**Project (Number/Name)** 1916 / *Surface ASW System Improvement*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Initiate planning for ACB-25 ROI testing. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** - FY 2023 ($20.594M) to FY 2024 ($21.406M) increase ($+0.812M) is required for the development of signal processing improvements and downstream integration of sonobuoy acoustic data for incorporation into future ACBs.					
Title: AN/SQQ-89A(V)15 Surface Ship ASW Test & Evaluation (T&E)	0.740	0.740	0.750	0.000	0.750
Articles:	-	-	-	-	-
Description: The AN/SQQ-89A(V)15 Surface Ship Anti-Submarine Warfare (ASW) Test & Evaluation (T&E) Program conducts testing and analysis to support certification of AN/SQQ-89A(V)15 Surface Ship ASW Combat System Advanced Capability Builds (ACBs) prior to fielding. Additionally, finalization of Test & Evaluation Master Plans (TEMPs) and AN/SQQ-89(V) Developmental Test (DT) and Operational Test (OT) events are conducted under this program. In general, testing events and the testing schedule are driven by the availability of both platform and target assets.					
FY 2023 Plans: - Conduct planning for ACB-19 DT event. - Continue planning for ACB-19 OT event. - Conduct ACB-17 DT/OT combined event. - Complete ACB-19 TEMP.					
FY 2024 Base Plans: - Initiate ACB-21 TEMP analysis and resource development. - Conduct ACB-19 DT event. - Conduct ACB-19 OT Readiness Review (OTRR). - Conduct ACB-19 OT event.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205620N / *Surface ASW Cmbt Sys Integr*	**Project (Number/Name)** 1916 / *Surface ASW System Improvement*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- FY 2023 ($0.740M) to FY 2024 ($0.750M) increase ($+0.010M) is in line with the inflation expected with the RDT&EN appropriation.					
Title: AN/SQQ-89A(V)15 Surface Ship Engineering Measurement Program (SSEMP) ***Articles:***	3.250 -	3.250 -	3.315 -	0.000 -	3.315 -
Description: Analyze the AN/SQQ-89A(V)15 Surface Ship ASW Combat System and employment in the operational setting and report results for improvement of future systems, training and employment guidance. Perform Fleet exercise data reconstruction and post-test analysis each year. Conduct selected at-sea data collection activities (Initial Operational Test & Evaluation (IOT&E) and Operational Test (OT)) by providing planning support, ship riders, and analyst support. Evaluate prototype sonar employment tactics, sonar processing and automation algorithms, and communication protocols for the detection, classification, tracking, and intra-Fleet hand-off to Fleet USW assets, and provide summary reports to document results. ***FY 2023 Plans:*** - Support ACB-17 IOT&E/OT data collection and analysis. - Initiate planning for ACB-19 IOT&E/OT data collection and analysis. - Support planning for ACB-21 IOT&E/OT Test & Evaluation Master Plan (TEMP) update. - Continue analysis of performance data from real-world SSEMP cases/exercises. ***FY 2024 Base Plans:*** - Support conduct of ACB-19 IOT&E/OT data collection. - Initiate analysis of ACB-19 IOT&E/OT data and results. - Support ACB-21 IOT&E/OT data collection planning. - Initiate planning for ACB-23 IOT&E/OT TEMP update, data collection and analysis. - Continue analysis of performance data from real-world SSEMP cases/exercises. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** - FY 2023 ($3.250M) to FY 2024 ($3.315M) increase ($+0.065M) is in line with the inflation expected with the RDT&EN appropriation.					
Title: AN/SQQ-89A(V)15 Cyber Security Architecture Upgrade ***Articles:***	4.186 -	4.415 -	4.502 -	0.000 -	4.502 -

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Description: Cyber security capability development to improve cyber security and resiliency posture within the combat system, and align future AN/SQQ-89A(V)15 Surface Ship ASW Combat System baselines with future AEGIS integrated combat system baselines. ***FY 2023 Plans:*** - Continue executing processes and update aspects of cybersecurity capabilities for various fielded Technical Insertion (TI) / Advanced Capability Build (ACB) combinations without re-certification. - Continue improving upon ACB application security as part of development, security, and operations (DevSecOps). - Conduct cyber-related testing of ACB-23 software during system development. - Implement cybersecurity and resiliency improvements for ACB-23 software. - Initiate planning of further cybersecurity and resiliency improvements for ACB-25 software. - Improve advanced development processes to seamlessly incorporate cyber best practices throughout design and engineering of new capabilities. - Experiment with cyber metrics to establish long-term tracking for effectiveness of cyber efforts and their development processes. - Continue to execute Risk Management Framework (RMF) Assessment and Authorization (A&A) process for various TI/ACB combinations including continuous monitoring for authorized baselines. ***FY 2024 Base Plans:*** - Continue executing processes and update aspects of cybersecurity capabilities for various fielded TI/ACB combinations without re-certification. - Initiate conduct of cyber related testing of ACB-25 software during system development. - Implement cybersecurity and resiliency improvements for ACB-25 software. - Initiate planning of further cybersecurity and resiliency improvements for ACB-27 software. - Improve advanced development processes to seamlessly incorporate cyber best practices throughout design and engineering of new capabilities. - Experiment with cyber metrics to establish long-term tracking for effectiveness of cyber efforts and their development processes. - Continue to execute RMF A&A process for various TI/ACB combinations including continuous monitoring for authorized baselines. ***FY 2024 OCO Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205620N / *Surface ASW Cmbt Sys Integr*	**Project (Number/Name)** 1916 / *Surface ASW System Improvement*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** - FY 2023 ($4.415M) to FY 2024 ($4.502M) increase ($+0.087M) is in line with the inflation expected with the RDT&EN appropriation.					
Accomplishments/Planned Programs Subtotals	27.781	28.999	29.973	0.000	29.973

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• OPN/2136: *AN/SQQ-89 Surface ASW Combat System*	126.871	140.157	138.065	-	138.065	139.468	140.799	143.627	146.896	Continuing	Continuing
• RDTEN/0603553N/1704: *Undersea Warfare*	1.099	1.180	1.189	-	1.189	1.196	1.215	1.224	1.246	Continuing	Continuing
• RDTEN/0603561N/0223: *Sub Combat System Improvement (ADV)*	53.922	57.691	60.360	-	60.360	61.336	62.917	62.880	62.198	Continuing	Continuing

Remarks

D. Acquisition Strategy

- Utilize the Small Business Innovation Research (SBIR) program and full and open competition for new and improved innovative capability development.
- Deliver incremental capability increases in high interest areas, as prescribed by the Fleet and captured in campaign analysis, every two (2) years to the AN/SQQ-89A(V)15 Surface ASW Combat System production program via an ACB spiral development process (ACB-19, ACB-21, etc.) by inserting maturing ASW and USW technologies.

The ACB Four Step Process:
Step 1 - Algorithm/technology assessment by peer review panels of Subject Matter Experts (SME) to down-select technologies and assist developers with technical guidance.
Step 2 - Algorithm/technology testing with open and closed data sets to further down-select and refine capabilities prior to integration and testing.
Step 3 - Land-based system-level testing in a realistic tactical environment.
Step 4 - At-sea testing on an operational surface combatant. Step 4 is conducted only if an appropriate platform is available.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205620N / *Surface ASW Cmbt Sys Integr*	**Project (Number/Name)** 1916 / *Surface ASW System Improvement*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
AN/SQQ-89A(V)15 Surface ASW ACB Development	C/CPFF	AAC : NY	6.505	0.000		0.000		0.000		-		0.000	0.000	6.505	-
AN/SQQ-89A(V)15 Surface ASW ACB Development	C/CPFF	Alion (now SERCO) : IL	13.869	1.300	Mar 2022	1.325	Dec 2022	1.350	Dec 2023	-		1.350	Continuing	Continuing	Continuing
AN/SQQ-89A(V)15 Surface ASW ACB Development	C/CPFF	Adaptive Methods : VA	18.432	0.825	Nov 2021	0.825	Dec 2022	0.825	Dec 2023	-		0.825	Continuing	Continuing	Continuing
AN/SQQ-89A(V)15 Surface ASW ACB Development	C/CPFF	Applied Physical Sciences : CT	4.049	1.100	Mar 2022	1.150	Dec 2022	1.200	Dec 2023	-		1.200	Continuing	Continuing	Continuing
AN/SQQ-89A(V)15 Surface ASW ACB Development	C/CPFF	GD-AIS : VA	11.322	0.000		0.000		0.000		-		0.000	0.000	11.322	-
AN/SQQ-89A(V)15 Surface ASW ACB Development	C/CPFF	In-Depth Engineering : VA	2.975	0.000		0.000		0.000		-		0.000	0.000	2.975	-
AN/SQQ-89A(V)15 Surface ASW ACB Development	C/CPFF	JHU/APL : MD	65.360	4.650	Feb 2022	4.925	Dec 2022	5.050	Dec 2023	-		5.050	Continuing	Continuing	Continuing
AN/SQQ-89A(V)15 Surface ASW ACB Development	C/CPFF	Metron : VA	8.093	0.550	Mar 2022	0.560	Dec 2022	0.575	Dec 2023	-		0.575	Continuing	Continuing	Continuing
AN/SQQ-89A(V)15 Surface ASW ACB Development	C/CPFF	Lockheed Martin : NY	10.205	0.000		0.000		0.000		-		0.000	0.000	10.205	-
AN/SQQ-89A(V)15 Surface ASW ACB Development	C/CPFF	Lockheed Martin : VA	40.700	5.695	Nov 2021	6.110	Nov 2022	6.245	Nov 2023	-		6.245	Continuing	Continuing	Continuing
AN/SQQ-89A(V)15 Surface ASW ACB Development	WR	NSWC/Carderock : MD	21.626	0.292	Oct 2021	0.295	Nov 2022	0.300	Nov 2023	-		0.300	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
AN/SQQ-89A(V)15 Surface ASW ACB Development	WR	NSWC/Dahlgren : VA	2.156	0.100	Nov 2021	0.100	Nov 2022	0.100	Nov 2023	-		0.100	Continuing	Continuing	Continuing
AN/SQQ-89A(V)15 Surface ASW ACB Development	WR	NUWC/Newport : RI	22.309	0.267	Nov 2021	0.270	Nov 2022	0.275	Nov 2023	-		0.275	Continuing	Continuing	Continuing
AN/SQQ-89A(V)15 Surface ASW ACB Development	C/CPFF	Sedna Digital : VA	9.407	0.000		0.000		0.000		-		0.000	0.000	9.407	-
AN/SQQ-89A(V)15 Surface ASW ACB Development	C/CPFF	UT/ARL : TX	31.521	2.750	Mar 2022	2.900	Dec 2022	3.000	Dec 2023	-		3.000	Continuing	Continuing	Continuing
AN/SQQ-89A(V)15 Surface ASW ACB Development	C/CPFF	VAR : VAR*	34.624	0.806	Jan 2022	0.844	Dec 2022	1.196	Dec 2023	-		1.196	Continuing	Continuing	Continuing
AN/SQQ-89A(V)15 Cyber Security Architecture Upgrade	C/CPFF	Lockheed Martin : VA	13.944	4.186	Nov 2021	4.415	Nov 2022	4.502	Nov 2023	-		4.502	Continuing	Continuing	Continuing
		Subtotal	317.097	22.521		23.719		24.618		-		24.618	Continuing	Continuing	N/A

Remarks

*Consists of multiple performing activities with funding for each not greater than $1M per year.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	NUWC/Newport : RI	4.030	0.210	Nov 2021	0.210	Nov 2022	0.210	Nov 2023	-		0.210	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	VAR : VAR*	5.023	0.530	Nov 2021	0.530	Dec 2022	0.540	Dec 2023	-		0.540	Continuing	Continuing	Continuing
Operational Test & Evaluation (OT&E)	C/CPFF	JHU/APL : MD	26.561	2.125	Feb 2022	2.125	Dec 2022	2.190	Dec 2023	-		2.190	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205620N / *Surface ASW Cmbt Sys Integr*	Project (Number/Name) 1916 / *Surface ASW System Improvement*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation (OT&E)	WR	NUWC/Newport : RI	6.365	0.500	Nov 2021	0.500	Nov 2022	0.500	Nov 2023	-		0.500	Continuing	Continuing	Continuing
Operational Test & Evaluation (OT&E)	C/CPFF	UT/ARL : TX	7.850	0.625	Mar 2022	0.625	Dec 2022	0.625	Dec 2023	-		0.625	Continuing	Continuing	Continuing
		Subtotal	49.829	3.990		3.990		4.065		-		4.065	Continuing	Continuing	N/A

Remarks

*Consists of multiple performing activities with funding for each not greater than $1M per year.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support - Acquisition, Business & Finance	C/CPAF	BAE Systems : MD	2.999	0.000		0.000		0.000		-		0.000	0.000	2.999	-
Program Management Support - Systems Engineering and Technical Assistance (SETA)	C/CPFF	CGI Federal : VA	3.658	0.000		0.000		0.000		-		0.000	0.000	3.658	-
Program Management Support - Systems Engineering and Technical Assistance (SETA)	C/CPFF	KMS Solutions* : VA	1.175	1.200	Feb 2022	1.200	Dec 2022	1.200	Dec 2023	-		1.200	Continuing	Continuing	Continuing
Program Office Travel	Allot	NAVSEA PEO IWS5 : DC	1.188	0.070	Oct 2021	0.090	Nov 2022	0.090	Nov 2023	-		0.090	Continuing	Continuing	Continuing
		Subtotal	9.020	1.270		1.290		1.290		-		1.290	Continuing	Continuing	N/A

Remarks

*In addition to program office support, KMS Solutions provides technical planning, systems engineering, and test support. KMS Solutions also provides Subject Matter Experts (SMEs) as members of AN/SQQ-89A(V)15 Surface Ship Anti-Submarine Warfare (ASW) Combat System Advanced Capability Build (ACB) technical Peer Review Working Groups and Integrated Product Teams (IPTs) in support of designing and refining candidate technologies for inclusion into ACB deliveries.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205620N / *Surface ASW Cmbt Sys Integr*	Project (Number/Name) 1916 / *Surface ASW System Improvement*	

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	375.946	27.781		28.999		29.973		-		29.973	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205620N / *Surface ASW Cmbt Sys Integr*	**Project (Number/Name)** 1916 / *Surface ASW System Improvement*

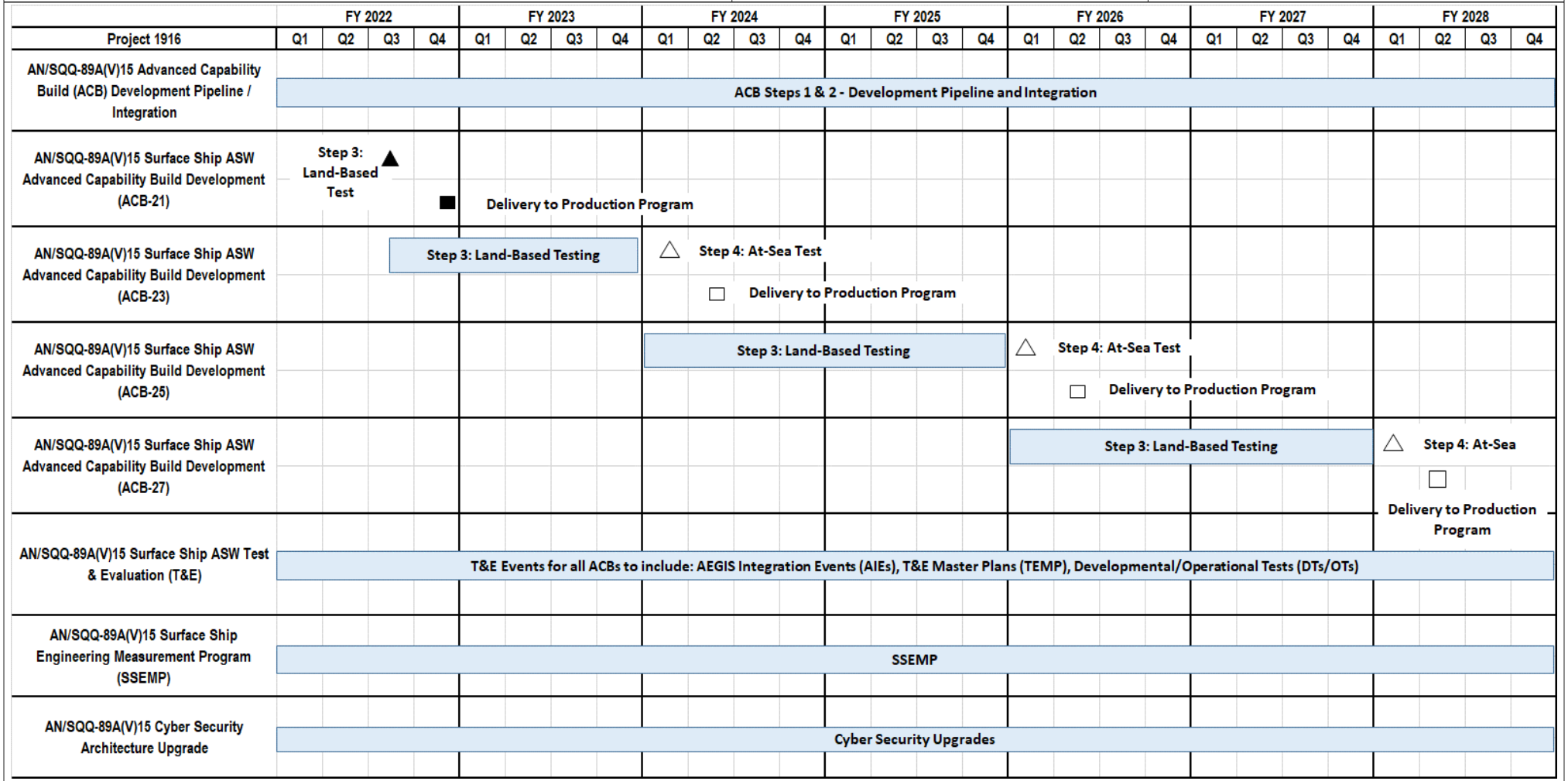

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205620N / *Surface ASW Cmbt Sys Integr*	**Project (Number/Name)** 1916 / *Surface ASW System Improvement*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 1916				
AN/SQQ-89A(V)15 Advanced Capability Build: AN/SQQ-89A(V)15 Advanced Capability Build Development Pipleline	1	2022	4	2028
AN/SQQ-89A(V)15 Advanced Capability Build (ACB-21): AN/SQQ-89A(V)15 ACB-21 Step 3 Land-Based Test	3	2022	3	2022
AN/SQQ-89A(V)15 Advanced Capability Build (ACB-21): AN/SQQ-89A(V)15 ACB-21 S/W Delivery to Integrator	4	2022	4	2022
AN/SQQ-89A(V)15 Advanced Capability Build (ACB-23): AN/SQQ-89A(V)15 ACB-23 Continuous Step 3 Land-Based Test	3	2022	4	2023
AN/SQQ-89A(V)15 Advanced Capability Build (ACB-23): AN/SQQ-89A(V)15 ACB-23 Step 4 At-Sea Test	1	2024	1	2024
AN/SQQ-89A(V)15 Advanced Capability Build (ACB-23): AN/SQQ-89A(V)15 ACB-23 S/W Delivery to Integrator	2	2024	2	2024
AN/SQQ-89A(V)15 Advanced Capability Build (ACB-25): AN/SQQ-89A(V)15 ACB-25 Continuous Step 3 Land-Based Test	1	2024	4	2025
AN/SQQ-89A(V)15 Advanced Capability Build (ACB-25): AN/SQQ-89A(V)15 ACB-25 Step 4 At-Sea Test	1	2026	1	2026
AN/SQQ-89A(V)15 Advanced Capability Build (ACB-25): AN/SQQ-89A(V)15 ACB-25 S/W Delivery to Integrator	2	2026	2	2026
AN/SQQ-89A(V)15 Advanced Capability Build (ACB-27): AN/SQQ-89A(V)15 ACB-27 Continuous Step 3 Land-Based Test	1	2026	4	2027
AN/SQQ-89A(V)15 Advanced Capability Build (ACB-27): AN/SQQ-89A(V)15 ACB-27 Step 4 At-Sea Test	1	2028	1	2028
AN/SQQ-89A(V)15 Advanced Capability Build (ACB-27): AN/SQQ-89A(V)15 ACB-27 S/W Delivery to Integrator	2	2028	2	2028

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205620N / *Surface ASW Cmbt Sys Integr*	**Project (Number/Name)** 1916 / *Surface ASW System Improvement*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
AN/SQQ-89(V) Test & Evaluation: AN/SQQ-89A(V)15 ACB AEGIS Integration Events, T&E Master Plans (TEMPS), DTs/OTs	1	2022	4	2028
Surface Ship Engineering Measurement Program (SSEMP): Surface Ship Engineering Measurement Program (SSEMP)	1	2022	4	2028
AN/SQQ-89A(V)15 Cyber Security Upgrades: AN/SQQ-89A(V)15 Cyber Security Upgrades	1	2022	4	2028

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0205632N *I MK-48 ADCAP*

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	200.773	98.707	155.868	213.165	-	213.165	142.815	136.071	126.673	129.181	Continuing	Continuing
0366: *MK 48 ADCAP*	200.773	98.707	155.868	213.165	-	213.165	142.815	136.071	126.673	129.181	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Office of Naval Research (ONR) Afterbody Upgrades Future Naval Capability (FNC) program started in FY 2022 with program office funding contributions beginning in FY 2023. The ONR Afterbody Upgrades FNC will develop technologies to improve torpedo effectiveness that will transition to the MK 48 MOD 7, MOD 8, and MOD 9 upgrades.

The MK 48 ADCAP (Advanced Capability) Research, Development, Test and Evaluation (RDT&E) program executes incremental development of weapon performance improvements in two development product areas: (1) Advanced Processor Builds (APBs) (operational software), and (2) Torpedo Technology Insertions (TIs) (hardware). This Program Element (0205632N/0366) is tied to development programs that leverage a joint United States/Australia Armaments Cooperative Project (ACP) and develop MK 48 ADCAP technologies developed by the ONR and SCO.

The Torpedo APB development testing and implementation process is being utilized to address shallow water as a critical operating area to counter near-peer adversaries and third world diesel electric submarines. In-water testing, in conjunction with laboratory simulation efforts, has shown that significant performance improvements can be made by implementing changes to weapon tactics and software algorithms. The TAPB program also leverages the RAN joint torpedo program and technologies developed by ONR and SCO in the areas of torpedo broadband signal processing, tactics processing, and alertment.

Torpedo Technology Insertions (TIs) will provide for significant torpedo hardware improvements and upgrades, including the transition and testing of advanced technologies from the R&D community. This approach will incorporate developmental testing of transitioning technologies from ONR and SCO for ADCAP upgrades in the areas of torpedo sensors, weapon propulsion, weapon/platform connectivity, and improved fusing. These efforts will continue torpedo development investment at a lower cost and shorter term than traditional torpedo programs.

The MK 48 MOD 8 (APB 6/TI-1) Heavyweight Torpedo (HWT) program is a significant upgrade to the MK 48 MOD 7 HWT which will consist of an operational software upgrade referred to as APB 6 and a hardware upgrade referred to as TI-1. TI-1 will include a Guidance and Control (G&C) section upgrade including a new Sonar Assembly (higher
density array, transmitter, receiver), and an Improved Post Launch Communications System (IPLCS). IPLCS will replace the existing copper guidance wire with fiber optics. These improvements are needed for increased performance in the presence of advanced countermeasures, shallow water, low Doppler targets, Very Shallow Water (VSW), improve fuzing, and Anti Surface Warfare (ASuW). TI-1 will also include features from three ONR FNC programs.

The MK 48 MOD 9 (APB 7/TI-2) represents significant improvements to the MK 48 MOD 7 and MOD 8 heavyweight torpedo (HWT) including propulsion upgrades providing extended range and advance sensing capabilities against surface and subsurface targets. MK 48 MOD 8 (APB 6/TI-1) and MK 48 MOD 9 (APB 7/TI-2) provide two distinctly different capabilities and are operationally intended for different mission sets. These improvements consist of the APB 7 software upgrades and

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0205632N *I MK-48 ADCAP*

Technology Insertion 2 (TI-2) hardware upgrades, which provides advanced sensing, processing, and propulsion technologies developed under OSD SCO, and ONR FNC research and development programs.

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	100.759	155.868	192.185	-	192.185
Current President's Budget	98.707	155.868	213.165	-	213.165
Total Adjustments	-2.052	0.000	20.980	-	20.980
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.047	0.000			
• SBIR/STTR Transfer	-2.005	0.000			
• Program Adjustments	0.000	0.000	3.530	-	3.530
• Rate/Misc Adjustments	0.000	0.000	17.450	-	17.450

Change Summary Explanation

Funding increased by $57.297M from FY 2023 to FY 2024 for:
MK 48 MOD 8 (APB 6/TI-1) funding increased by $19.977M from FY 2023 to FY 2024 to support:
- APB 6/TI-1 Material procurements by the contractor for Proof of Design (POD) and Proof-of-Manufacturing (POM) deliverables (+$16.094M).
- APB 6 product development to support software development and Torpedo Advanced Propulsion System - Combustion (TAPS-C) efforts aimed to upgrade the Otto Fuel engine to extend the range of the MK 48 MOD 7 & MOD 8 (+$3.139M).
- Engineering test events for the TI-1 Improved Post Launch Communications System (IPLCS)(+$0.744M).

MK 48 MOD 9 (APB 7/TI-2) funding increased by $22.740M from FY 2023 to FY 2024 to fund:
- Award of a new competitive manufacturing development contract with industry to develop and test TI-2 prototype hardware (+$21.467M).
- Additional funding for Modeling & Simulation (M&S) resources required for initial Verification, Validation & Accreditation (VV&A) efforts (+$1.273M).

MK 48 Afterbody Upgrade funding increased by $14.580M from FY 2023 to FY 2024 to fund:
- The development, hardware procurements, modifications, land-based and in-water tests for Afterbody Upgrades to improve torpedo effectiveness for future MK 48 MOD 7, MOD 8, and MOD 9 as part of the FNC transitions to the Program Office from ONR.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205632N / *MK-48 ADCAP*	Project (Number/Name) 0366 / *MK 48 ADCAP*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
0366: *MK 48 ADCAP*	200.773	98.707	155.868	213.165	-	213.165	142.815	136.071	126.673	129.181	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The MK 48 ADCAP (Advanced Capability) Research, Development, Test and Evaluation (RDT&E) program executes incremental development of weapon performance improvements in two development product areas: (1) Advanced Processor Builds (APBs) (operational software), and (2) Torpedo Technology Insertions (TIs) (hardware). This Program Element (0205632N/0366) is tied to development programs that leverage a joint United States/Australia Armaments Cooperative Project (ACP) and develop MK 48 ADCAP technologies developed by the ONR and SCO.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: TORPEDO APB / TEST & EVALUATION	98.707	155.868	213.165	0.000	213.165
Articles:	-	-	-	-	-
FY 2023 Plans:					
Continue APB 6 - Software development.					
Continue TI-1 Hardware development.					
Continue APB 6 - Modeling & Simulation development.					
Conduct APB 6 on MOD 7 Preliminary Design Review (PDR).					
Conduct APB 6 Critical Design Review (CDR).					
Conduct TI-1 IPLCS Critical Design Review (CDR).					
APB 6/TI-1 - Conduct Engineering testing of G&C section and IPLCS.					
TI-1 - IPLCS Proof of Design Hardware (POD) delivery.					
Conduct in-water testing of TI-IPLCS POD hardware.					
Continue APB 7 - Software prototype development.					
Continue TI-2 - Hardware prototype development.					
APB 7/TI-2 - Conduct System Requirements Review (SRR-1).					
Continue APB 7 /TI-2 - In-water prototype testing.					
Initiate Afterbody Upgrade development.					
FY 2024 Base Plans:					
Continue APB 6 - Software development.					
Continue TI-1 Hardware development.					
Continue APB 6 - Modeling & Simulation development.					
Continue APB 6/TI-1 - Engineering testing of G&C section and IPLCS.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205632N / *MK-48 ADCAP*	**Project (Number/Name)** 0366 / *MK 48 ADCAP*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
TI-1 - IPLCS Proof of Manufacturing Hardware (POM) delivery. TI-1 - G&C Proof of Design Hardware (POD) delivery. Conduct APB 6 on MOD 7 Critical Design Review (CDR). Conduct TI-1 IPLCS Production Readiness Review (PRR). Continue APB 7 - Software prototype development. Continue TI-2 - Hardware prototype development. Continue APB 7 /TI-2 - In-water prototype testing. APB 7/TI-2 - Modeling & Simulation Verification, Validation, and Accreditation (VV&A) TI-2 - Award TI-2 Industry hardware development contract. Continue After body Upgrade development.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: Funding increased by $57.297M from FY 2023 to FY 2024 for: MK 48 MOD 8 (APB 6/TI-1) funding increased by $19.977M from FY 2023 to FY 2024 to support: - APB 6/TI-1 Material procurements by the contractor for Proof of Design (POD) and Proof-of-Manufacturing (POM) deliverables (+$16.094M). - APB 6 product development to support software development and Torpedo Advanced Propulsion System - Combustion (TAPS-C) efforts aimed to upgrade the Otto Fuel engine to extend the range of the MK 48 MOD 7 & MOD 8 (+$3.139M). - Engineering test events for the TI-1 Improved Post Launch Communications System (IPLCS)(+$0.744M). MK 48 MOD 9 (APB 7/TI-2) funding increased by $22.740M from FY 2023 to FY 2024 to fund: - Award of a new competitive manufacturing development contract with industry to develop and test TI-2 prototype hardware (+$21.467M). - Additional funding for Modeling & Simulation (M&S) resources required for initial Verification, Validation & Accreditation (VV&A) efforts (+$1.273M). MK 48 Afterbody Upgrade funding increased by $14.580M from FY 2023 to FY 2024 to fund:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205632N / *MK-48 ADCAP*	**Project (Number/Name)** 0366 / *MK 48 ADCAP*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- The development, hardware procurements, modifications, land-based and in-water tests for Afterbody Upgrades to improve torpedo effectiveness for future MK 48 MOD 7, MOD 8, and MOD 9 as part of the FNC transitions to the Program Office from ONR.					
Accomplishments/Planned Programs Subtotals	98.707	155.868	213.165	0.000	213.165

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• WPN/3225: *MK-48 Torpedo ADCAP Mods*	27.987	18.502	20.714	-	20.714	62.005	62.579	63.579	64.799	0.000	1,680.169
• WPN/3117: *MK-48 Torpedo*	130.972	151.128	308.497	-	308.497	317.997	328.429	308.135	394.845	Continuing	Continuing

Remarks

D. Acquisition Strategy

Continue to incrementally develop technology to pace the threats to be integrated into the production baseline. A competitive contract for TI-1 hardware development was awarded in FY 2019. The development contract includes LRIP options to procure kits to be used for OT. FRP hardware will be used to upgrade the entire inventory of MK 48 MOD 7 to MOD 8.

The MK 48 MOD 9 (APB 7/TI-2) acquisition strategy is to fund the Penn State University Applied Research Laboratory to complete prototype builds and testing from the OSD SCO program and implement design refinements for industry builds. Competitive industry manufacturing contract awards are planned starting in FY 2024 for developmental and operational test units.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205632N / *MK-48 ADCAP*	Project (Number/Name) 0366 / *MK 48 ADCAP*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development - APB 6	WR	NUWC NPT : Newport RI	71.477	18.228	Nov 2021	24.657	Nov 2022	25.860	Nov 2023	-		25.860	Continuing	Continuing	Continuing
Software Development - APB 6	WR	NUWC KPT : Keyport WA	0.505	0.400	Nov 2021	0.438	Nov 2022	0.549	Nov 2023	-		0.549	0.000	1.892	-
Software Development - APB 6	WR	ARL / PSU : State College PA	0.000	2.450	Nov 2021	2.680	Nov 2022	2.060	Nov 2023	-		2.060	0.000	7.190	-
Hardware Development - TI-1	WR	NUWC NPT : Newport RI	32.295	2.900	Nov 2021	2.750	Nov 2022	3.397	Nov 2023	-		3.397	Continuing	Continuing	Continuing
Hardware Development - TI-1	C/CPIF	Progeny : Manassas, VA	42.578	29.330	Jan 2022	29.765	Jan 2023	45.859	Jan 2024	-		45.859	Continuing	Continuing	Continuing
Hardware Development - TI-1 IPLCS	C/CPFF	Harris Corp. : Melbourne, FL	16.135	4.000	Nov 2021	4.375	Nov 2022	4.375	Nov 2023	-		4.375	Continuing	Continuing	Continuing
Hardware Development - IM	WR	Indian Head : Indian Head, MD	2.876	0.450	Nov 2021	0.450	Nov 2022	0.450	Nov 2023	-		0.450	Continuing	Continuing	Continuing
Software Development - APB 7	C/CPFF	ARL / PSU : State College PA	0.000	2.840	Nov 2021	2.897	Nov 2022	2.955	Nov 2023	-		2.955	0.000	8.692	-
Software Development - APB 7	WR	NUWC NPT : Newport RI	0.000	1.962	Nov 2021	3.600	Nov 2022	3.700	Nov 2023	-		3.700	0.000	9.262	-
Hardware Development - TI-2	C/CPFF	ARL / PSU : State College PA	8.584	18.265	Dec 2021	34.974	Dec 2022	35.673	Dec 2023	-		35.673	0.000	97.496	-
Hardware Development - TI-2	WR	NUWC NPT : Newport RI	1.170	1.670	Nov 2021	13.073	Nov 2022	13.334	Nov 2023	-		13.334	0.000	29.247	-
Hardware Development - TI-2	WR	NSWC, IH : Indian Head, MD	1.252	0.507	Nov 2021	3.223	Nov 2022	3.287	Nov 2023	-		3.287	0.000	8.269	-
Hardware Development - TI-2	C/CPIF	TBD : TBD	0.000	0.000		0.000		21.467	Jan 2024	-		21.467	0.000	21.467	-
Hardware Development - Afterbody Upgrades	WR	NUWC NPT : Newport RI	0.000	0.000		3.500	Nov 2022	18.080	Nov 2023	-		18.080	0.000	21.580	-
		Subtotal	176.872	83.002		126.382		181.046		-		181.046	Continuing	Continuing	N/A

Remarks

- Increased funding in FY 2024 for APB 6 to support software development and TAPS-C upgrades to the Otto Fuel engine to extend the range of the MK 48 MOD 7 & MOD 8
- Increased funding in FY 2024 for TI-1 to support increased material procurement requirements by the contractor in FY 2024.
- Increased funding in FY 2024 for IPLCS is due to increased material procurement requirements by the contractor in FY 2024.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205632N / *MK-48 ADCAP*	**Project (Number/Name)** 0366 / *MK 48 ADCAP*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

- Increased funding in FY 2024 for APB 7 due to increased software algorithm development.
- Increased funding in FY 2024 for TI-2 Hardware Development contract award, TI-2 Hardware Development updates to OSD SCO prototype baseline, supporting transition to industry and the fleet. This includes system engineering, hardware/software prototype design updates, material procurements, with associated land-based and in-water prototype testing.
- Increased funding in FY 2024 for Afterbody Upgrades to existing and future MK 48 MODs to support development, hardware procurements, modifications, land-based and in-water tests for improved torpedo effectiveness as part of the FNC transitions to the Program Office from ONR.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Development - APB 6	WR	NUWC NPT : Newport RI	7.465	4.200	Nov 2021	5.900	Nov 2022	5.946	Nov 2023	-		5.946	Continuing	Continuing	Continuing
Software Development - APB 6	WR	NUWC KPT : Keyport WA	2.953	3.210	Nov 2021	3.210	Nov 2022	2.210	Nov 2023	-		2.210	Continuing	Continuing	Continuing
Software Development - APB 6	C/CPFF	ARL / PSU : State College PA	0.000	0.048	Dec 2021	0.048	Dec 2022	0.048	Nov 2023	-		0.048	0.000	0.144	-
Hardware Development - TI-1 IPLCS	C/CPFF	ARL / PSU : State College PA	0.600	0.600	Nov 2021	0.600	Nov 2022	0.300	Nov 2023	-		0.300	0.000	2.100	-
		Subtotal	11.018	8.058		9.758		8.504		-		8.504	Continuing	Continuing	N/A

Remarks

- Decreased funding in FY 2024 for TI-1/APB 6 as to efforts shift from to Development to Test and Evaluation for engineering test events for APB 6 on MK 48 MOD 7 and MK 48 MOD 8.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	NUWC KPT : Keyport WA - APB 6	1.373	1.350	Nov 2021	2.840	Nov 2022	4.252	Nov 2023	-		4.252	0.000	9.815	-
Developmental Test & Evaluation (DT&E)	WR	NUWC NPT : Newport RI - APB 6	1.984	0.290	Nov 2021	2.495	Nov 2022	4.281	Nov 2023	-		4.281	0.000	9.050	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205632N / *MK-48 ADCAP*	Project (Number/Name) 0366 / *MK 48 ADCAP*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	OPTEVFOR : Norfolk VA - APB 6	0.000	0.546	Dec 2021	0.700	Dec 2022	0.900	Nov 2023	-		0.900	0.000	2.146	-
Developmental Test & Evaluation (DT&E)	WR	NUWC NPT : Newport RI - TI-1	0.000	0.715	Nov 2021	2.150	Nov 2022	2.276	Nov 2023	-		2.276	0.000	5.141	-
Developmental Test & Evaluation (DT&E)	WR	NUWC KPT : Keyport WA -TI-1	0.143	0.715	Nov 2021	6.390	Nov 2022	6.661	Nov 2023	-		6.661	0.000	13.909	-
Developmental Test & Evaluation (DT&E)	WR	NUWC KPT : Keyport WA - TI-2	0.484	3.440	Nov 2021	4.546	Nov 2022	4.637	Nov 2023	-		4.637	0.000	13.107	-
		Subtotal	3.984	7.056		19.121		23.007		-		23.007	0.000	53.168	N/A

Remarks

- Increased funding in FY 2024 for TI-1/APB 6 for engineering Tests and Evaluation of the G&C section, IPLCS, and APB 6 on MK 48 MOD 7 hardware.
- Increased funding in FY 2024 for TI-2 to support MK 48 MOD 9 Prototype in-water test events.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	C/CPFF	Serco : Mclean VA	7.415	0.556	Nov 2021	0.571	Nov 2022	0.571	Nov 2023	-		0.571	0.000	9.113	-
Travel	WR	NAVSEA : Washington DC	1.484	0.035	Nov 2021	0.036	Nov 2022	0.037	Nov 2023	-		0.037	0.000	1.592	-
		Subtotal	8.899	0.591		0.607		0.608		-		0.608	0.000	10.705	N/A

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	200.773	98.707		155.868		213.165		-		213.165	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205632N / *MK-48 ADCAP*	**Project (Number/Name)** 0366 / *MK 48 ADCAP*

MK 48 APB 6/TI-1 (MOD 8) Acquisition Schedule

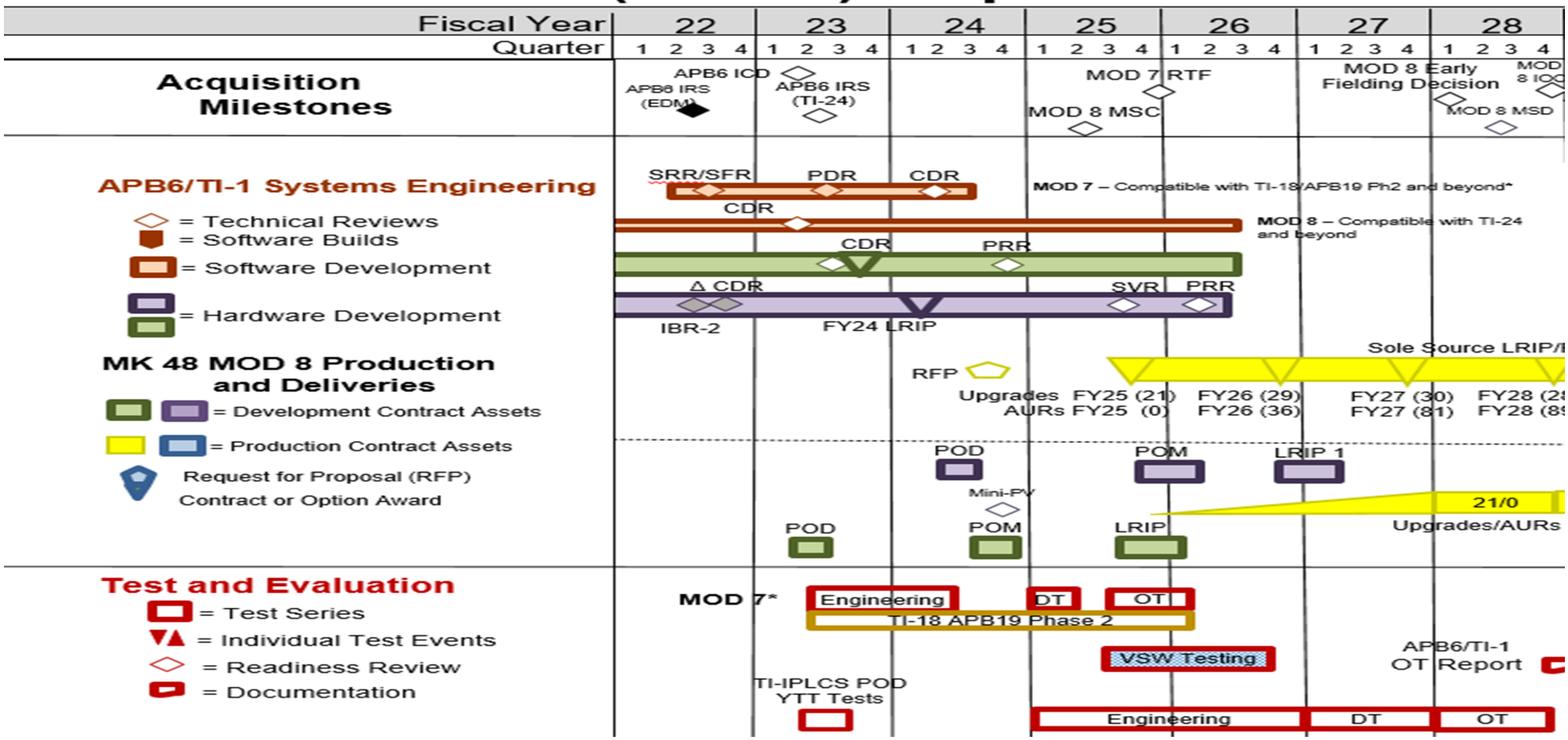

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205632N / *MK-48 ADCAP*	**Project (Number/Name)** 0366 / *MK 48 ADCAP*

MK 48 APB 7/TI-2 (MOD 9) Acquisition Schedule

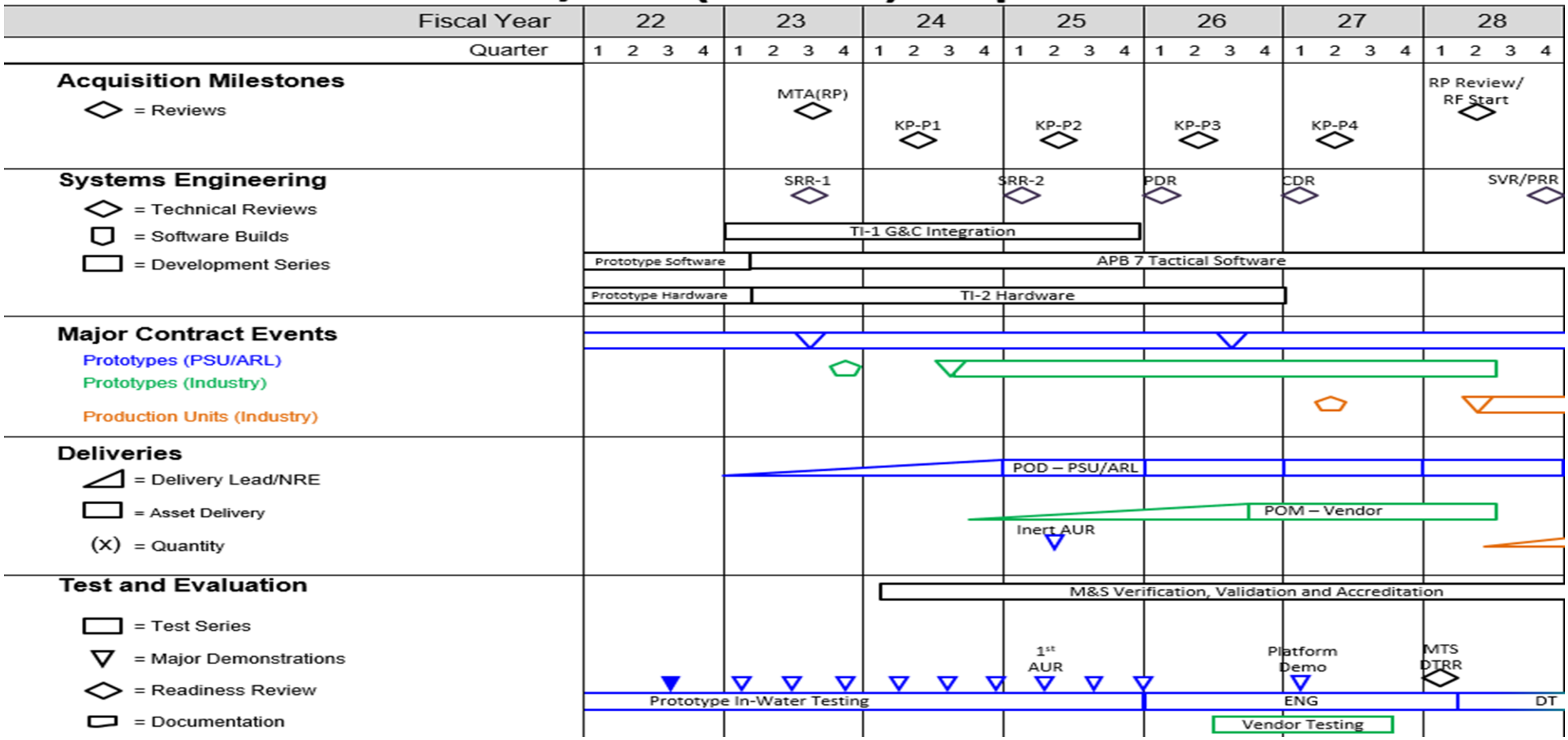

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205632N / *MK-48 ADCAP*	**Project (Number/Name)** 0366 / *MK 48 ADCAP*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0366				
APB 6 Software / TI-1 Hardware Development: APB 6 Development	1	2022	3	2026
APB 6 Software / TI-1 Hardware Development: TI-1 Development	4	2022	2	2026
APB 6 Software / TI-1 Hardware Development: APB 6 on MK 48 MOD 7 Developmental Test (DT)	1	2025	2	2025
APB 6 Software / TI-1 Hardware Development: APB 6 on MK 48 MOD 7 Operational Test (OT)	3	2025	2	2026
APB 6 Software / TI-1 Hardware Development: APB 6/TI-1 Developmental Test (DT)	1	2027	4	2027
APB 6 Software / TI-1 Hardware Development: APB 6/TI-1 Operational Test (OT)	1	2028	4	2028
APB 7 Software / TI-2 Hardware Development: APB 7 / TI-2 Prototype Testing and Demonstration	1	2022	4	2025
APB 7 Software / TI-2 Hardware Development: APB 7 Development	1	2023	4	2027
APB 7 Software / TI-2 Hardware Development: TI-2 Development	1	2023	4	2027

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0205633N *I Aviation Improvements*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	1,933.642	140.478	149.450	143.277	-	143.277	129.173	128.036	128.706	132.185	Continuing	Continuing
0357: *IFDIS fault detection*	0.000	0.000	0.000	2.000	-	2.000	0.000	0.000	0.000	0.000	0.000	2.000
0601: *Acft Handling & Service Equip*	53.303	2.266	2.617	9.390	-	9.390	2.303	2.320	2.395	2.468	Continuing	Continuing
0852: *Consolidated Auto Support System*	196.542	19.640	9.062	7.463	-	7.463	9.010	8.749	8.838	9.016	Continuing	Continuing
1041: *Aircraft Equipment Reliability/Maintainability Improvement Program (AERMIP)*	71.292	3.116	6.959	5.455	-	5.455	5.892	4.450	4.023	4.133	Continuing	Continuing
1355: *Propulsion and Power Component Improvement Program*	1,539.841	98.570	111.812	114.959	-	114.959	111.968	112.517	113.450	116.568	Continuing	Continuing
1356: *Corrosion Prevention Improvements*	0.000	0.000	0.000	4.010	-	4.010	0.000	0.000	0.000	0.000	0.000	4.010
2269: *Expeditionary Airfield Improvements*	72.664	0.475	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	73.139
9999: *Congressional Adds*	0.000	16.411	19.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	35.411

A. Mission Description and Budget Item Justification

Project 0601 - Common Ground Equipment is a Naval Aviation Project to apply new technology to common support equipment necessary to support multiple aircraft.

Project 0852: Consolidated Automated Support System (CASS) is a standardized Automated Test Equipment (ATE) with computer assisted, multi-function capabilities to support the maintenance of aircraft weapons systems and missiles. Electronic Warfare (EW) and Communication, Navigation and Identification (CNI) testers another type of standardized Automated Test Equipment with computer assisted, multi-function capabilities to support the maintenance of aircraft weapons systems. ATE host, and their Test Program Sets, along with associated ancillary are considered Automatic Test Systems (ATS). Line adjusted from "eCASS Modernization", to "ATS Modernization" to reflect inclusion of Electronic Warfare (EW) and Communication, Navigation and Identification (CNI) testers.

Project 1041 - Aircraft Equipment Reliability/Maintainability Improvement Program is the only Navy program that provides engineering support for in-service out-of-production aircraft equipment and provides increased readiness at reduced operational and support cost.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0205633N *I Aviation Improvements*

Project 1355 - Aircraft Engine Component Improvement Program develops reliability and maintainability and safety enhancements for in-service Navy aircraft engines, transmissions, propellers, starters, auxiliary power units, electrical generating systems, fuel systems, fuels, and lubricants.

Project 1356 - Corrosion Prevention Improvements supports Flag Officer (FO) endorsed N98 FRT initiative # POM24-28. This funding will enable the NAE to establish a Center of Excellence for Corrosion and Finish (CoECF) Training focused on educating, training, and certifying qualified, proficient maintainers capable of performing: corrosion identification, corrosion inspection, corrosion prevention, corrosion repair and restoration. Qualified, proficient maintainers will improve material readiness through improved material condition, while also developing the knowledge & maintenance skills of Sailors and Marines.

Project 2269 - The Expeditionary Airfields (EAF) program designs, develops, tests and fields Airfield Light Systems to replace existing obsolete legacy EAF lighting system.

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. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	144.621	130.450	137.960	-	137.960
Current President's Budget	140.478	149.450	143.277	-	143.277
Total Adjustments	-4.143	19.000	5.317	-	5.317
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	19.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.001	0.000			
• SBIR/STTR Transfer	-4.142	0.000			
• Program Adjustments	0.000	0.000	8.246	-	8.246
• Rate/Misc Adjustments	0.000	0.000	-2.929	-	-2.929

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2022	FY 2023
Project: 9999: *Congressional Adds*		
Congressional Add: *Additive manufacturing for metals affordability*	6.757	0.000
Congressional Add: *FOD mitigation integration*	9.654	0.000
Congressional Add: *Autonomous FOD mitigation technology*	0.000	15.000
Congressional Add: *Augmented reality remote maintenance services*	0.000	4.000

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0205633N *I Aviation Improvements*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2022	FY 2023
Congressional Add Subtotals for Project: 9999	16.411	19.000
Congressional Add Totals for all Projects	16.411	19.000

Change Summary Explanation

Funding:
$5.317M overall PE increase since the previous President's Budget submission due to the following adjustments:

Project 0357: Increase of $2.M for IFDIS fault detection.

Project 0601: Increase of $6.973 million for emergent requirement for Engine Test Instrumentation Replacement System (ETIRS) to address a projected shortfall in Navy and USMC aircraft engine test capability and working capital fund rate adjustments.

Project 0852: Decrease of $2.200 million realigned to 0601 in support of emergent requirement ETIRS and $0.188M for working capital fund rate adjustments.

Project 1041: Decrease of $1.329M for Program Adjustments.

Project 1355: Program was reduced by $4.007M, $2.618M to fund other department higher priorities, and $0.133M for working capital fund rate adjustments and other program adjustments.

Project 1356: Increase of $4.010M for the commencement of a new project units for corrosion prevention improvements.

Schedule:
Project 0601: Schedule for Engine Test Instrumentation Replacement System (ETIRS) added to R-4 and R-4A.

Project 0852: EO4 DT-B1 Phase 3 quarter slide left result of working with the contractor team to reduce overall schedule of the program by harnessing opportunities for efficiencies in the Testing process.

Project 2269: N/A

Technical:

Project 0601: Engine Test Instrumentation Replacement System (ETIRS) increase needed to replace legacy test instrumentation first fielded in 2002. Legacy Variants are experiencing major obsolescence and sustainment challenges impacting availability driving the need for development of ETIRS. ETIRS will include

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0205633N *I Aviation Improvements*

development of replacement test instrumentation and unique Test Program Sets to provide the required engine test and repair capability at USN and USMC repair sites.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205633N / *Aviation Improvements*	Project (Number/Name) 0357 / *IFDIS fault detection*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
0357: *IFDIS fault detection*	0.000	0.000	0.000	2.000	-	2.000	0.000	0.000	0.000	0.000	0.000	2.000
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The funding will provide Electrical Rapid Fielding of Electrical Intermittent Fault Detection Systems.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: IFDIS fault detection	0.000	0.000	2.000	0.000	2.000
Articles:	-	-	-	-	-
FY 2023 Plans: N/A					
FY 2024 Base Plans: Provide support to rapid fielding of Electrical Intermittent Fault Detection Systems.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: Increase of $2.000M from FY2023 to FY20243 due to funding for IFDIS fault detection.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	2.000	0.000	2.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

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

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 0357 / *IFDIS fault detection*

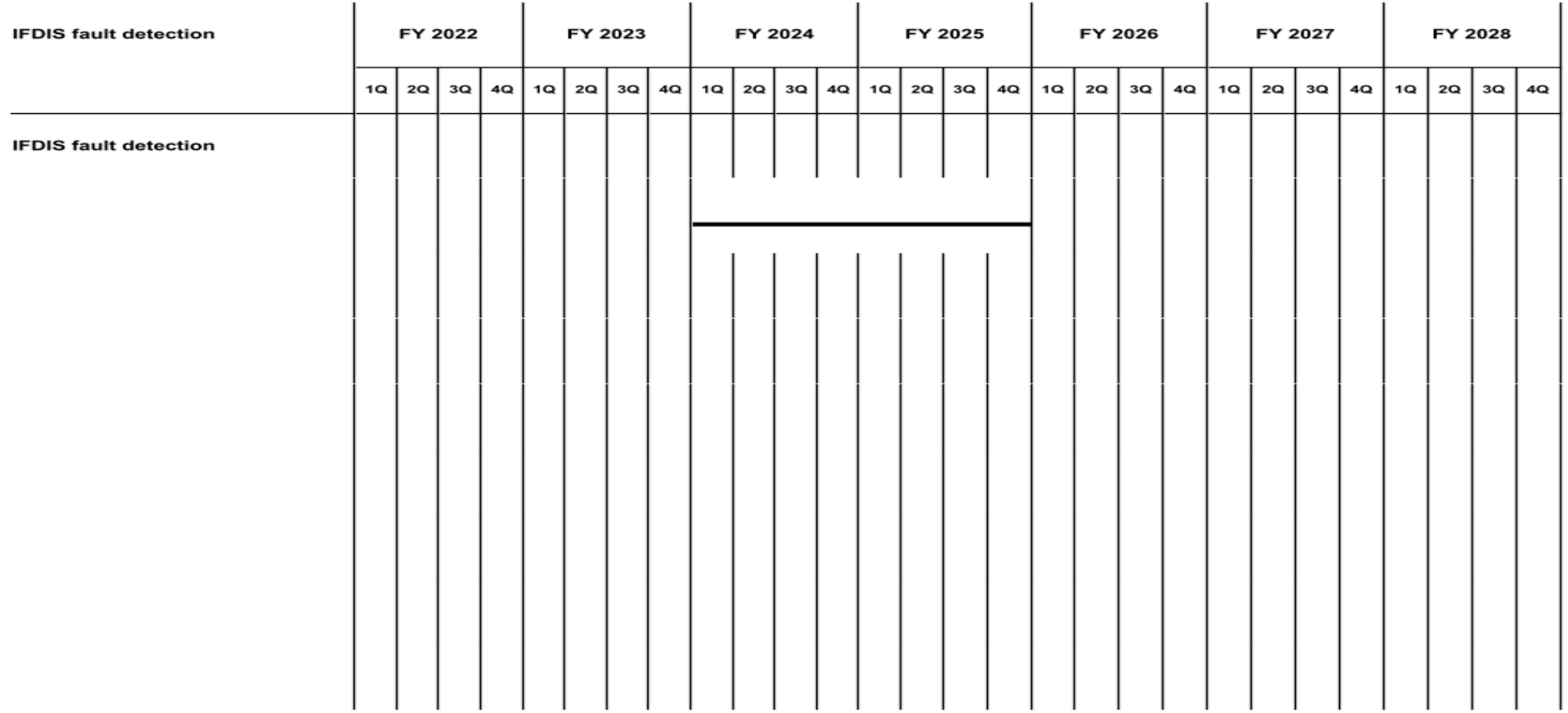
Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NAWCAD : Patuxent River	0.000	0.000		0.000		2.000	Oct 2023	-		2.000	0.000	2.000	-
		Subtotal	0.000	0.000		0.000		2.000		-		2.000	0.000	2.000	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		0.000		2.000		-		2.000	0.000	2.000	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 0357 / *IFDIS fault detection*



2024PB - 0205633N - 0357

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 0357 / *IFDIS fault detection*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
IFDIS fault detection				
IFDIS fault detection: Design & Development	1	2024	4	2025

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy										Date: March 2023		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0205633N / *Aviation Improvements*				Project (Number/Name) 0601 / *Acft Handling & Service Equip*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
0601: *Acft Handling & Service Equip*	53.303	2.266	2.617	9.390	-	9.390	2.303	2.320	2.395	2.468	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Common Ground Equipment is a Naval Aviation project to apply new technology to common support equipment necessary to support multiple systems/aircraft within the Navy. The common support equipment items developed with this budget are briefed to the Air Force, Army and Coast Guard for possible use in joint procurement in the production phase.

Crash cranes are used for lifting and moving disabled aircraft on CVN and L-Class ship flight decks. The Carrier/Amphibious Assault Ship Crash Crane (CV/AACC) will be a diesel powered lift system performing crash and salvage functions on board CVN and L-class ships. The CV/AACC will replace the legacy A/S32A-35A, Carrier Vessel Crash Crane (CVCC) and the A/S32A-36A Amphibious Assault Crash Crane (AACC). The CV/AACC will support all aircraft on CVN and L-Class ships.

Recent transition has merged existing PEMA and SPECS project lines under Aviation Maintenance Advancement Solutions (AMAS). Funding supports the evaluation, testing and integration to develop Portable Electronic Maintenance Aids (PEMA) Commercial solution for portable device deployments across the Naval Aviation Enterprise. PEMA is a portable device utilized by maintainers with the implementation of digital maintenance capabilities (digital publications, Interactive Electronic Technical Manuals, Internet Protocol based data uploads, Binary digit data downloads, automated diagnostics, and planeside Naval Aviation Logistics Command/ Management Information System. PEMAs are mandatory display devices supporting modern day Automated Maintenance Environment implemented for weapon systems.

Future Readiness Initiative to Develop Standard PEMA Cyber Solution (SPECS) architecture for all Portable Electronic Maintenance Aids (PEMA)s to standardize software across NAE, leverage existing enterprise tools, and to correct cyber shortfalls identified by the Cyber Warfare Detachment (CWD). A Cyber Risk Assessment (CRA) identified vulnerabilities on the Portable Electronic Maintenance Aid system that could be exploited to threaten U.S. capabilities. A new software image and configuration management process has been identified to mitigate the top 60% of identified risk groups and 100% of penetration test findings from the CRA.

The global COVID-19 pandemic has highlighted the inherent flaw that exists with our current means of providing maintenance support, regardless of system: The requirement to travel around the globe to the maintenance site in order to support the fleet. The inability to operate in 2020 brought the need for a new capability to the forefront: the capability to provide real-time maintenance support remotely. Virtual assistance has been identified to provide subject matter expert (SME) to the maintainer in real-time through voice/chat communication and indications through holograms overlaid within the maintainers view allowing guidance with highlight items of interest on the equipment being worked. This will reduce maintenance action complexity to ultimately drive down Mean-Time-To-Repair (MTTR) metrics and increase Aircraft Availability.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 0601 / *Acft Handling & Service Equip*

ETIRS system provides Navy and Marine Corps Intermediate (I) - Level out-of-airframe test capability for various aircraft engines. It will be used at shipboard and land based engine test activities to support testing of turbofan, turboshaft and turboprop engines. ETIRS will include development of unique Engine Test Program Sets (TPSs). The Legacy ETI systems are reaching end of life and exhibiting obsolescence issues impacting sustainment.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Engine Test Instrumentation Replacement System (ETIRS)	0.000	0.000	7.000	0.000	7.000
Articles:	-	-	3	-	3
Description: Due to obsolescence, sustainment and calibration challenges, replace legacy ETI systems with new universal ETI system. Consider a single design solution that can operate all three engine variants. Obtain data rights to facilitate economical sustainment decisions. Provide a design for optimum maintainability and supportability. Establish a sustainment structure that will address future obsolescence. Establish In-house Navy Calibration capabilities. Establish intermediate maintenance level repair procedures both ashore and afloat. ***FY 2023 Plans:*** N/A ***FY 2024 Base Plans:*** Conduct test & evaluation of ETI Replacement System (ETIRS). ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The Engine Test Instrumentation Replacement System (ETIRS) funding increase is required to replace existing instrumentation. Legacy systems are experiencing significant obsolescence and sustainment challenges, driving the need for the development of ETIRS. Evaluation of legacy system supply stock levels, failure rates, and repair source availability due to obsolescence, indicates legacy systems becoming unsustainable beginning 4th QTR FY25, driving the FY24 development start for ETIRS. The absence of engine test capability will negatively impact USN and USMC aircraft readiness due to insufficient throughput of engines available to install on aircraft. ETIRS will include development of replacement test instrumentation and unique test program sets required for engine test and repair capability at USN and USMC repair sites.					
Title: Aviation Maintenance Advancement Solutions (AMAS)	1.025	2.344	2.390	0.000	2.390
Articles:	-	-	-	-	-
Description: Aviation Maintenance Advancement Solutions (AMAS) has formed by the merge of The Portable Electronic Maintenance Aid (PEMA)and Standard PEMA Cyber Solution (SPECS). Portable Electronic Maintenance Aid (PEMA) funding supports the evaluation, testing and integration to develop PEMA Commercial					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 0601 / *Acft Handling & Service Equip*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Off-the-Shelf (COTS) solution for portable device deployments across the Naval Aviation Enterprise. PEMAs are portable devices utilized by maintainers with the implementation of digital maintenance capabilities (digital publications, Interactive Electronic Technical Manuals, Internet Protocol based data uploads, Binary digit data downloads, automated diagnostics, and planeside Naval Aviation Logistic Command Management Information System. PEMAs are a mandatory display device supporting modern day Automated Maintenance Environment implemented for weapon systems. Cyber Risk Assessment (CRA) has identified cyber vulnerabilities that could be exploited to threaten US fighting forces. Implementation of mandatory Cyber Security (CS) requirements would decrease the CS attack surface. Develop Standard PEMA Cyber Solution (SPECS) architecture for all PEMAs to standardize software across NAE, leverage existing enterprise tools, and to correct cyber shortfalls identified by the Cyber Warfare Detachment (CWD) Cyber Risk Assessment (CRA). Implement CS enhancements to reduce risk from cyber-attack. A key challenge to the maintenance of complex systems is accessing expertise at the point-of-need. Mission Capable rates suffer because authoritative knowledge and experience on complex repairs is difficult to access, geographically remote, or organizationally segregated. Develop virtual assistance from a subject matter expert (SME) to the maintainer in real-time through voice/chat communication and indications through hologram overlays within the maintainers view allowing guidance with highlight items of interest on the equipment being worked. ***FY 2023 Plans:*** Evaluate, test and integrate evolving COTS solutions. Conduct test & evaluation of T/M/S peculiar software/ hardware requirements and network connectivity compliance across the GIG prior to deployment to the fleet by a yearly release cycle. Develop standard PEMA Cyber Solution (SPECS) core software enhancements to correct cyber shortfalls and develop/integrate T/M/S unique applications hosted on a common image. ***FY 2024 Base Plans:*** Evaluate, test and integrate evolving COTS solutions. Conduct test & evaluation of T/M/S peculiar software/ hardware requirements and network connectivity compliance across the GIG prior to deployment to the fleet by a yearly release cycle. Develop standard PEMA Cyber Solution (SPECS) core software enhancements to correct cyber shortfalls and develop/integrate T/M/S unique applications hosted on a common image. Develop virtual assistance capability to include real-time voice/chat communication and indications through holograms overlays. Develop and test the remote assistance capability across multiple maintenance locations. Develop remote					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 0601 / *Acft Handling & Service Equip*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
assistance connections to unique networking protocol and analyze and develop necessary documentation for Authority to Operate (ATO) on multiple networks. Test and evaluate remote assistance software/hardware to provide virtual assistance to operate in austere environments including sea, shore and forward deployed. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Aviation Maintenance Advancement Solutions (AMAS) budget requirements increased from FY23 to FY24 due to projected annual rate increases to direct labor categories including but are not limited to, engineering, maintenance/support, tooling, quality control, manufacturing, and integration.					
Title: Carrier/Amphibious Assault Ship Crash Crane (CV/AACC) ***Articles:*** ***Description:*** Carrier/Amphibious Assault Ship Crash Cranes (CV/AACC) are required to remove damaged aircraft from the flight deck. Legacy crash cranes were designed in the late 1980's, major systems are beginning to experience the obsolescence of spare parts and are in need of updating. R&D resources are needed to identify not only replacements, but new technologies, which can increase the reliability and maintainability of this flight ops critical piece of equipment. Systems updates would include the engine/generator and electrical updates to the motor drive/control system. An exploration of power sources other than diesel engines would be considered and a corrosion resistant boom. ***FY 2023 Plans:*** Continue DT-C1 testing, prepare and initiate Full Rate Production, and continue development of logistics deliverables. ***FY 2024 Base Plans:*** N/A ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Carrier/Amphibious Assault Ship Crash Crane (CV/AACC) FY23 to FY24 decrease due to transitioning into FRPDR second quarter of FY23 moving onto procurement funds and transitioning away from RDTE.	1.241 -	0.273 -	0.000 -	0.000 -	0.000 -
Accomplishments/Planned Programs Subtotals	2.266	2.617	9.390	0.000	9.390

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 0601 / *Acft Handling & Service Equip*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• APN/0705: *Ground Support Equipment - CSE/ICP*	84.079	77.493	79.532	-	79.532	97.557	80.050	81.764	83.591	Continuing	Continuing
• OPN/4268: *Aviation Support Equipment - PEMA*	12.952	17.233	17.026	-	17.026	17.389	17.862	18.214	18.680	Continuing	Continuing

Remarks

D. Acquisition Strategy

Common Ground Equipment: This is a non ACAT program. Field activities propose tentative projects. Internal panel merits and selects projects. Field activities develop projects and submit results. Operational Advisory Group process selects projects to transition to procurement.

Carrier/Amphibious Assault Ship Crash Crane (CV/AACC): Market research results indicated multiple companies have the potential to develop (modified COTS) and manufacture crash cranes that meet the specification requirements, inclusive of the lift requirements and unique shipboard environmental requirements including shock, vibration, Electromagnetic Interference (EMI) and ship motion characteristics. The program entered the acquisition process at Milestone B (MS-B). A best value, competitive, Firm Fixed Price (FFP) Indefinite Delivery, Indefinite Quantity (IDIQ) contract was awarded 7/2019.

The selected contractor will design, develop, manufacture, test, and deliver one (1) CCSCs and one (1) ACSC Engineering Development Model (EDM), along with all required technical data and logistics documentation. Following MS C approval, one (1) CCSC and one (1) ACSC LRIP will be procured to support DT-C1 testing and production. Following FRPDR approval, 25 additional production units consisting of 13 CCSCs and 12 ACSCs will be procured using priced delivery orders which will meet the total fleet inventory of 27 units.

Recent transition has merged existing PEMA and SPECS project lines under Aviation Maintenance Advancement Solutions (AMAS). The management approach includes the Program Management Office residing at NAVAIR with Milestone Decision Authority delegated to the Naval Air Systems Command Chief Information Officer. 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.

Market research results indicated multiple companies have the potential to develop (modified COTS) and manufacture ETI systems that meet the specification requirements. The program will enter the acquisition process at Milestone B (MS-B). A best value, competitive, Firm Fixed Price (FFP) Indefinite Delivery, Indefinite Quantity (IDIQ) contract is planned to award 12/23.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205633N / *Aviation Improvements*	Project (Number/Name) 0601 / *Acft Handling & Service Equip*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hdw Dev - CV	C/FFP	Allied Systems Company : Sherwood, OR	9.607	0.000		0.000		0.000		-		0.000	0.000	9.607	9.607
Systems Engineering - CV	WR	NAWCAD : LAKEHURST, NJ	5.024	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Systems Engineering - AMAS	C/IDIQ	DNI : Oklahoma City, OK	2.735	0.000		1.980	Dec 2022	1.489	Dec 2023	-		1.489	0.000	6.204	6.204
Primary Hdw Dev - ETIRS	C/FFP	TBD : TBD	0.000	0.000		0.000		6.000	Dec 2023	-		6.000	0.000	6.000	6.000
Prior year Prod Dev cost no longer funded in the FYDP	Various	Various : Various	19.692	0.000		0.000		0.000		-		0.000	0.000	19.692	-
		Subtotal	37.058	0.000		1.980		7.489		-		7.489	Continuing	Continuing	N/A

Remarks

Systems Engineering - AMAS - Delaware Nation Industries (DNI)

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering - ETIRS	WR	NAWCAD : LAKEHURST, NJ	0.000	0.000		0.000		1.000	Nov 2023	-		1.000	0.000	1.000	-
Prior year Support cost no longer funded in the FYDP	Various	Various : Various	8.857	0.000		0.000		0.000		-		0.000	0.000	8.857	-
		Subtotal	8.857	0.000		0.000		1.000		-		1.000	0.000	9.857	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	NAWCAD : PAX RIVER, MD	1.133	1.241	Dec 2021	0.273	Dec 2022	0.000		-		0.000	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205633N / *Aviation Improvements*	Project (Number/Name) 0601 / *Acft Handling & Service Equip*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	WR	NAWCAD : PAX RIVER, MD	2.391	0.000		0.000		0.000		-		0.000	0.000	2.391	-
Developmental Test & Evaluation (DT&E)	WR	FRC SE : Jacksonville, FL	2.945	1.025	Nov 2021	0.364	Dec 2022	0.901	Dec 2023	-		0.901	0.000	5.235	-
Developmental Test & Evaluation (DT&E)	Various	Various : Various	0.919	0.000		0.000		0.000		-		0.000	0.000	0.919	-
		Subtotal	7.388	2.266		0.637		0.901		-		0.901	Continuing	Continuing	N/A

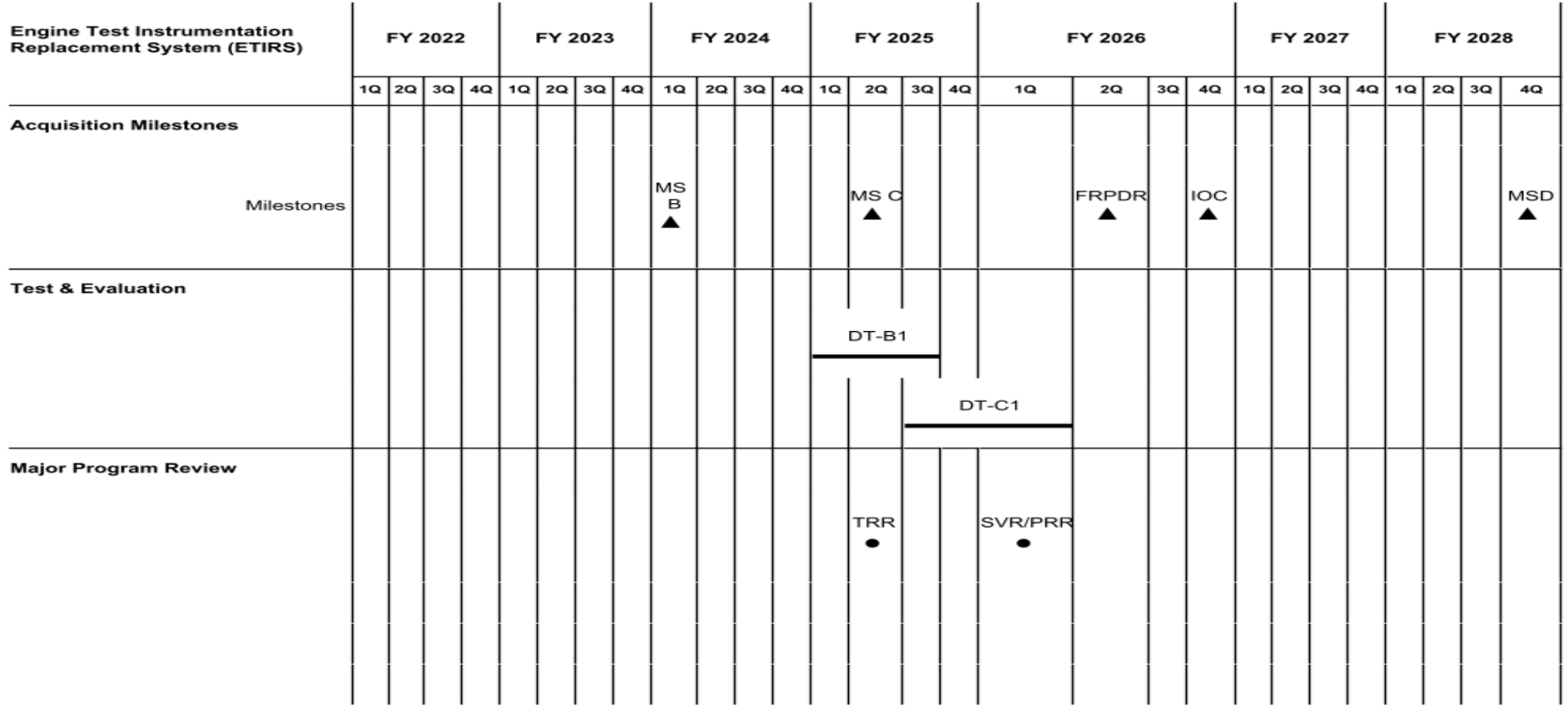
Remarks

0601 - Funding Shift from AMAS to CV in order to fund crash crane shock testing effort.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	53.303	2.266		2.617		9.390		-		9.390	Continuing	Continuing	N/A

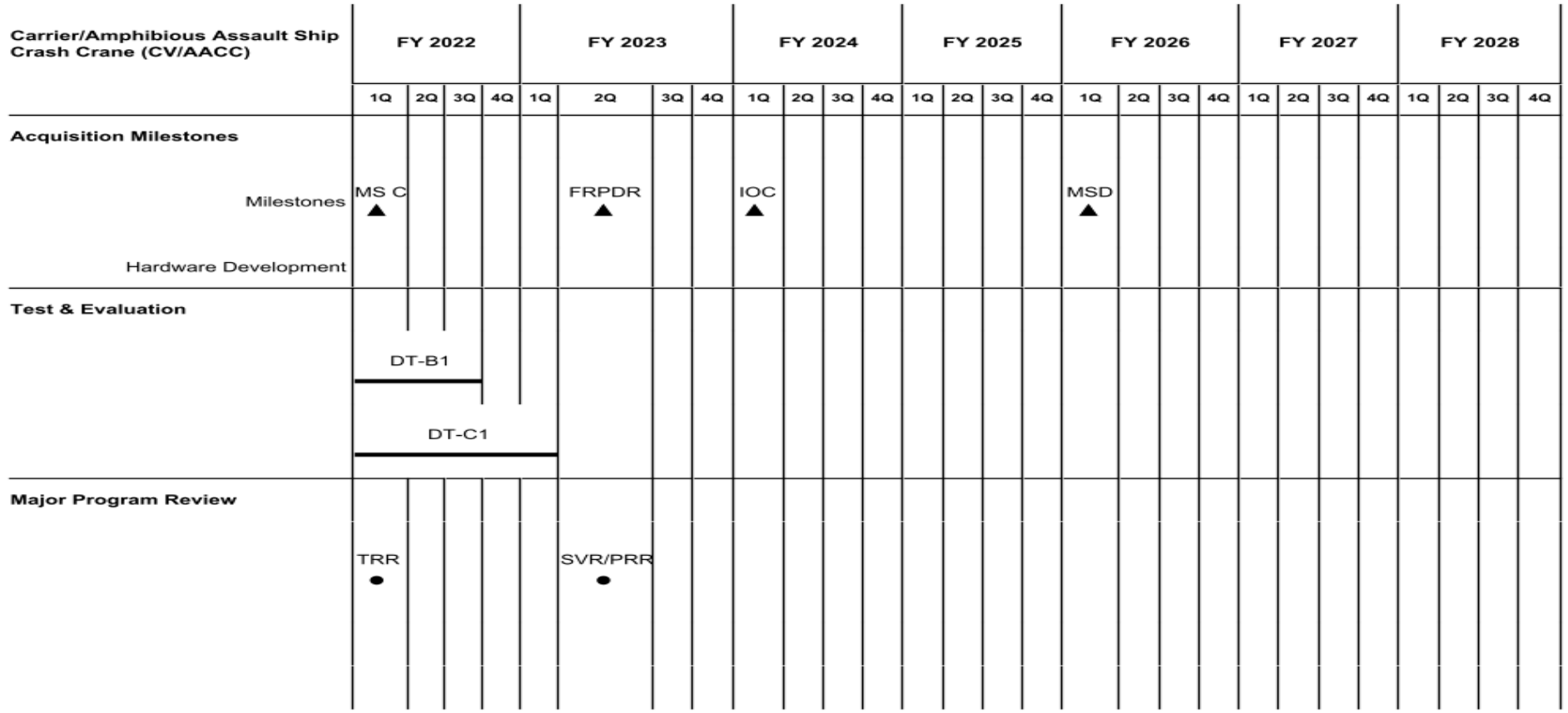
Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 0601 / *Acft Handling & Service Equip*



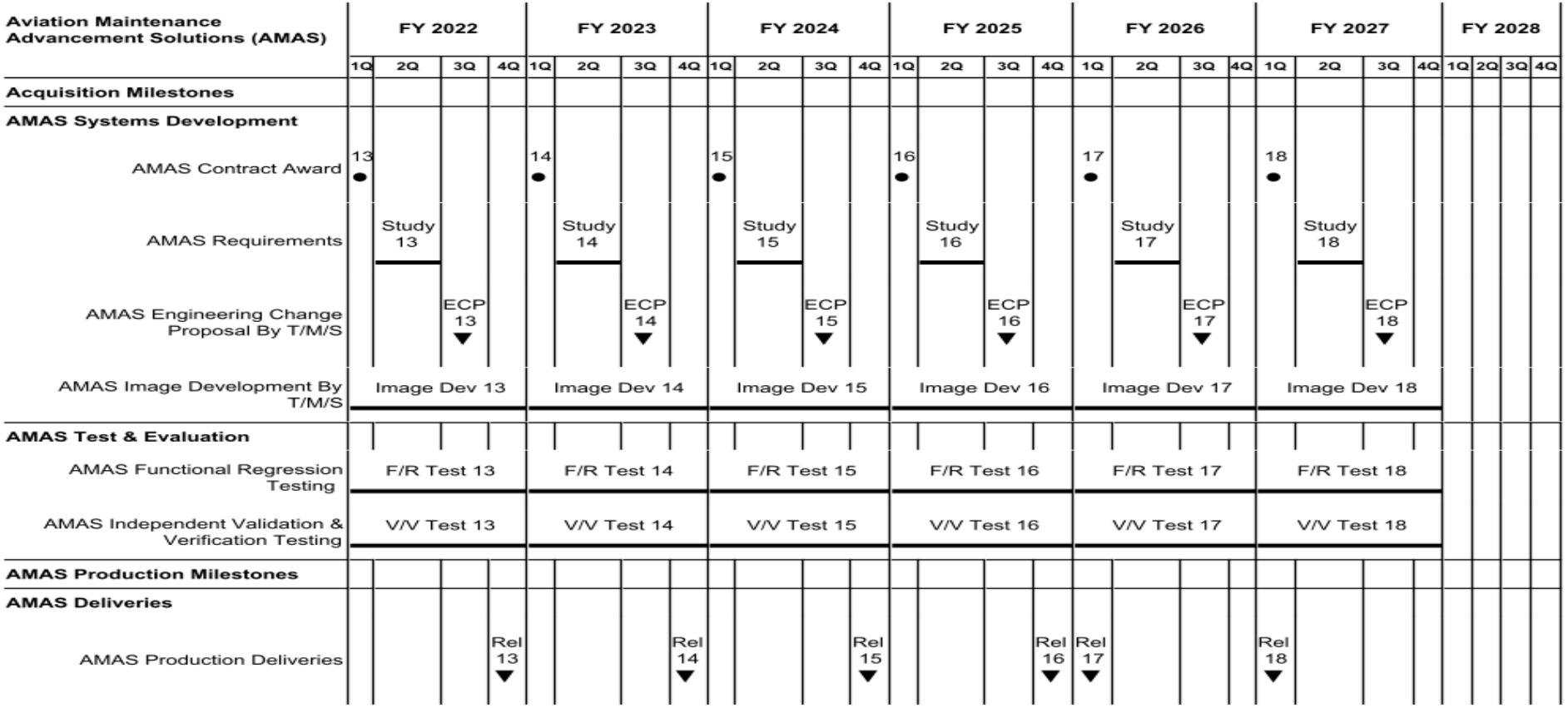
2024DON - 0205633N - 0601

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 0601 / *Acft Handling & Service Equip*



2024DON - 0205633N - 0601

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 0601 / *Acft Handling & Service Equip*



2024DON - 0205633N - 0601

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 0601 / *Acft Handling & Service Equip*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Engine Test Instrumentation Replacement System (ETIRS)				
Acquisition Milestones: Milestones: MILESTONE C	2	2025	2	2025
Acquisition Milestones: Milestones: MILESTONE B	1	2024	1	2024
Acquisition Milestones: Milestones: FRPDR	2	2026	2	2026
Acquisition Milestones: Milestones: IOC	4	2026	4	2026
Acquisition Milestones: Milestones: MSD	4	2028	4	2028
Test & Evaluation: DT-B1	1	2025	3	2025
Test & Evaluation: DT-C1	3	2025	1	2026
Major Program Review: SVR/PRR	1	2026	1	2026
Major Program Review: TRR	2	2025	2	2025
Carrier/Amphibious Assault Ship Crash Crane (CV/AACC)				
Acquisition Milestones: Milestones: MILESTONE C	1	2022	1	2022
Acquisition Milestones: Milestones: FRPDR	2	2023	2	2023
Acquisition Milestones: Milestones: IOC	1	2024	1	2024
Acquisition Milestones: Milestones: MSD	1	2026	1	2026
Test & Evaluation: DT-B1	1	2022	3	2022
Test & Evaluation: DT-C1	1	2022	1	2023
Major Program Review: SVR/PRR	2	2023	2	2023
Major Program Review: TRR	1	2022	1	2022
Aviation Maintenance Advancement Solutions (AMAS)				
AMAS Systems Development: AMAS Contract Award: AMAS Contract Award 13	1	2022	1	2022
AMAS Systems Development: AMAS Contract Award: AMAS Contract Award 14	1	2023	1	2023
AMAS Systems Development: AMAS Contract Award: AMAS Contract Award 15	1	2024	1	2024

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 0601 / *Acft Handling & Service Equip*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
AMAS Systems Development: AMAS Contract Award: AMAS Contract Award 16	1	2025	1	2025
AMAS Systems Development: AMAS Contract Award: AMAS Contract Award 17	1	2026	1	2026
AMAS Systems Development: AMAS Contract Award: AMAS Contract Award 18	1	2027	1	2027
AMAS Systems Development: AMAS Requirements: AMAS Requirements Study Complete 13	2	2022	2	2022
AMAS Systems Development: AMAS Requirements: AMAS Requirements Study Complete 14	2	2023	2	2023
AMAS Systems Development: AMAS Requirements: AMAS Requirements Study Complete 15	2	2024	2	2024
AMAS Systems Development: AMAS Requirements: AMAS Requirements Study Complete 16	2	2025	2	2025
AMAS Systems Development: AMAS Requirements: AMAS Requirements Study Complete 17	2	2026	2	2026
AMAS Systems Development: AMAS Requirements: AMAS Requirements Study Complete 18	2	2027	2	2027
AMAS Systems Development: AMAS Engineering Change Proposal By T/M/S: AMAS Engineering Change Proposal By T/M/S, ECP 13	3	2022	3	2022
AMAS Systems Development: AMAS Engineering Change Proposal By T/M/S: AMAS Engineering Change Proposal By T/M/S, ECP 14	3	2023	3	2023
AMAS Systems Development: AMAS Engineering Change Proposal By T/M/S: AMAS Engineering Change Proposal By T/M/S, ECP 15	3	2024	3	2024
AMAS Systems Development: AMAS Engineering Change Proposal By T/M/S: AMAS Engineering Change Proposal By T/M/S, ECP 16	3	2025	3	2025
AMAS Systems Development: AMAS Engineering Change Proposal By T/M/S: AMAS Engineering Change Proposal By T/M/S, ECP 17	3	2026	3	2026
AMAS Systems Development: AMAS Engineering Change Proposal By T/M/S: AMAS Engineering Change Proposal By T/M/S, ECP 18	3	2027	3	2027
AMAS Systems Development: AMAS Image Development By T/M/S: AMAS Image Development By T/M/S 13	1	2022	4	2022

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 0601 / *Acft Handling & Service Equip*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
AMAS Systems Development: AMAS Image Development By T/M/S: AMAS Image Development By T/M/S 14	1	2023	4	2023
AMAS Systems Development: AMAS Image Development By T/M/S: AMAS Image Development By T/M/S 15	1	2024	4	2024
AMAS Systems Development: AMAS Image Development By T/M/S: AMAS Image Development By T/M/S 16	1	2025	4	2025
AMAS Systems Development: AMAS Image Development By T/M/S: AMAS Image Development By T/M/S 17	1	2026	4	2026
AMAS Systems Development: AMAS Image Development By T/M/S: AMAS Image Development By T/M/S 18	1	2027	4	2027
AMAS Test & Evaluation: AMAS Functional Regression Testing: AMAS Functional/ Regression Testing 13	1	2022	4	2022
AMAS Test & Evaluation: AMAS Functional Regression Testing: AMAS Functional/ Regression Testing 14	1	2023	4	2023
AMAS Test & Evaluation: AMAS Functional Regression Testing: AMAS Functional/ Regression Testing 15	1	2024	4	2024
AMAS Test & Evaluation: AMAS Functional Regression Testing: AMAS Functional/ Regression Testing 16	1	2025	4	2025
AMAS Test & Evaluation: AMAS Functional Regression Testing: AMAS Functional/ Regression Testing 17	1	2026	4	2026
AMAS Test & Evaluation: AMAS Functional Regression Testing: AMAS Functional/ Regression Testing 18	1	2027	4	2027
AMAS Test & Evaluation: AMAS Independent Validation & Verification Testing: AMAS Independent Validation & Verification Testing 13	1	2022	4	2022
AMAS Test & Evaluation: AMAS Independent Validation & Verification Testing: AMAS Independent Validation & Verification Testing 14	1	2023	4	2023
AMAS Test & Evaluation: AMAS Independent Validation & Verification Testing: AMAS Independent Validation & Verification Testing 15	1	2024	4	2024
AMAS Test & Evaluation: AMAS Independent Validation & Verification Testing: AMAS Independent Validation & Verification Testing 16	1	2025	4	2025

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 0601 / *Acft Handling & Service Equip*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
AMAS Test & Evaluation: AMAS Independent Validation & Verification Testing: AMAS Independent Validation & Verification Testing 17	1	2026	4	2026
AMAS Test & Evaluation: AMAS Independent Validation & Verification Testing: AMAS Independent Validation & Verification Testing 18	1	2027	4	2027
AMAS Deliveries: AMAS Production Deliveries: AMAS Production Delivery, Release 13	4	2022	4	2022
AMAS Deliveries: AMAS Production Deliveries: AMAS Production Delivery, Release 14	4	2023	4	2023
AMAS Deliveries: AMAS Production Deliveries: AMAS Production Delivery, Release 15	4	2024	4	2024
AMAS Deliveries: AMAS Production Deliveries: AMAS Production Delivery, Release 16	4	2025	4	2025
AMAS Deliveries: AMAS Production Deliveries: AMAS Production Delivery, Release 17	1	2026	1	2026
AMAS Deliveries: AMAS Production Deliveries: AMAS Production Delivery, Release 18	1	2027	1	2027

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy										Date: March 2023		
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0205633N / *Aviation Improvements*				Project (Number/Name) 0852 / *Consolidated Auto Support System*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
0852: *Consolidated Auto Support System*	196.542	19.640	9.062	7.463	-	7.463	9.010	8.749	8.838	9.016	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The electronic Consolidated Automated Support System (eCASS) project is the system design and development of the latest generation of the US Navy's CASS family of automatic test systems. The legacy CASS system was designed and developed in the 1980's and commenced fielding in 1992. As such, it is reaching the end of its useful life due to obsolescence issues. eCASS is the replacement system for legacy CASS systems, which provides Naval aircraft avionics component maintenance and repair support at Intermediate and Depot maintenance facilities both shore-based and afloat. As a CASS replacement program, the eCASS program objectives remain the same as that of CASS. Specifically: (1) increase material readiness; (2) reduce life cycle costs; (3) improve tester sustainability at depot and intermediate maintenance levels; (4) reduce proliferation of unique test equipment, and (5) provide test capability for existing and emerging avionics/electronics aircraft weapon systems.

The Test Technology development project includes analysis, application, maturation, integration and testing of emerging electronic, mechanical, and optical test technologies for potential military utility for emerging requirements or obsolescence resolution in support of Naval avionics testing and repair. Specifically included are next-generation, electro-optics, synthetic instruments, high-speed bus technologies, inertial device technologies, and various other elements of modernization for legacy Electronic Warfare (EW) and Communication, Navigation and Identification (CNI) test systems, as well as the Consolidated Automated Support System (CASS) family of testers and other Automatic Test Systems (ATS) Support Equipment (SE) which supports the testing and repair of any Naval aviation equipment, including associated Test Program Sets (TPSs), and ancillary equipment.

Automatic Test Systems (ATS) Modernization project includes efforts to address modernization and required obsolescence analysis and updates for legacy Electronic Warfare (EW) and Communication, Navigation and Identification (CNI) test systems, as well as the Consolidated Automated Support System (CASS) family of testers as ATS. The ATS encompasses both
software and hardware updates. Modernization required to support emerging T/M/S technologies such as next-generation electro-optics, synthetic instruments, high-speed bus technologies, inertial device technologies needed for ATS support. Efforts cover the Electronic Warfare (EW) Testers, eCASS, their ancillary and any required Test Program Sets
(TPSs) and ancillary equipment.

The Third Generation Electro-Optical (EO3) Technology Development project consists of the design and development of technology solutions, including a near-infrared camera solution to replace the existing obsolete EO3 console camera, for use in 65 fielded Navy test systems at both shore-based and afloat sites. The EO3 console subsystem is hosted by the US Navy Consolidated Automated Support System (CASS/eCASS) family of automatic test systems and is used to test, diagnose and repair the H-60 Multi-spectral Targeting System (MTS) and F/A-18 Advanced Targeting Forward Looking Infrared (ATFLIR) weapon systems. The objective of the EO3 Technology Development project is to extend the useful life of fielded EO3 systems in order to sustain H-60 MTS and F/A-18 ATFLIR weapon system readiness until the EO4 replacement system can be designed, developed, produced, and fielded.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 0852 / *Consolidated Auto Support System*

The Fourth Generation Electro-Optical (EO4) development project consists of the design and development of the latest generation electro-optic test console for use with the electronic CASS (eCASS) automatic test system. The EO4 system will replace the legacy Third Generation Electro-Optical (EO3) system, which is facing imminent obsolescence, in providing test, repair, and maintenance capability for Naval and Marine Corps electro-optic weapon systems at both shore-based and afloat sites. As an EO3 replacement program, the EO4 program objectives remain the same as EO3. Specifically: (1) provide test capability for existing and emerging electro-optic weapon systems and components; (2) reduce life-cycle costs; (3) improve sustainability at intermediate and depot levels of maintenance; and (4) reduce proliferation of unique test equipment.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Test Technology Development	1.940	3.982	3.230	0.000	3.230
Articles:	-	-	3	-	3
Description: Develops, integrates, and evolves enhanced test capabilities and technologies for insertion into legacy Electronic Warfare (EW) and Communication, Navigation and Identification (CNI) test systems, as well as the Consolidated Automated Support System (CASS) family of test systems and other Automatic Test Systems (ATS) Support Equipment (SE). As aviation and weapon system evolve, new test capabilities and cyber techniques are required to support advanced systems. Existing test capabilities must be extended in range, accuracy, time and frequency domains in order to sustain the required test accuracy ratios for weapon systems support (the Automatic Test System must be at least four times as accurate as the asset being tested). ***FY 2023 Plans:*** Continue evaluation of advanced technologies to support additional test requirements. ***FY 2024 Base Plans:*** Continue evaluation of advanced technologies to support additional test requirements. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Test Technology Development funding decrease from FY23 to FY24 is due to the FY22 beginning of WBR Future Readiness Team (FRT) Initiative 3 HTS offload to CASS ending in FY23.					
Title: ATS Modernization/Product Improvement	6.067	3.911	3.564	0.000	3.564
Articles:	-	-	-	-	-
Description: ATS Modernization project includes efforts to address modernization and required obsolescence analysis and updates for legacy Electronic Warfare (EW) and Communication, Navigation and Identification (CNI) test systems, as well as the Consolidated Automated Support System (CASS) family of testers and other					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 0852 / *Consolidated Auto Support System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Automatic Test Systems (ATS) Support Equipment (SE). The ATS encompasses both software and hardware updates. Modernization required to support emerging T/M/S technologies such as next-generation electro-optics, synthetic instruments, high-speed bus technologies, inertial device technologies needed for ATS support. Efforts cover the Electronic Warfare (EW) Testers, eCASS, and their ancillary and any required Test Program Sets (TPSs) and ancillary equipment. ***FY 2023 Plans:*** Airborne Electronic Warfare Tester (ALERT) and eCASS modernization efforts to address emerging avionics requirements for various T/M/S to include F-35, E-2D, F/A-18 E/F/G. This includes addressing their legacy Test Program Sets and Ancillary requirements. ***FY 2024 Base Plans:*** Electronic Warfare (EW)Testers and eCASS modernization efforts to address emerging avionics requirements for various T/M/S to include F-35, E-2D, F/A-18 E/F/G. This includes addressing their legacy Test Program Sets and Ancillary requirements. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** ATS Modernization/Product Improvement funding decrease from FY23 to FY24 is due to the FY22 beginning of WBR Future Readiness Team (FRT) Initiative 3 HTS offload to CASS ending in FY23.					
Title: EO4 Development	11.633	1.169	0.669	0.000	0.669
Articles:	5	-	-	-	-
Description: Design, develop, integrate, and test a Fourth Generation Electro-Optics (EO4) test system to replace the legacy EO3 test system. EO4 systems will provide the capability to test and diagnose an array of electro-optic weapons systems on F/A-18, H-60, JSF, and other aircraft platforms to support visual imaging, target identification and tracking, range finding, night-vision, and other electro-optic weapon system capabilities.					
FY 2023 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 0852 / *Consolidated Auto Support System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
The selected contractor will deliver five (5) EO4 engineering development models to include the EO4 carts and or fixtures, along with all required technical data and logistics documentation. Conduct DT-B1 performance, environmental, and suitability & supportability testing (phases 1-3) in support of EO4 program development. ***FY 2024 Base Plans:*** Continue and complete DT testing and finalize delivery of (5) EDM models in support of EO4 program development. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Fourth-Generation Electro Optic (EO4) Development budget requirements have increased in FY24 due to material supply support issues and schedule delays affecting planned execution of DT testing and subsequent finalization of EDM articles.					
Accomplishments/Planned Programs Subtotals	19.640	9.062	7.463	0.000	7.463

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• APN/0705: *Common Ground Equipment-CASS/ATE*	124.061	120.307	117.689	-	117.689	119.412	123.094	125.589	128.382	Continuing	Continuing

Remarks

D. Acquisition Strategy

Formal test technology reviews with industry are conducted annually (cooperative Joint Services initiative) to define maturity of needed technologies. Further studies are conducted as needed. Procurement strategy is determined by market survey and cooperative opportunities.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205633N / *Aviation Improvements*	Project (Number/Name) 0852 / *Consolidated Auto Support System*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hdw Dev - Test Technology	C/CPFF	Various : Various	7.867	0.000		2.304	Dec 2022	1.229	Dec 2023	-		1.229	Continuing	Continuing	Continuing
Primary Hdw Dev - EO3	SS/CPFF	Northrop Grumman : Rolling Meadows, IL	3.844	0.000		0.000		0.000		-		0.000	0.000	3.844	3.844
Primary Hdw Dev - EO4	C/CPIF	Lockheed Martin : Lockheed Martin	11.627	10.410	Feb 2022	0.807	Feb 2023	0.531	Feb 2024	-		0.531	13.884	37.259	37.259
Prior Year Prod Dev no longer funded in the FYDP	Various	Various : Various	132.305	0.000		0.000		0.000		-		0.000	0.000	132.305	-
		Subtotal	155.643	10.410		3.111		1.760		-		1.760	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Technology Support	WR	Various : Various	5.490	1.895	Dec 2021	1.598	Dec 2022	1.916	Dec 2023	-		1.916	Continuing	Continuing	Continuing
EO3 Support	WR	NAWC AD : Lakehurst, NJ	0.777	0.000		0.000		0.000		-		0.000	0.000	0.777	-
ATS Modernization	WR	Various : Various	0.000	6.067	Dec 2021	3.911	Dec 2022	3.564	Dec 2023	-		3.564	0.000	13.542	-
EO4 Support	WR	NAWC AD : Lakehurst, NJ	3.636	1.223	Dec 2021	0.362	Dec 2022	0.138	Dec 2023	-		0.138	4.616	9.975	-
Prior Year Support no longer funded in the FYDP	Various	Various : Various	27.703	0.000		0.000		0.000		-		0.000	0.000	27.703	-
		Subtotal	37.606	9.185		5.871		5.618		-		5.618	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Tech Travel	WR	Various : Various	0.448	0.045	Nov 2021	0.080	Nov 2022	0.085	Nov 2023	-		0.085	Continuing	Continuing	Continuing
EO3 Travel	WR	Various : Various	0.102	0.000		0.000		0.000		-		0.000	0.000	0.102	-
EO4 Travel	WR	Various : Various	0.084	0.000		0.000		0.000		-		0.000	0.000	0.084	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205633N / *Aviation Improvements*	Project (Number/Name) 0852 / *Consolidated Auto Support System*	

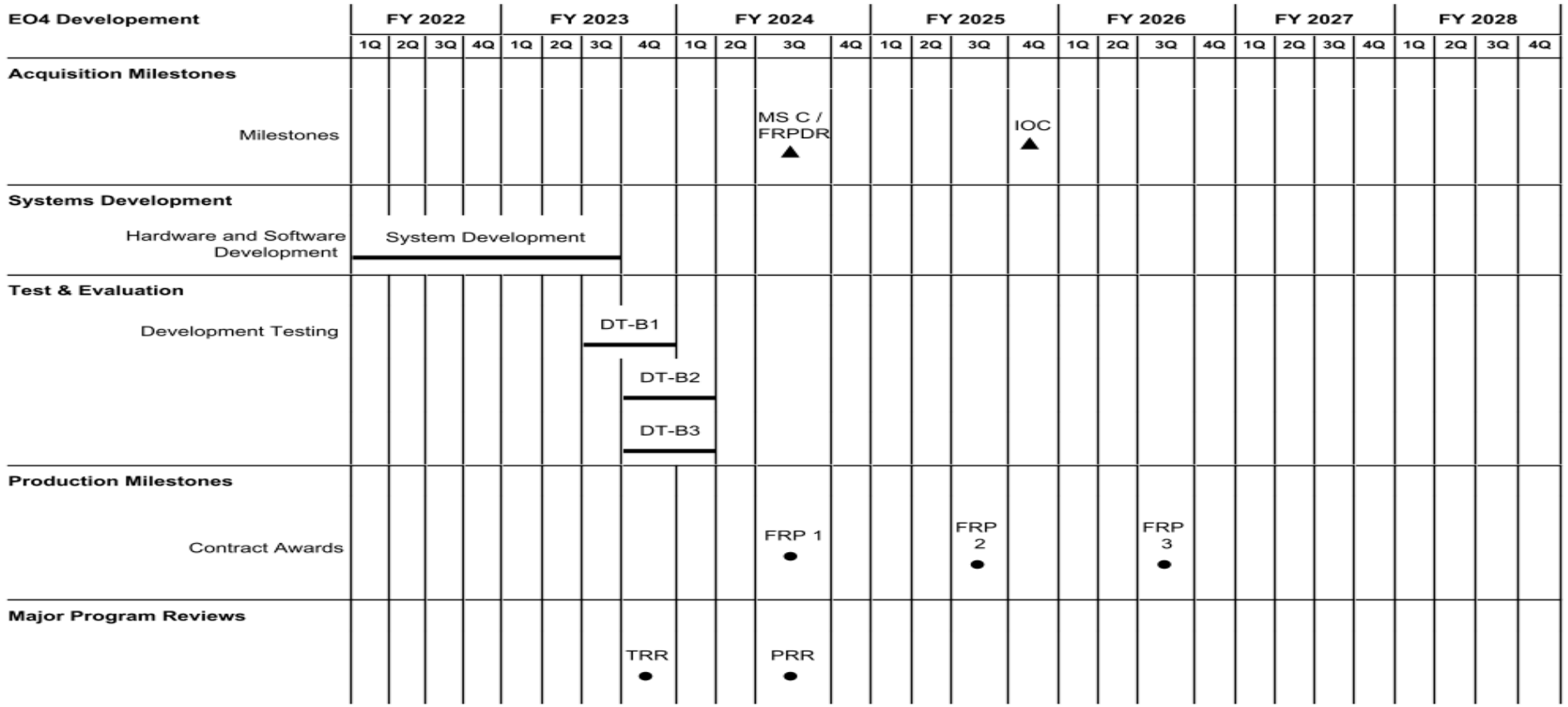
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Mgmt no longer funded in the FYDP	Various	Various : Various	2.659	0.000		0.000		0.000		-		0.000	0.000	2.659	-
		Subtotal	3.293	0.045		0.080		0.085		-		0.085	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	196.542	19.640		9.062		7.463		-		7.463	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 0852 / *Consolidated Auto Support System*



2024DON - 0205633N - 0852

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 0852 / *Consolidated Auto Support System*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
EO4 Developement				
Acquisition Milestones: Milestones: Milestone C / FRPDR	3	2024	3	2024
Acquisition Milestones: Milestones: IOC	4	2025	4	2025
Systems Development: Hardware and Software Development: System Development	1	2022	3	2023
Test & Evaluation: Development Testing: Design Verification Testing: DT-B1 Phase 1	3	2023	4	2023
Test & Evaluation: Development Testing: Environmental Testing: DT-B1 Phase 2	4	2023	1	2024
Test & Evaluation: Development Testing: Government Testing: DT-B1 Phase 3	4	2023	1	2024
Production Milestones: Contract Awards: FRP1-APN	3	2024	3	2024
Production Milestones: Contract Awards: FRP2-APN	3	2025	3	2025
Production Milestones: Contract Awards: FRP3-APN	3	2026	3	2026
Major Program Reviews: TRR	4	2023	4	2023
Major Program Reviews: PRR	3	2024	3	2024

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205633N / *Aviation Improvements*	Project (Number/Name) 1041 / *Aircraft Equipment Reliability/ Maintainability Improvement Program (AERMIP)*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
1041: *Aircraft Equipment Reliability/Maintainability Improvement Program (AERMIP)*	71.292	3.116	6.959	5.455	-	5.455	5.892	4.450	4.023	4.133	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Aircraft Equipment Reliability/Maintainability Improvement Program (AERMIP) is the only Navy program which provides Research, Development, Test & Evaluation engineering support specifically for in-service, out-of-production aircraft equipment. AERMIP increases readiness through reliability, maintainability, and safety improvements to existing systems and equipment installed in Naval aircraft. It also provides a transition vehicle to deploy Total Ownership Cost reduction initiatives through flight-test support and Fleet Test & Evaluation. It meets affordable readiness objectives by providing a cost-effective solution to obsolescence problems encountered when service lives are extended. AERMIP promotes commonality and standardization across aircraft platform lines and among the services through extension of application and use of non-developmental items. AERMIP also decreases life cycle costs through reduced operational and support costs. AERMIP facilitates the Operational, Safety and Improvement Program by applying proven low-risk solutions to current fleet problems. AERMIP also funds high-priority flight testing which is not associated with any acquisition or development program under the Flight Test General task.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Avionics and Wiring	0.333	0.446	0.446	0.000	0.446
Articles:	-	-	-	-	-
FY 2023 Plans: Test and evaluate equipment for effectiveness of wiring diagnostics and prognostics. Address avionics related reliability/maintainability issues impacting multiple aircraft platforms while continuing to investigate high value return on investment initiatives. Qualify additional material or pieces of equipment and the procedures or processes required for implementation.					
FY 2024 Base Plans: Test and evaluate equipment for effectiveness of wiring diagnostics and prognostics. Address avionics related reliability/maintainability issues impacting multiple aircraft platforms while continuing to investigate high value					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1041 / *Aircraft Equipment Reliability/ Maintainability Improvement Program (AERMIP)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
return on investment initiatives. Qualify additional material or pieces of equipment and the procedures or processes required for implementation. ***FY 2024 OCO Plans:*** N/A					
Title: Air Vehicle ***Articles:*** ***FY 2023 Plans:*** Based on advancement in technology, test and qualify new materials or equipment and the procedures/process required for their implementation to improve operational reliability, while containing cost growth. Continue to test and qualify improved corrosion preventative compounds. Address subsystem related reliability/maintainability issues impacting multiple aircraft platforms while continuing to investigate high value return on investment initiatives. Maintain efforts to qualify improved methods of structural component repair. ***FY 2024 Base Plans:*** Based on advancement in technology, test and qualify new materials or equipment and the procedures/process required for their implementation to improve operational reliability, while containing cost growth. Continue to test and qualify improved corrosion preventative compounds. Address subsystem related reliability/maintainability issues impacting multiple aircraft platforms while continuing to investigate high value return on investment initiatives. Maintain efforts to qualify improved methods of structural component repair. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease of $0.759M from FY2023 to FY2024 due to funding Tech Correction Future Readiness Team Initiatives, T56 Engine Predictive Analysis Tool and Rapid Deployment of Cold Spray Metallization Systems.	2.025 -	5.768 -	5.009 -	0.000 -	5.009 -
Title: Systems Engineering Revitalization ***Articles:*** ***FY 2023 Plans:*** Continue research in relevant technical areas and evaluate ways of refining the use of system models for linkages to physics based models and PLM systems, data visualization of model data to inform high level	0.758 -	0.745 -	0.000 -	0.000 -	0.000 -

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1041 / *Aircraft Equipment Reliability/ Maintainability Improvement Program (AERMIP)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
assessments and stakeholder decisions and automated translation of document data straight into models. Continue the transition to model based systems engineering methodology. Refine processes and procedures for developing and extending systems models. Continue development of standard model libraries and stereotypes for reuse across system models. Develop linkages of the system level models to risk management systems. ***FY 2024 Base Plans:*** N/A ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease of $0.745M from FY2023 to FY2024 due to project completion in FY2023.					
Accomplishments/Planned Programs Subtotals	3.116	6.959	5.455	0.000	5.455

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

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

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1041 / *Aircraft Equipment Reliability/ Maintainability Improvement Program (AERMIP)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Sys Eng - Avionics/Wiring	WR	NAWCAD : Patuxent River, MD	10.055	0.248	Oct 2021	0.286	Oct 2022	0.286	Oct 2023	-		0.286	Continuing	Continuing	Continuing
Sys Eng - Avionics/Wiring	C/FFP	Various : Various	3.000	0.050	Jan 2022	0.050	Jan 2023	0.050	Jan 2024	-		0.050	0.000	3.150	3.150
Sys Eng - Avionics/Wiring	WR	FRC-E : Cherry Point, NC	0.160	0.010	Nov 2021	0.020	Nov 2022	0.020	Nov 2023	-		0.020	Continuing	Continuing	Continuing
Sys Eng - Avionics/Wiring	WR	FRC-SE : Jacksonville, FL	0.050	0.010	Nov 2021	0.020	Nov 2022	0.020	Nov 2023	-		0.020	Continuing	Continuing	Continuing
Sys Eng - Avionics/Wiring	WR	FRC-SW : San Diego, CA	0.055	0.010	Nov 2021	0.020	Nov 2022	0.020	Nov 2023	-		0.020	Continuing	Continuing	Continuing
Sys Eng - Air Vehicle	WR	NAWCAD : Patuxent River, MD	15.040	0.877	Oct 2021	2.337	Oct 2022	2.000	Oct 2023	-		2.000	Continuing	Continuing	Continuing
Sys Eng - Air Vehicle	WR	FRC-SW : San Diego, CA	3.281	0.425	Nov 2021	0.532	Nov 2022	0.500	Nov 2023	-		0.500	Continuing	Continuing	Continuing
Sys Eng - Air Vehicle	WR	FRC-E : Cherry Point, NC	2.544	0.150	Nov 2021	0.373	Nov 2022	0.373	Nov 2023	-		0.373	Continuing	Continuing	Continuing
Sys Eng - Air Vehicle	WR	FRC-SE : Jacksonville, FL	1.581	0.247	Nov 2021	0.373	Nov 2022	0.373	Nov 2023	-		0.373	Continuing	Continuing	Continuing
Sys Eng - Air Vehicle	C/FFP	Various : Various	3.552	0.150	Dec 2021	1.863	Dec 2022	1.433	Jan 2024	-		1.433	0.000	6.998	7.465
Sys Eng - SE Revitalization	WR	NAWCAD : Patuxent River, MD	1.046	0.007	Oct 2021	0.010	Nov 2022	0.000		-		0.000	Continuing	Continuing	Continuing
Sys Eng - SE Revitalization	C/FFP	Engility Corp. : Chantilly, VA	6.088	0.227	Feb 2022	0.230	Feb 2023	0.000		-		0.000	0.000	6.545	6.545
Sys Eng - SE Revitalization	C/CPFF	Stevens Inst of Technology : Hoboken, NJ	4.488	0.505	Feb 2022	0.505	Feb 2023	0.000		-		0.000	0.000	5.498	5.498
Prior Year Sys Eng NAE/ Prod Dev no longer funded in the FYDP	Various	Various : Various	2.813	0.000		0.000		0.000		-		0.000	0.000	2.813	-
		Subtotal	53.753	2.916		6.619		5.075		-		5.075	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205633N / *Aviation Improvements*	Project (Number/Name) 1041 / *Aircraft Equipment Reliability/ Maintainability Improvement Program (AERMIP)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

All prior year lines have been consolidated

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Support cost no longer funded in the FYDP	Various	Various : Various	12.480	0.000		0.000		0.000		-		0.000	0.000	12.480	-
		Subtotal	12.480	0.000		0.000		0.000		-		0.000	0.000	12.480	N/A

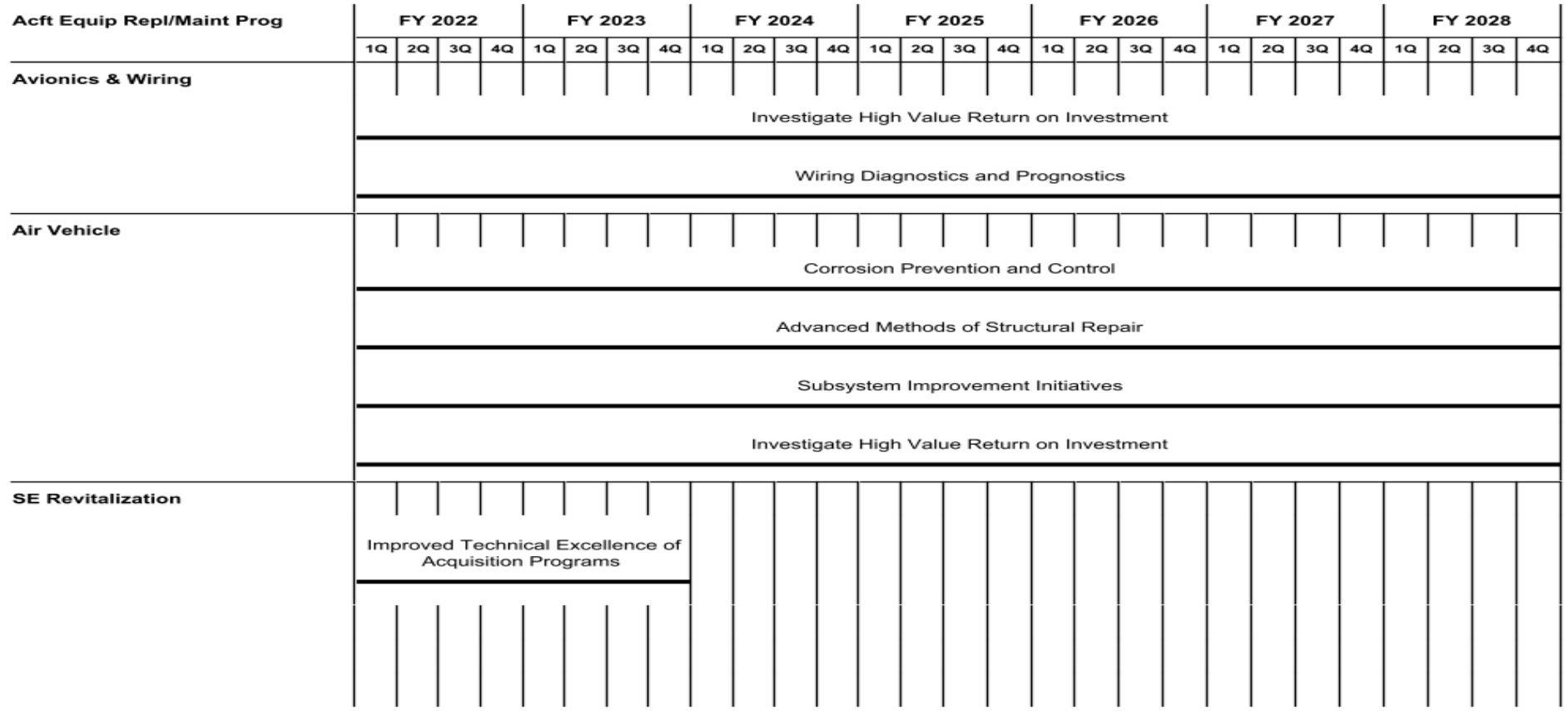
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	NAWCAD : Patuxent River, MD	3.088	0.200	Oct 2021	0.340	Oct 2022	0.380	Oct 2023	-		0.380	Continuing	Continuing	Continuing
Prior Year Mgmt cost no longer funded in the FYDP	Various	Various : Various	1.971	0.000		0.000		0.000		-		0.000	0.000	1.971	-
		Subtotal	5.059	0.200		0.340		0.380		-		0.380	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	71.292	3.116		6.959		5.455		-		5.455	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1041 / *Aircraft Equipment Reliability/ Maintainability Improvement Program (AERMIP)*



2024DON - 0205633N - 1041

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1041 / *Aircraft Equipment Reliability/ Maintainability Improvement Program (AERMIP)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Acft Equip Repl/Maint Prog				
Avionics & Wiring: Investigate High Value Return on Avionics & Wiring Investment	1	2022	4	2028
Avionics & Wiring: Wiring Diagnostics and Prognostics	1	2022	4	2028
Air Vehicle: Corrosion Prevention and Control	1	2022	4	2028
Air Vehicle: Advanced Methods of Structural Repair	1	2022	4	2028
Air Vehicle: Subsystem Improvement Initiatives	1	2022	4	2028
Air Vehicle: Investigate High Value Return on Air Vehicle Investment	1	2022	4	2028
SE Revitalization: Improved Technical Excellence of Acquisition Programs	1	2022	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205633N / *Aviation Improvements*	Project (Number/Name) 1355 / *Propulsion and Power Component Improvement Program*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
1355: *Propulsion and Power Component Improvement Program*	1,539.841	98.570	111.812	114.959	-	114.959	111.968	112.517	113.450	116.568	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Propulsion and Power (P&P) Component Improvement Program (CIP) provides the only source of critical design and development engineering support to resolve safety, reliability and maintainability deficiencies of in-service Navy and Marine Corps aircraft propulsion systems. The highest priority issues P&P CIP addresses concern safety-of-flight deficiencies, which account for approximately 80% of P&P CIP efforts. The program also corrects service-revealed deficiencies, improves Operational Readiness and Reliability and Maintainability, and reduces platform Life Cycle Cost. Budgets are allocated across platform-specific teams and multi-platform product support teams based upon long term strategies to achieve safety and affordable readiness goals; the R-3 exhibit details annual portions of those long-term strategies. P&P CIP tasks have reduced the rate of in-flight aborts, safety incidents, non-mission capable rates, scheduled and unscheduled engine removals, maintenance work hours, and overall cost of ownership. This is accomplished through the maintenance and validation of specification performance, testing to qualify engineering changes, verifying life limits, and improving the inherent reliability of the propulsion and power systems as an integral part of Reliability Centered Maintenance initiatives. Historically, the missions, tactics, and environmental exposure of military aircraft systems change to meet new threats or operational demands, and often result in unforeseen problems, which if not corrected, can cause critical safety/readiness degradation, such as those experienced during OPERATIONS DESERT SHIELD/DESERT STORM, ENDURING FREEDOM, and IRAQI FREEDOM due to sand erosion. In addition, new problems arise through actual fleet deployment and usage of the aircraft. System development programs, while geared to resolve as many problems as possible before deployment, cannot duplicate actual operations or account for the vast array of environmental and usage variables, particularly when aircraft missions vary from those that the aircraft was designed to perform. Therefore, it has been found that P&P CIP can provide an immediate engineering response to these flight-critical problems and accelerated engine testing can avoid potential problems. P&P CIP starts after development and Navy acceptance of the first production article and addresses usage and life problems not covered by warranties. P&P CIP addresses engines, transmissions, propellers, starters, auxiliary power units, electrical generating systems, aircraft wiring, and fuel and lubricant systems. These efforts continue over the system's life, gradually decreasing to a minimum level sufficient to maintain the reliability, and decrease the operating costs, of older inventory. P&P CIP is a highly leveraged and cooperative tri-service program with Foreign Military Sales participation.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: P3, E2, C2, C130 (T56)	6.250	6.250	6.250	0.000	6.250
Articles:	-	-	-	-	-
FY 2023 Plans:					
Continue joint projects with the USAF on the T56 Series III engine on the analysis, design and qualification of					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1355 / *Propulsion and Power Component Improvement Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
improvements to address Service Revealed Deficiencies and preform repair engineering development to system components. For the T56 Series IV engine perform analysis, design and qualification work related to address Service Revealed Deficiencies and safety, readiness and cost drivers on system components and execute projects on engine performance standardization, hot section reliability, compressor blade durability and analytical condition inspections of Fleet hardware. Develop, design and test improvements to system components including the compressor, combustor, turbine, controls and diagnostic systems, static structures, gearboxes, bearings, seals, drives, engine fuel and lubrication systems and auxiliary power, and electrical power systems. ***FY 2024 Base Plans:*** Continue projects on T56 Series III engine on the analysis, design and qualification of improvements to address Service Revealed Deficiencies and preform repair development on system components. For the T56 Series IV engine perform analysis, design and qualification work related to address Service Revealed Deficiencies and safety, readiness and cost drivers on system components and execute projects on engine performance standardization, hot section reliability, compressor blade durability and analytical condition inspections of Fleet hardware. Develop, design and test improvements to system components including the compressor, combustor, turbine, controls and diagnostic systems, static structures, gearboxes, bearings, seals, drives, engine fuel and lubrication systems and auxiliary power, and electrical power systems. ***FY 2024 OCO Plans:*** N/A					
Title: E2/C2/C130/P3 (Props)	3.700	3.800	3.800	0.000	3.800
Articles:	-	-	-	-	-
FY 2023 Plans: Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost drivers on system components for the 54H60, R391 and NP2000 propeller systems. Develop, design and test 54H60, R391 and NP2000 Propeller system improvements to the control, pitch actuation and hydraulic systems, blades, pumps, housings, seals and static structure to improve safety, reliability, maintainability, affordability, durability and Readiness. Execute efforts on repair and reliability engineering, universal closed loop bench testing, bond joint delamination and perform analysis, design and testing on components including the NP2000 modern pump housing and onboard propeller balance monitoring systems. ***FY 2024 Base Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1355 / *Propulsion and Power Component Improvement Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost drivers on system components for the 54H60, R391 and NP2000 propeller systems. Develop, design and test 54H60, R391 and NP2000 Propeller system improvements to the control, pitch actuation and hydraulic systems, blades, pumps, housings, seals and static structure to improve safety, reliability, maintainability, affordability, durability and Readiness. Execute efforts on repair and reliability engineering, universal closed loop bench testing, bond joint delamination and perform analysis, design and testing on components to improve Readiness. ***FY 2024 OCO Plans:*** N/A					
Title: SH-60B/F, HH-60H, MH-60R/S (T700)	6.000	7.400	8.200	0.000	8.200
Articles:	-	-	-	-	-
FY 2023 Plans: Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost drivers on the T700 propulsion and power system components including the compressor, combustor, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, engine fuel and lubrication systems, auxiliary power and electrical power systems, and main and tail rotor drives systems. Perform analysis, design and testing on projects to improve the compression system and static structures tolerance to sand ingestion, update engine performance models and engine build optimization. Perform analysis, modeling design and testing on propulsion system damage tolerance and reparability. Conduct battery qualification testing. Perform engine and component testing to develop and qualify design improvements.					
FY 2024 Base Plans: Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost drivers on the T700 propulsion and power system components including the compressor, combustor, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, engine fuel and lubrication systems, auxiliary power and electrical power systems, and main and tail rotor drives systems. Perform analysis, design and testing on projects to improve the compression system and static structures tolerance to sand ingestion and engine build optimization. Perform analysis, modeling design and testing on propulsion system to demonstrate damage tolerance and reparability. Perform engine and component testing to develop and qualify design improvements.					
FY 2024 OCO Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1355 / *Propulsion and Power Component Improvement Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase of $0.800M from FY2023 to FY2024 for uninstalled engine endurance testing.					
Title: H-1 (T400/T700)	0.600	0.600	0.600	0.000	0.600
Articles:	-	-	-	-	-
FY 2023 Plans: Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost drivers on the T700 propulsion and power system components including the compressor, combustor, turbines, controls, diagnostics, static structures, gearboxes, bearings, seals, drives, fuel and lubrication systems, auxiliary power, electrical power systems and main and tail rotor drives systems.					
FY 2024 Base Plans: Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost drivers on the T700 propulsion and power system components including the compressor, combustor, turbines, controls, diagnostics, static structures, gearboxes, bearings, seals, drives, fuel and lubrication systems, auxiliary power, electrical power systems and main and tail rotor drives systems. Continue program to demonstrate drive system corrosion prevention coating development and demonstration					
FY 2024 OCO Plans: N/A					
Title: AV-8B (F402)	3.651	3.651	3.651	0.000	3.651
Articles:	-	-	-	-	-
FY 2023 Plans: Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost drivers on the F402 propulsion and power system components including the fan, compressor, combustor, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, engine fuel and lubrication systems, auxiliary power, electrical power and FOD detection systems. Continue working on risk management plan of supplying critical parts and refinement of life limit determinations and identification of critical parts constraints to improve safety, reliability, maintainability, affordability, durability and Readiness.					
FY 2024 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1355 / *Propulsion and Power Component Improvement Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost drivers on the F402 propulsion and power system components including the fan, compressor, combustor, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, engine fuel and lubrication systems, auxiliary power, electrical power and FOD detection systems. Continue working on risk management plan of supplying critical parts and refinement of life limit determinations and identification of critical parts constraints to improve safety, reliability, maintainability, affordability, durability and Readiness. ***FY 2024 OCO Plans:*** N/A					
Title: H-53/H-46/H-3 (T58/T64) ***Articles:*** ***FY 2023 Plans:*** Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost drivers on the T64 propulsion and power system components including the compressor, combustor, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, fuel and lubrication systems, auxiliary power and electrical power systems and air vehicle drive system components to improve safety, reliability, maintainability, affordability, durability and Readiness. Perform analysis, design and testing to develop inspection and repair criteria, optimized depot-level engine build specification procedures, and data reduction program implementation. Update engine mission usage and hardware life management plans. ***FY 2024 Base Plans:*** Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost drivers on the T64 propulsion and power system components including the compressor, combustor, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, fuel and lubrication systems, auxiliary power and electrical power systems and air vehicle drive system components to improve safety, reliability, maintainability, affordability, durability and Readiness. Perform analysis, design and testing to develop inspection and repair criteria, optimized depot-level engine build specification procedures, and data reduction program implementation. Update engine mission usage and hardware life management plans. ***FY 2024 OCO Plans:*** N/A	4.050 -	4.050 -	4.050 -	0.000 -	4.050 -
Title: F-18 C/D/E/F (F414/F404)	15.495	19.798	19.798	0.000	19.798

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1355 / *Propulsion and Power Component Improvement Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Articles:	-	-	-	-	-
FY 2023 Plans: Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost drivers on propulsion and power system components for the F414 and F404 turbofan engines including the fan, compressor, combustor, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, fuel and lubrication systems, auxiliary power and electrical power systems, augmenter and exhaust systems to improve reliability, maintainability, affordability, durability. Execute design efforts to improve engine hot section durability. Execute engine and component test programs to demonstrate design improvements.					
FY 2024 Base Plans: Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost drivers on propulsion and power system components for the F414 and F404 turbofan engines including the fan, compressor, combustor, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, fuel and lubrication systems, auxiliary power and electrical power systems, augmenter and exhaust systems to improve reliability, maintainability, affordability, durability. Execute design efforts to improve engine hot section durability. Execute engine and component test programs to demonstrate design improvements.					
FY 2024 OCO Plans: N/A					
Title: T-45 (F405)	1.500	2.600	3.200	0.000	3.200
Articles:	-	-	-	-	-
FY 2023 Plans: Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies, safety, readiness and cost drivers on the F405 propulsion and power system components including fan, compressor, combustor, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, fuel and lubrication systems, auxiliary power and electrical power systems to improve safety, reliability, maintainability, affordability, durability and Readiness. Perform analysis, design and testing on projects to update rotating engine part lives and mitigation approaches to address propulsion and power system component obsolescence issues and engine performance degradation.					
FY 2024 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1355 / *Propulsion and Power Component Improvement Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies, safety, readiness and cost drivers on the F405 propulsion and power system components including fan, compressor, combustor, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, fuel and lubrication systems, auxiliary power and electrical power systems to improve safety, reliability, maintainability, affordability, durability and Readiness. Perform analysis, design and testing on projects to update rotating engine part lives and mitigation approaches to address propulsion and power system component obsolescence issues and engine performance degradation. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase of $0.600M from FY2023 to FY2024 for Fan durability demonstration rotor spin test.					
Title: V-22 Propulsion	6.000	6.600	6.800	0.000	6.800
Articles:	-	-	-	-	-
FY 2023 Plans: Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost drivers on the AE1107C propulsion and power system components the compressor, combustor, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, fuel and lubrication systems, auxiliary power and electrical power systems and prop rotor drive systems to improve safety, reliability, maintainability, affordability, durability and Readiness. Perform analysis, design and testing on projects to mitigate rapid power loss and engine surge, and improve engine durability and operability, perform testing and analysis to update the engine stability audit. Perform engine analytical condition inspections and air vehicle drive system damage tolerance assessments. ***FY 2024 Base Plans:*** Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost drivers on the AE1107C propulsion and power system components the compressor, combustor, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, fuel and lubrication systems, auxiliary power and electrical power systems and prop rotor drive systems to improve safety, reliability, maintainability, affordability, durability and Readiness. Perform analysis, design and testing on					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1355 / *Propulsion and Power Component Improvement Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
projects to mitigate rapid power loss and engine surge, and improve engine durability and operability, perform testing and rig testing and analysis to update the engine stability audit to improve engine flight safety. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase of $0.200M from FY2023 to FY2024 for uninstalled engine endurance and sand ingestion testing and for engine and rig operability tests to improve stability margin.					
Title: Adversary (J85) (F100) ***Articles:*** ***FY 2023 Plans:*** Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and Readiness and cost drivers on the J85 and F100 propulsion and power system components including the fan, compressor, combustor, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, fuel and lubrication systems, auxiliary power and electrical power systems, augmenter and exhaust systems to improve safety, reliability, maintainability, affordability, durability. Continue joint projects with the USAF to perform analysis, design and testing on projects to validate the life assessment of J85 critical rotating hardware, address parts obsolescence issues, evaluate hardware inspection data, and perform stress modeling to update life limits. ***FY 2024 Base Plans:*** Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and Readiness and cost drivers on the J85 and F100 propulsion and power system components including the fan, compressor, combustor, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, fuel and lubrication systems, auxiliary power and electrical power systems, augmenter and exhaust systems to improve safety, reliability, maintainability, affordability, durability. Continue joint projects with the USAF to perform analysis, design and testing on projects to validate the life assessment of J85 critical rotating hardware, address parts obsolescence issues, evaluate hardware inspection data, and perform stress modeling to update life limits. ***FY 2024 OCO Plans:*** N/A	2.350 -	2.350 -	2.350 -	0.000 -	2.350 -
Title: Joint Strike Fighter (F135 Engine)	33.638	37.460	37.460	0.000	37.460

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1355 / *Propulsion and Power Component Improvement Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Articles:	-	-	-	-	-
FY 2023 Plans: Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost and reliability drivers on propulsion and power system components of the F135 engine and STOVL lift system in accordance with F-35 Program Instruction 1540.05 F135 CIP Management Guide for the F135 Propulsion System Component Improvement Program. Develop, design and test improvements to system components including the fan, compressor, combustor, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, fuel and lubrication systems, auxiliary power and electrical power systems, augmenter, exhaust and STOVL Lift system to improve safety, reliability, maintainability, affordability, durability and Readiness. Perform engine testing and STOVL propulsion system testing at government and contractor test facilities. ***FY 2024 Base Plans:*** Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost and reliability drivers on propulsion and power system components of the F135 engine and STOVL lift system in accordance with F-35 Program Instruction 1540.05 F135 CIP Management Guide for the F135 Propulsion System Component Improvement Program. Develop, design and test improvements to system components including the fan, compressor, combustor, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, fuel and lubrication systems, auxiliary power and electrical power systems, augmenter, exhaust and STOVL Lift system to improve safety, reliability, maintainability, affordability, durability and Readiness. Perform engine testing and STOVL propulsion system testing at government and contractor test facilities. ***FY 2024 OCO Plans:*** N/A					
Title: P-8A (CFM56 Engine)	0.650	0.650	0.650	0.000	0.650
Articles:	-	-	-	-	-
FY 2023 Plans: Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost and reliability drivers on propulsion and power system components of the CFM56 system including the fan, compressor, combustors, turbines, control and diagnostic systems, static structures,					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
gearboxes, bearings, seals, drives, fuel and lubrication systems, auxiliary power and electrical power systems to improve safety, reliability, maintainability, affordability, and durability. ***FY 2024 Base Plans:*** Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost and reliability drivers on propulsion and power system components of the CFM56 system including the fan, compressor, combustors, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, fuel and lubrication systems, auxiliary power and electrical power systems to improve safety, reliability, maintainability, affordability, and durability. ***FY 2024 OCO Plans:*** N/A					
Title: Multi-Platform Product Support Teams	3.306	4.723	4.723	0.000	4.723
Articles:	-	-	-	-	-
FY 2023 Plans: Continue projects to provide support to multiple platforms to analyze fleet component removal driver and reliability metrics to focus CIP investments to maximize Readiness and return on investment, improve performance analysis, structural integrity modeling and simulation tools, and developmental test and evaluation facilities and procedures for propulsion and power system including engines, drive systems, fuels and lubricants, auxiliary power and electrical power systems. Includes funding for Government Furnished Fuel for research and development test and evaluation programs to evaluate and qualify component design improvements to improve safety, readiness, reliability, maintainability and durability. ***FY 2024 Base Plans:*** Continue projects to provide support to multiple platforms to analyze fleet component removal driver and reliability metrics to focus CIP investments to maximize Readiness and return on investment, improve performance analysis, structural integrity modeling and simulation tools, and developmental test and evaluation facilities and procedures for propulsion and power system including engines, drive systems, fuels and lubricants, auxiliary power and electrical power systems. Includes funding for Government Furnished Fuel for research and development test and evaluation programs to evaluate and qualify component design improvements to improve safety, readiness, reliability, maintainability and durability. ***FY 2024 OCO Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1355 / *Propulsion and Power Component Improvement Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A					
Title: H-53K Propulsion (T408)	9.000	9.000	10.547	0.000	10.547
Articles:	-	-	-	-	-
FY 2023 Plans: Perform engineering analysis, design and test efforts to address identified deficiencies and safety readiness and cost and reliability drivers on the T408 propulsion and power system components including the compressor, combustor, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, fuel and lubrication systems, auxiliary power and electrical power systems and main and tail rotor drive systems to improve safety, reliability, maintainability, affordability, durability. Perform analysis and testing to develop improvements to compression system stability and operability and improve sand ingestion tolerance. Perform uninstalled engine environmental endurance testing.					
FY 2024 Base Plans: Perform engineering analysis, design and test efforts to address identified deficiencies and safety readiness and cost and reliability drivers on the T408 propulsion and power system components including the compressor, combustor, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, fuel and lubrication systems, auxiliary power and electrical power systems and main and tail rotor drive systems to improve safety, reliability, maintainability, affordability, durability. Perform analysis and testing to develop improvements to compression system stability and operability and improve sand ingestion tolerance. Perform uninstalled engine environmental endurance testing to demonstrate durability improvements					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: Increase of $1.547M from FY2023 to FY2024 for uninstalled engine endurance and sand ingestion testing and engineering efforts to improve engine durability and operability.					
Title: MQ-4C (AE3007 Engine)	1.000	1.500	1.500	0.000	1.500
Articles:	-	-	-	-	-
FY 2023 Plans: Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost and reliability drivers on the AE3007 propulsion and power system components including the fan, compressor, combustor, turbines, control and diagnostic systems, static structures, gearboxes, bearings,					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
seals, drives, fuel and lubrication systems, auxiliary power and electrical power systems to improve safety, reliability, maintainability, affordability, and durability. ***FY 2024 Base Plans:*** Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost and reliability drivers on the AE3007 propulsion and power system components including the fan, compressor, combustor, turbines, control and diagnostic systems, static structures, gearboxes, bearings, seals, drives, fuel and lubrication systems, auxiliary power and electrical power systems to improve safety, reliability, maintainability, affordability, and durability. ***FY 2024 OCO Plans:*** N/A					
Title: UAV Programs (Various) ***Articles:*** ***FY 2023 Plans:*** Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost and reliability drivers on the propulsion and power systems for small and medium size Unmanned Air Vehicles (UAVs) including the RQ-21 Small Tactical Unmanned Aerial System (STUAS) and the MQ-8B and MQ-8C Fire Scout variants. Develop, design and test improvements to system components including the engine components, control and diagnostic systems, static structures, bearings, seals, drives, fuel and lubrication systems, ignition and electrical power systems, exhaust system and the propeller to improve safety, reliability, maintainability, affordability, and durability. ***FY 2024 Base Plans:*** Perform engineering analysis, design and test efforts to address Service Revealed Deficiencies and safety, readiness and cost and reliability drivers on the propulsion and power systems for small and medium size Unmanned Air Vehicles (UAVs) including the RQ-21 Small Tactical Unmanned Aerial System (STUAS) and the MQ-8B and MQ-8C Fire Scout variants. Develop, design and test improvements to system components including the engine components, control and diagnostic systems, static structures, bearings, seals, drives, fuel and lubrication systems, ignition and electrical power systems, exhaust system and the propeller to improve safety, reliability, maintainability, affordability, and durability. ***FY 2024 OCO Plans:***	1.380 -	1.380 -	1.380 -	0.000 -	1.380 -

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A					
Accomplishments/Planned Programs Subtotals	98.570	111.812	114.959	0.000	114.959

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

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

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1355 / *Propulsion and Power Component Improvement Program*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Sys Eng T56 Engine Program	WR	NAWCAD : Patuxent River, MD	58.070	2.750	Oct 2021	2.750	Oct 2022	2.750	Oct 2023	-		2.750	Continuing	Continuing	Continuing
Sys Eng T56 Engine Program	SS/CPFF	Rolls Royce : Indianapolis, IN	76.291	3.050	Jan 2022	3.050	Jan 2023	3.050	Jan 2024	-		3.050	0.000	85.441	85.441
Sys Eng T56 Engine Program	WR	FRC-E : Cherry Point, NC	4.705	0.270	Oct 2021	0.270	Oct 2022	0.270	Oct 2023	-		0.270	Continuing	Continuing	Continuing
Sys Eng T56 Engine Program	WR	FRC-SE : Jacksonville, FL	1.186	0.090	Oct 2021	0.090	Oct 2022	0.090	Oct 2023	-		0.090	Continuing	Continuing	Continuing
Sys Eng T56 Engine Program	WR	FRC-SW : North Island, CA	0.468	0.090	Oct 2021	0.090	Oct 2022	0.090	Oct 2023	-		0.090	Continuing	Continuing	Continuing
Sys Eng Props Program	SS/CPFF	Hamilton Sundstrand : Windsor Locks, CT	40.733	2.700	Jan 2022	2.800	Jan 2023	2.800	Jan 2024	-		2.800	0.000	49.033	49.033
Sys Eng Props Program	SS/CPFF	Dowty Propellers : Gloucester UK	0.000	1.000	Jan 2022	1.000	Jan 2023	1.000	Jan 2024	-		1.000	0.000	3.000	3.000
Sys Eng T700 Engine Program	WR	NAWCAD : Patuxent River, MD	28.527	3.105	Oct 2021	3.800	Oct 2022	4.400	Oct 2023	-		4.400	Continuing	Continuing	Continuing
Sys Eng T700 Engine Program	SS/CPFF	General Electric : Lynn, MA	47.421	3.500	Jan 2022	3.600	Jan 2023	3.800	Jan 2024	-		3.800	0.000	58.321	58.321
Sys Eng F402 Engine Program	WR	NAWCAD : Patuxent River, MD	28.007	1.800	Oct 2021	1.800	Oct 2022	1.800	Oct 2023	-		1.800	Continuing	Continuing	Continuing
Sys Eng F402 Engine Program	WR	FRC-E : Cherry Point, NC	1.538	0.152	Oct 2021	0.152	Oct 2022	0.152	Oct 2023	-		0.152	Continuing	Continuing	Continuing
Sys Eng F402 Engine Program	SS/CPFF	Rolls Royce : Bristol, England, UK	84.260	1.700	Jan 2022	1.700	Jan 2023	1.700	Jan 2024	-		1.700	0.000	89.360	89.360
Sys Eng T58/T64 Engine Program	WR	NAWCAD : Patuxent River, MD	45.880	2.200	Oct 2021	2.200	Oct 2022	2.200	Oct 2023	-		2.200	Continuing	Continuing	Continuing
Sys Eng T58/T64 Engine Program	SS/CPFF	General Electric : Lynn, MA	95.050	1.850	Jan 2022	1.850	Jan 2023	1.850	Jan 2024	-		1.850	0.000	100.600	100.600
Sys Eng F414/F404 Engine Program	WR	NAWCAD : Patuxent River, MD	65.594	4.110	Oct 2021	5.110	Oct 2022	5.000	Oct 2023	-		5.000	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205633N / *Aviation Improvements*	Project (Number/Name) 1355 / *Propulsion and Power Component Improvement Program*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Sys Eng F414/F404 Engine Program	SS/CPFF	General Electric : Lynn, MA	220.261	11.227	Jan 2022	14.188	Jan 2023	14.548	Jan 2024	-		14.548	0.000	260.224	260.224
Sys Eng F414/F404 Engine Program	WR	FRC-SE : Jacksonville, FL	1.973	0.250	Nov 2021	0.500	Nov 2022	0.250	Nov 2023	-		0.250	Continuing	Continuing	Continuing
Sys Eng F405 Engine Program	WR	NAWCAD : Patuxent River, MD	17.735	1.400	Oct 2021	1.500	Oct 2022	2.100	Oct 2023	-		2.100	Continuing	Continuing	Continuing
Sys Eng F405 Engine Program	SS/CPFF	Rolls Royce : Bristol, England, UK	42.129	0.100	Jan 2022	1.100	Jan 2023	1.100	Jan 2024	-		1.100	0.000	44.429	44.429
Sys Eng V-22 Propulsion Program	WR	NAWCAD : Patuxent River, MD	7.838	1.900	Oct 2021	2.200	Oct 2022	2.000	Oct 2023	-		2.000	Continuing	Continuing	Continuing
Sys Eng V-22 Propulsion Program	SS/FFP	Bell- Boeing : Ft. Worth, TX	15.244	1.900	Jan 2022	2.200	Jan 2023	2.000	Jan 2024	-		2.000	0.000	21.344	21.344
Sys Eng V-22 Propulsion Program	SS/CPFF	Rolls Royce : Indianapolis, IN	11.285	2.200	Jan 2022	2.200	Jan 2023	2.800	Jan 2024	-		2.800	0.000	18.485	18.485
Sys Eng Adversary J85 Engine Program	WR	FRC-SE : Jacksonville, FL	0.383	0.100	Nov 2021	0.100	Nov 2022	0.100	Nov 2023	-		0.100	Continuing	Continuing	Continuing
Sys Eng Adversary J85 Engine Program	WR	NAWCAD : Patuxent River, MD	9.660	1.600	Oct 2021	1.600	Nov 2022	1.600	Nov 2023	-		1.600	Continuing	Continuing	Continuing
Sys Eng Adversary J85 Engine Program	SS/CPFF	General Electric : Lynn, MA	5.546	0.650	Jan 2022	0.650	Jan 2023	0.650	Jan 2024	-		0.650	0.000	7.496	7.496
Sys Eng JSF Engine Program	WR	NAWCAD : Patuxent River, MD	11.960	1.400	Oct 2021	1.400	Oct 2022	1.400	Oct 2023	-		1.400	Continuing	Continuing	Continuing
Sys Eng JSF Engine Program	SS/FFP	UTC Pratt & Whitney : East Hartford, CT	161.063	32.473	Jan 2022	36.060	Jan 2023	36.060	Jan 2024	-		36.060	0.000	265.656	265.656
Sys Eng P-8A Engine Program	WR	NAWCAD : Patuxent River, MD	4.150	0.650	Oct 2021	0.650	Oct 2022	0.650	Oct 2023	-		0.650	Continuing	Continuing	Continuing
Sys Eng Lab Fld Activity-1.0 or more	WR	NAWCAD : Patuxent River, MD	234.485	1.758	Oct 2021	3.827	Oct 2022	3.827	Oct 2023	-		3.827	Continuing	Continuing	Continuing
Sys Eng Other In-House Spt	Various	Various : Various	21.847	0.400	Nov 2021	0.500	Nov 2022	0.500	Nov 2023	-		0.500	Continuing	Continuing	Continuing
GFE*	Reqn	DES/DLA : Various	18.694	0.920	Jan 2022	1.000	Jan 2023	1.000	Jan 2024	-		1.000	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1355 / *Propulsion and Power Component Improvement Program*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Sys Eng H-53K Propulsion	WR	NAWCAD : Patuxent River, MD	5.550	2.000	Oct 2021	2.000	Oct 2022	3.000	Oct 2023	-		3.000	Continuing	Continuing	Continuing
Sys Eng H-53K Propulsion	SS/CPFF	General Electric : Lynn, MA	19.000	7.000	Jan 2022	7.000	Jan 2023	7.547	Jan 2024	-		7.547	0.000	40.547	40.000
MQ-4C	WR	NAWCAD : Patuxent River, MD	0.900	0.500	Oct 2021	0.500	Oct 2022	0.500	Oct 2023	-		0.500	Continuing	Continuing	Continuing
MQ-4C	SS/CPFF	Rolls Royce : Indianapolis, IN	2.000	0.500	Mar 2022	1.000	Mar 2023	1.000	Jan 2024	-		1.000	0.000	4.500	4.500
Sys Eng UAV Engine Program	SS/FFP	Bell-Boeing : Bingen, WA	0.900	0.500	Mar 2022	0.500	Mar 2023	0.500	Jan 2024	-		0.500	0.000	2.400	2.400
Sys Eng UAV Engine Program	WR	NAWCAD : Patuxent River, MD	0.550	0.300	Oct 2021	0.300	Oct 2022	0.300	Oct 2023	-		0.300	Continuing	Continuing	Continuing
Prior Year/Not Funded FYDP	Various	Various : Various	131.162	0.000		0.000		0.000		-		0.000	0.000	131.162	-
		Subtotal	1,522.045	98.095		111.237		114.384		-		114.384	Continuing	Continuing	N/A

Remarks

GFE includes expected cost of fuel necessary to support engine development and qualification testing.
Total may be off due to rounding.
All prior year lines have been consolidated.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	Various	Various : Various	8.600	0.100	Oct 2021	0.100	Oct 2022	0.100	Oct 2023	-		0.100	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	NSWC : Crane, IN	0.760	0.100	Oct 2021	0.100	Oct 2022	0.100	Oct 2023	-		0.100	Continuing	Continuing	Continuing
Prior Year/Not Funded FYDP	Various	Various : Various	1.278	0.000		0.000		0.000		-		0.000	0.000	1.278	-
		Subtotal	10.638	0.200		0.200		0.200		-		0.200	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1355 / *Propulsion and Power Component Improvement Program*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	Various	Various : Various	3.842	0.100	Oct 2021	0.200	Oct 2022	0.200	Oct 2023	-		0.200	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	NSWC : Crane, IN	0.848	0.100	Oct 2021	0.100	Oct 2022	0.100	Oct 2023	-		0.100	Continuing	Continuing	Continuing
		Subtotal	4.690	0.200		0.300		0.300		-		0.300	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	Various	NAVAIR : Patuxent River, MD	1.021	0.075	Oct 2021	0.075	Oct 2022	0.075	Oct 2023	-		0.075	Continuing	Continuing	Continuing
Prior Year/Not Funded FYDP	Various	Various : Various	1.447	0.000		0.000		0.000		-		0.000	0.000	1.447	-
		Subtotal	2.468	0.075		0.075		0.075		-		0.075	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	1,539.841	98.570		111.812		114.959		-		114.959	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1355 / *Propulsion and Power Component Improvement Program*

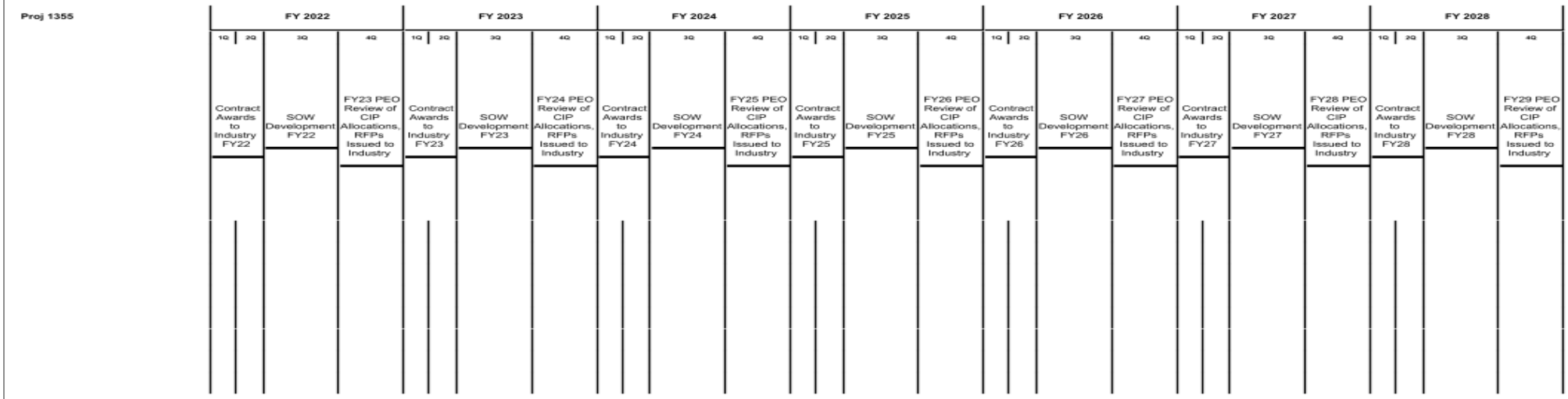


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1355 / *Propulsion and Power Component Improvement Program*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 1355				
FY22 Contract Awards to Industry & Technical Reviews by Platform	1	2022	2	2022
SOW Development FY22	3	2022	3	2022
FY23 PEO Review of CIP Allocations, RFPs Issued to Industry	4	2022	4	2022
FY23 Contract Awards to Industry &Technical Reviews by Platform	1	2023	2	2023
SOW Development FY23	3	2023	3	2023
FY24 PEO Review of CIP Allocations, RFPs Issued to Industry	4	2023	4	2023
FY24 Contract Awards to Industry & Technical Reviews by Platform	1	2024	2	2024
SOW Development FY24	3	2024	3	2024
FY25 PEO Review of CIP Allocations, RFPs Issued to Industry	4	2024	4	2024
FY25 Contract Awards to Industry & Technical Reviews by Platform	1	2025	2	2025
SOW Development FY25	3	2025	3	2025
FY26 PEO Review of CIP Allocations, RFPs Issued to Industry	4	2025	4	2025
FY26 Contract Awards to Industry & Technical Reviews by Platform	1	2026	2	2026
SOW Development FY26	3	2026	3	2026
FY27 PEO Review of CIP Allocations, RFPs Issued to Industry	4	2026	4	2026
FY27 Contract Awards to Industry & Technical Reviews by Platform	1	2027	2	2027
SOW Development FY27	3	2027	3	2027
FY28 PEO Review of CIP Allocations, RFPs Issued to Industry	4	2027	4	2027
FY28 Contract Awards to Industry & Technical Reviews by Platform	1	2028	2	2028
SOW Development FY28	3	2028	3	2028
FY29 PEO Review of CIP Allocations, RFPs Issued to Industry	4	2028	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205633N / *Aviation Improvements*	Project (Number/Name) 1356 / *Corrosion Prevention Improvements*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
1356: *Corrosion Prevention Improvements*	0.000	0.000	0.000	4.010	-	4.010	0.000	0.000	0.000	0.000	0.000	4.010
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Corrosion Prevention Improvements support Flag Officer (FO) endorsed N98 FRT initiative # POM24-28. This funding will enable the NAE to establish a Center of Excellence for Corrosion and Finish (CoECF) Training focused on educating, training, and certifying qualified, proficient maintainers capable of performing: corrosion identification, corrosion inspection, corrosion prevention, corrosion repair and restoration. Qualified, proficient maintainers will improve material readiness through improved material condition, while also developing the knowledge & maintenance skills of Sailors and Marines.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Corrosion Prevention Improvements	0.000	0.000	4.010	0.000	4.010
Articles:	-	-	-	-	-
FY 2023 Plans: N/A					
FY 2024 Base Plans: Establish contract to design and develop suite of course material to be taught within the CoECF. Manage CoECF development via the NAE Corrosion Management Board (CMB).					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: Increase of $4.010M from FY2023 to FY20243 due to funding for Corrosion Prevention Improvements.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	4.010	0.000	4.010

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

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

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1356 / *Corrosion Prevention Improvements*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	Various	Various : Various	0.000	0.000		0.000		2.280	Nov 2023	-		2.280	0.000	2.280	-
Systems Engineering	WR	NAWCAD : Patuxent River	0.000	0.000		0.000		0.800	Oct 2023	-		0.800	0.000	0.800	-
		Subtotal	0.000	0.000		0.000		3.080		-		3.080	0.000	3.080	N/A

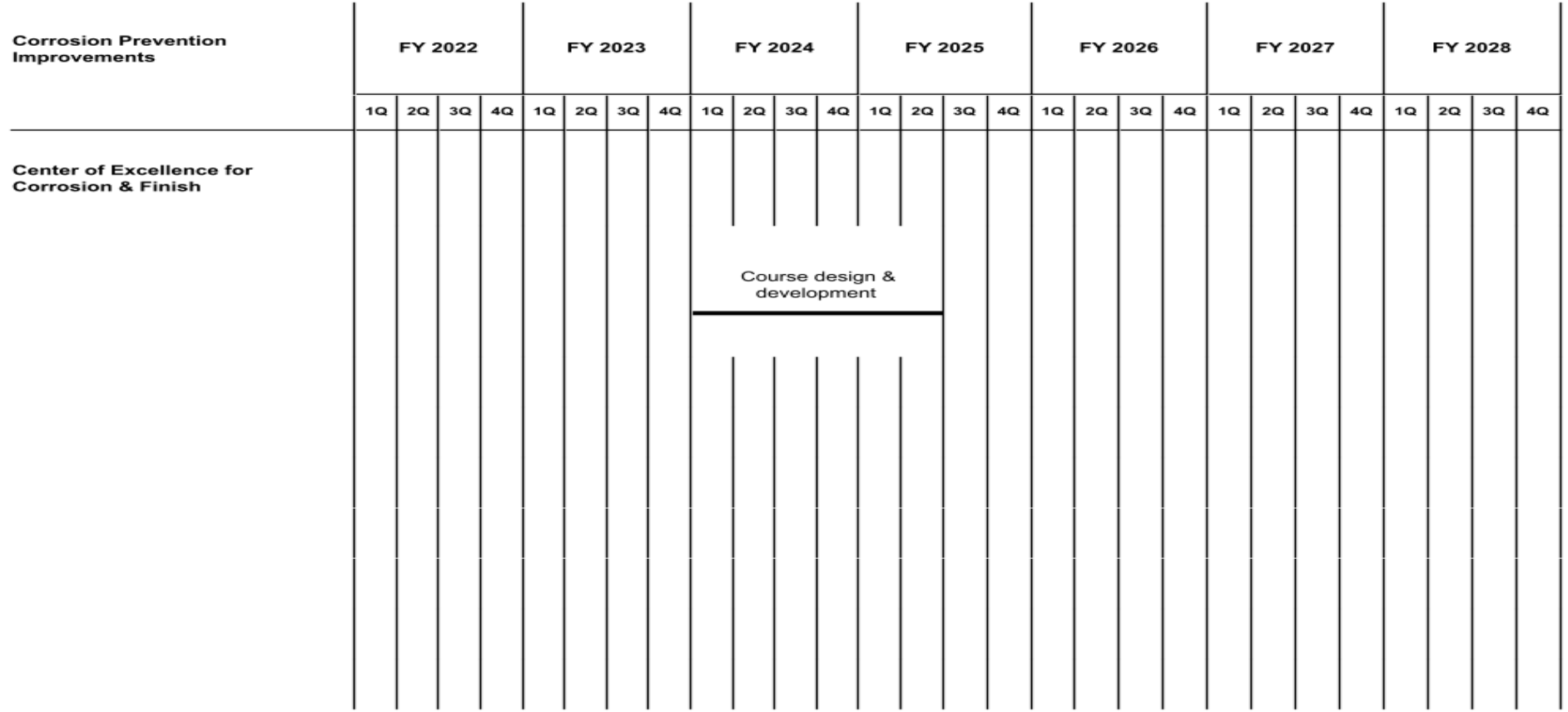
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	WR	NAWCAD : Patuxent River	0.000	0.000		0.000		0.930	Nov 2023	-		0.930	0.000	0.930	-
		Subtotal	0.000	0.000		0.000		0.930		-		0.930	0.000	0.930	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		0.000		4.010		-		4.010	0.000	4.010	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1356 / *Corrosion Prevention Improvements*



2024DON - 0205633N - 1356

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 1356 / *Corrosion Prevention Improvements*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Corrosion Prevention Improvements				
Center of Excellence for Corrosion & Finish: Course design & development	1	2024	2	2025

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205633N / *Aviation Improvements*	Project (Number/Name) 2269 / *Expeditionary Airfield Improvements*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2269: *Expeditionary Airfield Improvements*	72.664	0.475	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	73.139
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Expeditionary Airfields (EAF) program designs, develops and tests a Sustainment Lighting System (SLS); specifically the LED CAT I Instrumented Flight Rules (IFR)/Visual Flight Rules (VFR) Approach Light System and a Night Vision Device (NVD) Compatible Runway Light System, to replace the obsolete legacy EAF lighting system. This system will support EAF Marine Aircraft Wing Support Squadrons with the required EAF Approach Light System equipment to install Forward Operating Bases and Forward Arming and Refueling Points. With the deployment of this equipment, the Marine Aircraft Wing Support Squadrons can support all United States Marine Corps (USMC) aircraft allowing the Combatant Commanders the flexibility to deploy Aircraft Combat Elements to meet anticipated threats.

Design maturity with the Lead System Integrator (LSI) for the Sustainment Lighting System (SLS) program was re-scoped in FY19 and out to focus on the development of a new Light Emitting Diode (LED) CAT I Visual Flight Rules (VFR) Approach Light System and a Night Vision Device (NVD) Compatible Runway Light System.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Expeditionary Airfield Improvements	0.475	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: The EAF program designs, develops and tests a Sustainment Lighting System (SLS); specifically the LED CAT I Instrumented Flight Rules (IFR)/Visual Flight Rules (VFR) Approach Light System and a Night Vision Device (NVD) Compatible Runway Light System, to replace the obsolete legacy EAF lighting system. This system will provide EAF Marine Aircraft Wing Support Squadrons with the required EAF equipment to install Forward Operating Bases and Forward Arming and Refueling Points. With the deployment of this equipment the Marine Aircraft Wing Support Squadron can support all USMC aircraft allowing the Combatant Commanders the flexibility to deploy Aircraft Combat Elements to meet anticipated threats. This system will provide EAF Marine Aircraft Wing support Squadrons.					
FY 2023 Plans: N/A					
FY 2024 Base Plans: N/A					
FY 2024 OCO Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 2269 / *Expeditionary Airfield Improvements*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A					
Accomplishments/Planned Programs Subtotals	0.475	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• OPN/4213: *ASE-Expeditionary Airfields*	176.387	272.044	162.273	-	162.273	117.925	97.652	97.973	98.420	Continuing	Continuing

Remarks

EAF is only a portion of the 4213 budget listed above.

D. Acquisition Strategy

Expeditionary Airfields (EAF) Sustainment Lighting System was initially an ACAT III program. As a result of the re-scope it has been re-designated as an ACAT IV M program in January 2018. The program is focused on a combination of a required capability to conduct operations in an expeditionary environment and the industrial base for airfield lighting.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205633N / *Aviation Improvements*	Project (Number/Name) 2269 / *Expeditionary Airfield Improvements*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NAWCAD : Lakehurst, NJ	35.541	0.369	Nov 2021	0.000		0.000		-		0.000	0.000	35.910	-
Prior year Prod Dev no longer funded in the FYDP	Various	Various : Various	22.016	0.000		0.000		0.000		-		0.000	0.000	22.016	-
		Subtotal	57.557	0.369		0.000		0.000		-		0.000	0.000	57.926	N/A

Remarks

The decrease from FY2022 to FY2023 is due to the completion of the Systems Engineering that supports the Sustainment Lighting System (SLS) efforts.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics	WR	NAWCAD : Lakehurst, NJ	4.004	0.022	Nov 2021	0.000		0.000		-		0.000	0.000	4.026	-
Prior Year Support no longer funded in the FYDP	Various	Various : Various	3.637	0.000		0.000		0.000		-		0.000	0.000	3.637	-
		Subtotal	7.641	0.022		0.000		0.000		-		0.000	0.000	7.663	N/A

Remarks

The decrease from FY2022 to FY2023 is due to the completion of the Logistics efforts that support the Sustainment Lighting System (SLS) efforts.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	NAWCAD : Lakehurst, NJ	5.284	0.084	Nov 2021	0.000		0.000		-		0.000	0.000	5.368	-
Developmental Test & Evaluation (DT&E)	WR	COMOPTEVFOR : Norfolk, VA	0.451	0.000		0.000		0.000		-		0.000	0.000	0.451	-
		Subtotal	5.735	0.084		0.000		0.000		-		0.000	0.000	5.819	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205633N / *Aviation Improvements*	Project (Number/Name) 2269 / *Expeditionary Airfield Improvements*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

The decrease from FY2022 to FY2023 is to the completion of the test and evaluation that supports the Sustainment Lighting System (SLS).

Management Services ($ in Millions)

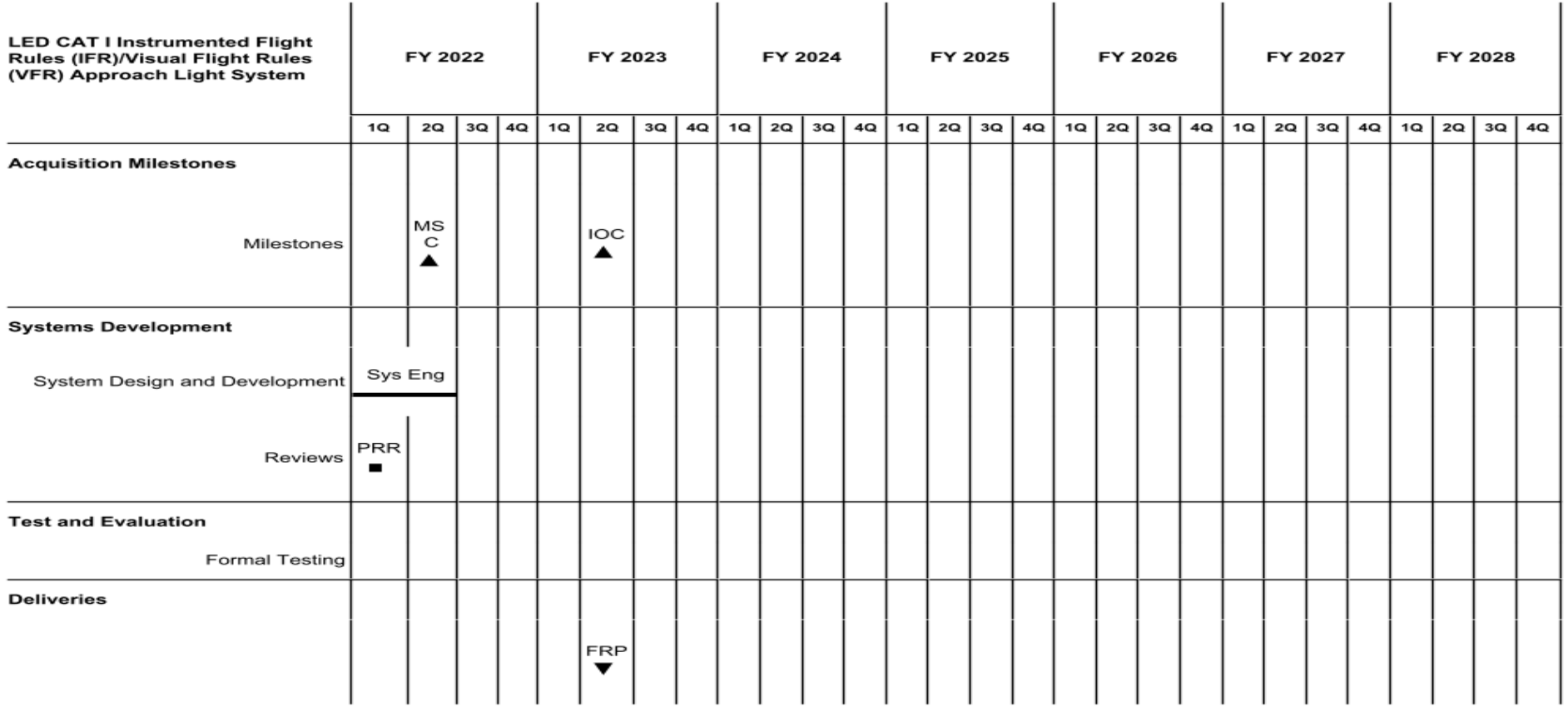
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Management Support Services	C/CPFF	Various : Various	1.731	0.000		0.000		0.000		-		0.000	0.000	1.731	1.737
		Subtotal	1.731	0.000		0.000		0.000		-		0.000	0.000	1.731	N/A

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	72.664	0.475		0.000		0.000		-		0.000	0.000	73.139	N/A

Remarks

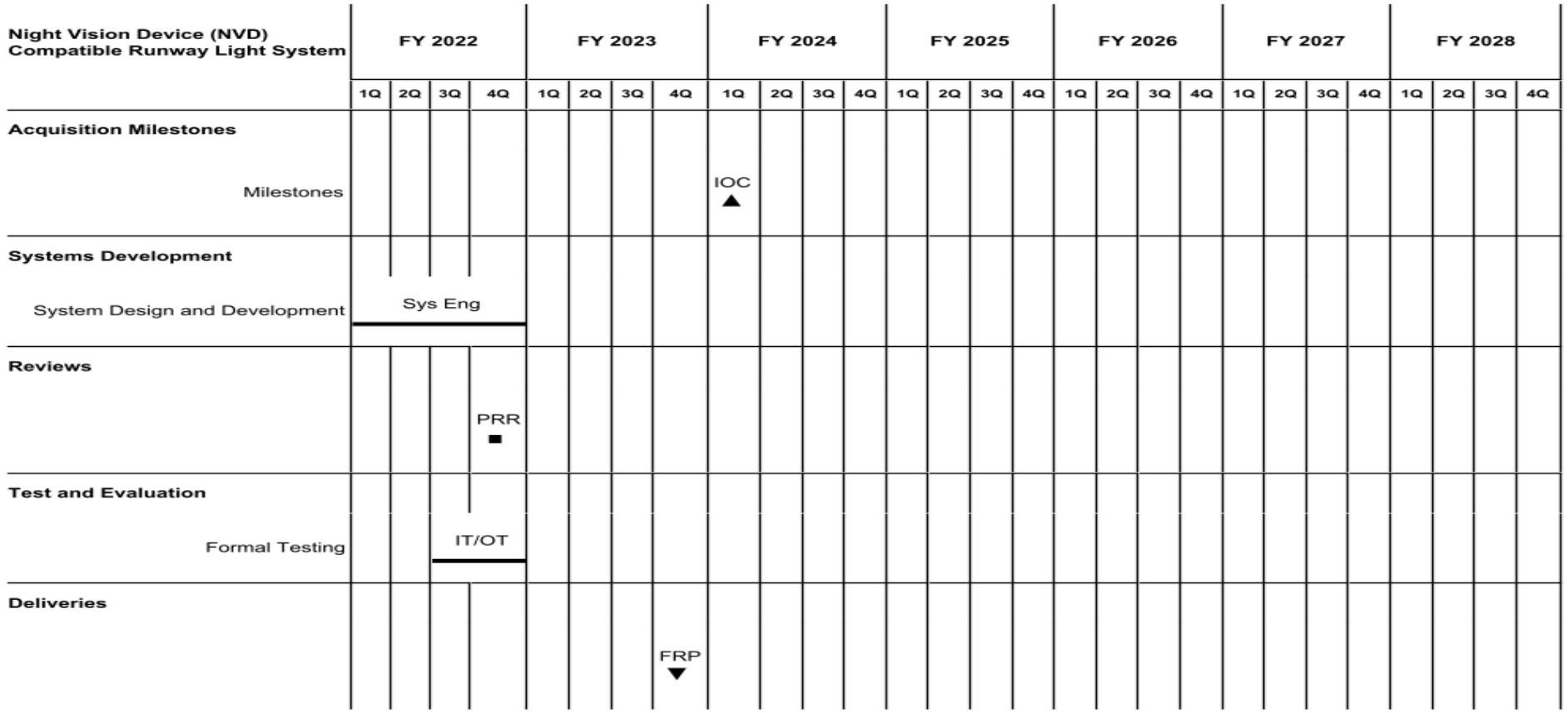
Prior Year includes $4.9 million of Congressional Add funding.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 2269 / *Expeditionary Airfield Improvements*



2024DON - 0205633N - 2269

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 2269 / *Expeditionary Airfield Improvements*



2024DON - 0205633N - 2269

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 2269 / *Expeditionary Airfield Improvements*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
LED CAT I Instrumented Flight Rules (IFR)/Visual Flight Rules (VFR) Approach Light System				
Acquisition Milestones: Milestones: Milestone C	2	2022	2	2022
Acquisition Milestones: Milestones: IOC	2	2023	2	2023
Systems Development: System Design and Development: Systems Engineering	1	2022	2	2022
Systems Development: Reviews: Production Readiness Review	1	2022	1	2022
Deliveries: Delivery: Lot 1	2	2023	2	2023
Night Vision Device (NVD) Compatible Runway Light System				
Acquisition Milestones: Milestones: IOC	1	2024	1	2024
Systems Development: System Design and Development: Systems Engineering	1	2022	4	2022
Reviews: Production Readiness Review	4	2022	4	2022
Test and Evaluation: Formal Testing: Tech Eval/Dev T & E	1	2022	1	2022
Test and Evaluation: Formal Testing: IntegrationTesting/Operational Testing	3	2022	4	2022
Deliveries: Delivery: Lot 1	4	2023	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205633N / *Aviation Improvements*	Project (Number/Name) 9999 / *Congressional Adds*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
9999: *Congressional Adds*	0.000	16.411	19.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	35.411
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Congressional Adds
C794: Additive manufacturing for metals
C795: FOD mitigation integration
C919: Autonomous FOD mitigation technology
C920: Augmented Reality Remote Maintenance Services (ARRMS)

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023
Congressional Add: Additive manufacturing for metals affordability ***FY 2022 Accomplishments:*** Funding to support Additive manufacturing for metals affordability. ***FY 2023 Plans:*** N/A	6.757	0.000
Congressional Add: FOD mitigation integration ***FY 2022 Accomplishments:*** Funding to support FOD mitigation integration. ***FY 2023 Plans:*** N/A	9.654	0.000
Congressional Add: Autonomous FOD mitigation technology ***FY 2022 Accomplishments:*** N/A ***FY 2023 Plans:*** Funding to support Autonomous FOD mitigation technology.	0.000	15.000
Congressional Add: Augmented reality remote maintenance services ***FY 2022 Accomplishments:*** N/A ***FY 2023 Plans:*** Funding to support Augmented Reality Remote Maintenance Services (ARRMS).	0.000	4.000
Congressional Adds Subtotals	16.411	19.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 9999 / *Congressional Adds*

D. Acquisition Strategy

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 9999 / *Congressional Adds*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
FOD Mitigation Integration	C/CPFF	TBD : TBD	0.000	9.654	Apr 2022	0.000		0.000		-		0.000	0.000	9.654	9.654
Additive Manufacturing - ONR	TBD	ONR : ONR	0.000	6.757	Jun 2022	0.000		0.000		-		0.000	0.000	6.757	6.757
Autonomous FOD mitigation technology	TBD	Moog, Inc : East Aurora, NY	0.000	0.000		11.999	Aug 2023	0.000		-		0.000	0.000	11.999	11.999
Autonomous FOD mitigation technology Text	TBD	Parasanti, Inc : Austin, TX	0.000	0.000		2.001	Aug 2023	0.000		-		0.000	0.000	2.001	2.001
Autonomous FOD mitigation technologyxt	TBD	Oreyeon LDA : Coimbra, Portugal	0.000	0.000		1.000	Jun 2023	0.000		-		0.000	0.000	1.000	1.000
ARRMS - Development	TBD	Specialty Systems : Toms River, NJ	0.000	0.000		2.820	Aug 2023	0.000		-		0.000	0.000	2.820	2.820
		Subtotal	0.000	16.411		17.820		0.000		-		0.000	0.000	34.231	N/A

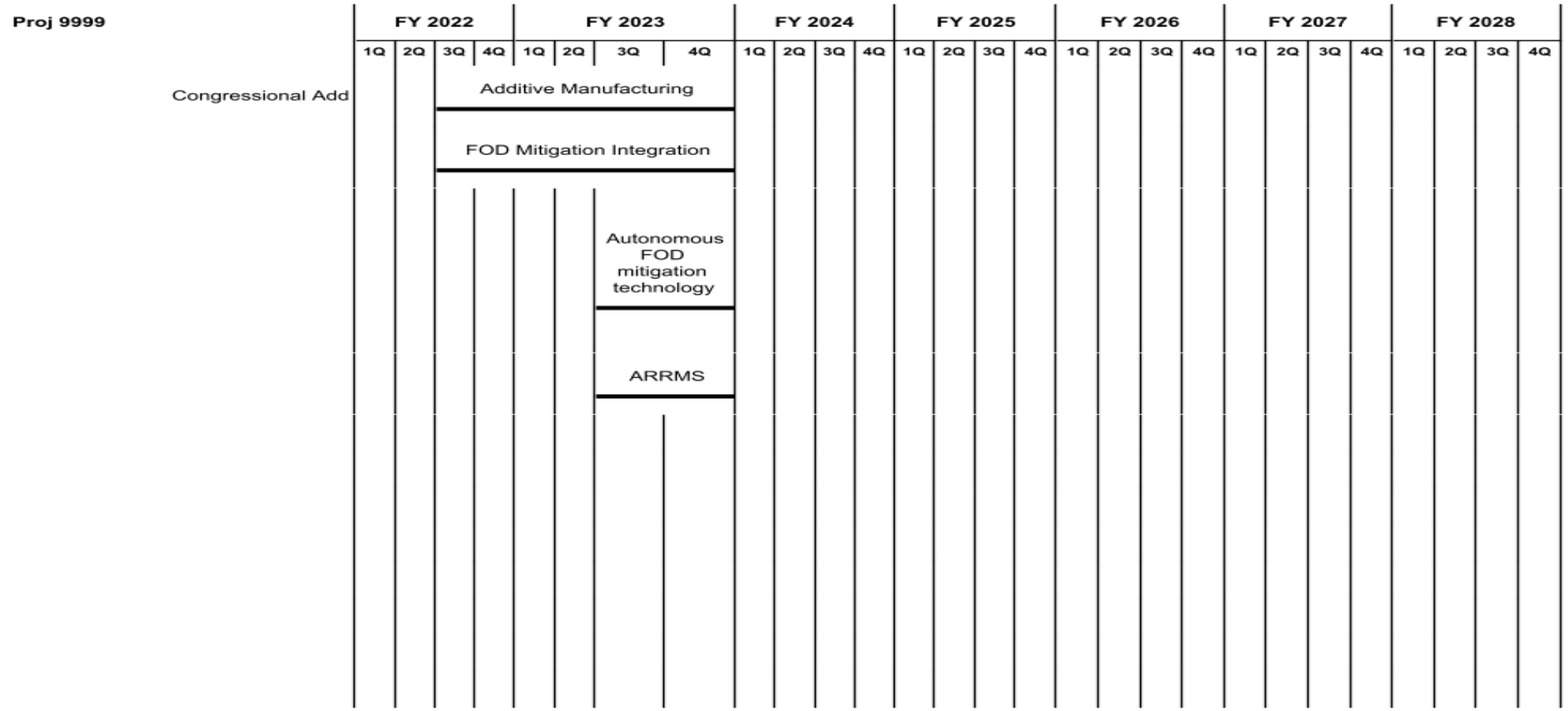
Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ARRMS - Support	Various	Various : Various	0.000	0.000		1.180	Apr 2023	0.000		-		0.000	0.000	1.180	-
		Subtotal	0.000	0.000		1.180		0.000		-		0.000	0.000	1.180	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	16.411		19.000		0.000		-		0.000	0.000	35.411	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 9999 / *Congressional Adds*



2024PB - 0205633N - 9999

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205633N / *Aviation Improvements*	**Project (Number/Name)** 9999 / *Congressional Adds*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 9999				
Congressional Add: Congressional Add Additive Manufacturing	3	2022	4	2023
Congressional Add: Congressional Add FOD Mitigation Integration	3	2022	4	2023
Congressional Add: Autonomous FOD mitigation technology	3	2023	4	2023
Congressional Add: Congressional Add ARRMS	3	2023	4	2023

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0205675N *I Operational Nuclear Power Sys*

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	0.000	113.760	121.439	152.546	-	152.546	169.309	209.200	239.255	244.279	Continuing	Continuing
1303: *Operational Nuclear Power System*	0.000	113.760	121.439	152.546	-	152.546	169.309	209.200	239.255	244.279	Continuing	Continuing

A. Mission Description and Budget Item Justification

The details of this program element are classified CONFIDENTIAL and are submitted annually to Congress in the classified budget justification books.

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	113.760	121.439	152.546	-	152.546
Current President's Budget	113.760	121.439	152.546	-	152.546
Total Adjustments	0.000	0.000	0.000	0.000	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

Change Summary Explanation

Technical: Not applicable.
Schedule: Not applicable.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0206313M *I Marine Corps Comms Systems*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	1,683.951	105.494	114.264	192.625	-	192.625	162.434	140.723	134.463	129.747	Continuing	Continuing
2270: *Exp Indirect Fire Gen Supt Wpn Sys*	385.707	22.871	32.555	55.653	-	55.653	43.430	40.836	39.955	40.753	Continuing	Continuing
2273: *Air Ops Cmd & Control (C2) Sys*	461.900	6.946	12.087	15.473	-	15.473	12.922	9.125	9.018	9.077	Continuing	Continuing
2274: *Command & Control Warfare Sys*	87.337	21.643	29.633	22.969	-	22.969	21.110	22.842	21.211	22.055	Continuing	Continuing
2275: *Marine Corps Tactical Radio Systems*	92.427	14.683	17.566	47.985	-	47.985	34.813	24.025	23.757	16.809	Continuing	Continuing
2276: *Comms Switching and Control Sys*	54.480	4.053	2.122	1.008	-	1.008	2.955	2.224	1.703	1.737	Continuing	Continuing
2277: *System Engineering and Integration*	47.406	1.873	4.767	17.846	-	17.846	14.969	9.535	6.376	6.503	Continuing	Continuing
2510: *MAGTF CSSE & SE*	290.725	0.940	0.991	1.021	-	1.021	1.032	1.053	1.070	1.091	Continuing	Continuing
3099: *Radar System*	229.062	1.115	1.059	4.028	-	4.028	3.742	3.544	3.569	3.602	Continuing	Continuing
3772: *Information Related Capabilities (IRC)*	11.710	3.971	5.510	17.672	-	17.672	18.453	18.570	18.683	18.817	Continuing	Continuing
3773: *Fire Coordination and Sensors*	23.197	8.092	7.974	8.970	-	8.970	9.008	8.969	9.121	9.303	Continuing	Continuing
9999: *Congressional Adds*	0.000	19.307	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	19.307

A. Mission Description and Budget Item Justification

This program element provides funding to develop the command and control (C2) support and information infrastructures for the Fleet Marine Force and supporting establishment. Doctrinally, the C2 support system and the information infrastructure form two parts of a triad of capabilities which permits command and control systems to be transformed into a complete operating system. The third element of the triad is command and control organization and is not covered in this program element. USMC command and control is divided into seven functional areas and one supporting functional area as follows: intelligence C2, fire support C2, air operations C2, radio systems C2, combat service support C2, warfare C2, radar systems C2, and C2 support (information processing and communications).

Within this program element, subprojects have been grouped by C2 functional area for more efficient planning. Air defense weapons systems have been added to facilitate planning and a separate project is used for systems assigned to the supporting establishment. Subprojects which support the Commander's decision processes

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0206313M *I Marine Corps Comms Systems*

have been collected into the Command Post Systems project since these systems must work in close cooperation to ensure effective C2 of Marine Air Ground Task Forces.

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	108.695	114.305	123.424	-	123.424
Current President's Budget	105.494	114.264	192.625	-	192.625
Total Adjustments	-3.201	-0.041	69.201	-	69.201
• Congressional General Reductions	-	-0.041			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.111	0.000			
• SBIR/STTR Transfer	-3.090	0.000			
• Program Adjustments	0.000	0.000	24.398	-	24.398
• Rate/Misc Adjustments	0.000	0.000	44.803	-	44.803

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2022	FY 2023
Project: 9999: *Congressional Adds*		
Congressional Add: *Multi-function electronic warfare*	19.307	0.000
Congressional Add Subtotals for Project: 9999	19.307	0.000
Congressional Add Totals for all Projects	19.307	0.000

Change Summary Explanation

The net increase of $78.361M between FY 2023 and FY 2024 is primarily due to the following:
- Exp Indirect Fire Gen Supt Wpn Sys Project 2270: Mobile All-Domain Observation and Sensing System (MA-DOSS) transitioning from PE 0206625M, Project 2272 beginning FY 2024. Marine Air-Ground Task Force (MAGTF) Command and Control (C2) Systems (MAGTF C2) Tactical Service Oriented Architecture (TSOA) alignment and development of Artificial Intelligence (AI)/Machine Learning (ML) within Joint All-Domain Command and Control (JADC2) capabilities and continuing efforts of funding to support the addition of operation within a Development, Security, and Operations (DevSecOps) environment requirements and system engineering support.
- System Engineering and Integration Project 2277: E2O increase is due to a combination of program growth and DoD's increased E2O Expeditionary Energy efforts. These include vehicle electrification research and development initiatives, alternative energy technological developments, hydrogen production, distribution and power generation systems, advanced energy storage and battery technologies, energy harvesting, fuel distribution and reporting systems, and industry interface.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0206313M *I Marine Corps Comms Systems*

- Marine Corps Tactical Radio Systems Project 2275: Initiation of SPEED software development and waveform modernization efforts.
- Information Related Capabilities (IRC) Project 3772: Initiation of product development efforts related to YETI. Details are held at a higher classification.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206313M / *Marine Corps Comms Systems*	Project (Number/Name) 2270 / *Exp Indirect Fire Gen Supt Wpn Sys*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2270: *Exp Indirect Fire Gen Supt Wpn Sys*	385.707	22.871	32.555	55.653	-	55.653	43.430	40.836	39.955	40.753	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Secure Expeditionary Resilient Positioning, Navigation and Timing (SERPNT) (formerly REPNT) - This is a critical Marine Corps Force Design program. Program efforts are focused on increasing the resiliency and assurance of Positioning, Navigation, and Timing (PNT) capabilities across the enterprise. This enables Marine Air-Ground Task Force (MAGTF) Commanders to know and trust position, effectively navigate, and receive precise and accurate timing for users, platforms, and systems across warfighting functions. Current SERPNT efforts will enable the Marine Corps to transition to a smaller form factor of Military Code (M-Code) GPS signal receivers through participation in Space Force-led Increment II technology maturation efforts. Program Office will research, assess, and integrate resilient and assured PNT alternative capabilities which will mitigate threats from peer and near peer adversaries to meet Force Design 2030, EABO, and Joint All-Domain Command and Control (JADC2) construct.

Marine Air-Ground Task Force (MAGTF) Command and Control (C2) Systems (MAGTF C2) - MAGTF C2 Tactical Service Oriented Architecture (TSOA) is an ACAT IV(M) program of record (POR). TSOA was created in order to achieve agility and greater cost reduction across the USMC Command and Control (C2) Enterprise. This POR has been identified by the USMC Combat Development and Integration (CD&I) as the USMC's Service Oriented Infrastructure (SOI) designed to support the Objective Network as defined by the Headquarters Marine Corps, Deputy Commandant for Information Network Modernization Plan. The USMC seeks to rectify its current C2 architecture, which is composed of disparate and duplicative legacy systems through TSOA. TSOA will enable a collapse of this disparate C2 construct and create a Net-Centric environment where Marines employ user-centered applications that access required information across Authoritative Data Sources (ADS). This will be achieved through the CD&I directed TSOA compliance effort in order to reduce duplicative product development and enable a divestiture of legacy disparate systems. This requires additional effort to ensure other ADS's are compliant with the TSOA product line.

TSOA's purpose is to ensure that Marines receive the right information, from trusted and accurate sources, when and where it is needed. This enables decisions "in context" for USMC operations across the Range of Military Operations and in support of the Unified Command Plan. TSOA's four capabilities include: Infrastructure and Services (I&S) which is the capability of authorized users to subscribe and publish required information from ADS with the use of software connectors; Agile Application Development (A2D) which is the capability to develop, accredit, and provide easy-to-learn, user-defined software applications that meet emergent Marine needs; Modular Software Architecture (MSA) which is virtualized, hardware agnostic, and scalable; Marine Corps Software Resource Center (MCSRC) is the Marine Corps' enterprise "App Store" for developed applications that allows Marines the ability to download, review, rate, and provide feedback.

Identity Dominance System - Marine Corps (IDS-MC) is a multi-modal (fingerprint, iris, and face) biometric collection system that provides the USMC a reliable and effective capability to collect, share, match, access, verify and store identity information. IDS-MC enables the Marine to collect appropriate biometric, biographical and reference information on an individual and match this locally developed information with pre-existing information available to the expeditionary force. The system displays match results with linkage to the respective individual's biographical and reference information as well as help analyze the response, update records as

appropriate, create reports and disseminate updated information. The primary mission of IDS-MC is to provide the Marine Corps with the means to identify persons encountered in the battle space. While IDS-MC is not an intelligence analysis system, it does provide identification information in support of military intelligence by providing positive identification of persons of interest. IDS-MC is an enabler in the areas of detainee management and questioning, base access, counterintelligence screening, border control, displaced persons' management and aiding in humanitarian assistance missions. IDS-MC supports the tactical application of identity dominance and fully supports a forward presence, crisis response and contingency response capability.

Forensics Dominance System - Marine Corps (FDS-MC) is a multi-modal (fingerprint, DNA, document, cellular, media, chemical, and fire arm) forensic collection system that provides the United States Marine Corps (USMC) a reliable and effective capability to recognize, protect, collect, analyze, store and share forensic information. This organic Marine Corps forensic capability supports deployed Marine Forces with agile, ruggedized, and scalable expeditionary forensics that are compatible and fully integrated with joint, other service, and interagency laboratories, yet also tailored to the unique operating requirements of the maritime domain. Maritime applications include the ability to support Marine Expeditionary Units with an at sea forensic exploitation capability to conduct vessel boarding and ship search operations. FDS-MC supports the Information Environment through sensitive forensic testing and analysis that positively identifies personnel and trace chemicals/elements; forensically exploits document and media; and scientifically links identities and networks to places, events, and activities. FDS-MC provides a transformative capability that integrates Artificial Intelligence and Machine Learning to enable intelligence operations, force protection, intelligence, and targeting.

Handheld Command and Control (H2C2) - Provides the dismounted user the to tactical edge, with handheld devices that provides integrated, on-the-move, secure, timely, and relevant Command & Control/Situational Awareness (C2/SA) information to tactical combat, combat support and combat service support commanders, leaders, and key C2 nodes. H2C2 provides leaders with a capability for selecting, managing, and assimilating relevant data and information. This allows them to pass orders and graphics that will provide the joint warfighter the capability to visualize the commander's intent and scheme of maneuver, and provide enhanced SA of friendly, reported enemy, neutral, and civilian entities.

MOBILE ALL-DOMAIN OBSERVATION AND SENSING SYSTEM (MA-DOSS) FoS provides persistent, all-domain sensing and surveillance support, tactical early warning, multi-domain intrusion-detection, and forward edge processing/computing of an AI/ML based computer vision capability to the FMF, at the Marine Littoral Regiment (MLR), down to any sized Marine element, in order to support the Naval Expeditionary Force (NEF) in the conduct of Sea Denial and Sea Control operations, and to enable force protection for expeditionary advanced bases (EABs), forward fixed sites, and installations. By providing mobile, expeditionary, amphibious, modular, multi-spectral, and persistent surveillance systems based on sensor agnostic unmanned platforms, the MA-DOSS FoS will provide the ability to observe, collect, detect, classify, identify, track, record, and report on contacts, objects of interest, and assess threats twenty-four hours a day utilizing a fused sensor data display while reducing manpower requirements and the cognitive workload on operators and analysts. MA-DOSS will employ advanced Human Machine Teaming (HMT) and leverage the force-multiplying capabilities of Artificial Intelligence/Machine Learning (AI/ML) to execute tasks that normally require human intelligence/interface. Additionally, increased mobility will be achieved with autonomous robotic platforms, thereby enhancing survivability of the primary system and stand-in forces operating inside adversary weapon engagement zones (WEX). Beginning FY 2024 MA-DOSS transitions to PE: 0206313M Marine Corps Comms Systems Proj: 2270 Exp Indirect Fire Gen Supt Wpn Sys. MA-DOSS was previously funded in PE 0206625M, Project 2272 in FY 2023.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2270 / *Exp Indirect Fire Gen Supt Wpn Sys*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: MAGTF C2: Product Development	8.016	15.620	21.375	0.000	21.375
Articles:	-	-	-	-	-
FY 2023 Plans: - Establish initial Development, Security, and Operations (DevSecOps) environment for development and delivery of TSOA. - Continue harvesting cloud data, which enables higher fidelity Machine Learning (ML) models. This will enable future Cognitive Assistants. - Continue MCSRC support for USCMC Common Handheld devices for lightweight applications. - Continue improvements to the federation and data correlation services to support COP/CTP across the MAGTF/JTF. - Initiate requirements for the addition of operation within a DevSecOps environment which is a cultural approach to automates the integration of security at every phase of the software development lifecycle, from initial design through integration, testing, deployment, and software delivery.					
FY 2024 Base Plans: - Continue initial Development, Security, and Operations (DevSecOps) environment for development and delivery of TSOA. - Continue harvesting cloud data, which enables higher fidelity Machine Learning (ML) models. This will enable future Cognitive Assistants. - Continue MCSRC support for USMC Common Handheld devices for lightweight applications. - Continue improvements to the federation and data correlation services to support COP/CTP across the MAGTF/JTF. - Complete requirements for the addition of operation within a DevSecOps environment which is a cultural approach to automate the integration of security at every phase of the software development life-cycle, from initial design through integration, testing, deployment, and software delivery. - Initiate alignment of TSOA capabilities focused on AI/ML within JADC2.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Increase from FY 2023 to FY 2024 supports TSOA alignment and development of AI/ML within JADC2 capabilities and continuing efforts of funding to support the addition of operation within a DevSecOps environment requirements and system engineering support.					
Title: MAGTF C2: Support Costs	1.387	1.543	1.600	0.000	1.600
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue system engineering support for system integration, configuration management, and technical assessments of TSOA software products. -Initiate requirements for the addition of operation within a DevSecOps environment which is a cultural approach to automate the integration of security at every phase of the software development lifecycle, from initial design through integration, testing, deployment, and software delivery.					
FY 2024 Base Plans: - Continue system engineering support for system integration, configuration management, and technical assessments of TSOA software products. - Complete requirements for the addition of operation within a DevSecOps environment which is a cultural approach to automates the integration of security at every phase of the software development life-cycle, from initial design through integration, testing, deployment, and software delivery. -Initiate engineering support TSOA capabilities focused on AI/ML within JADC2.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: Increase from FY 2023 to FY 2024 supports engineering support related to AI/ML within JADC2.					
Title: MAGTF C2: Test and Evaluation	2.100	2.789	3.730	0.000	3.730
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue TSOA compliance testing with USMC Tactical Data Systems (TDS). - Continue to participate in technical working groups in support of test and engineering.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Continue to provide technical assistance to other programs supported by Marine Corps Tactical Systems Support Activity (MCTSSA) that involve the use of these systems as well as through the Operating Forces Tactical Systems Support Center (OFTSSC) trouble calls. - Initiate requirements for the addition of operation within a DevSecOps environment which is a cultural approach to automates the integration of security at every phase of the software development lifecycle, from initial design through integration, testing, deployment, and software delivery. - Establish test and evaluation procedures for operations within a DevSecOps environment for TSOA. ***FY 2024 Base Plans:*** - Continue TSOA compliance testing with USMC Tactical Data Systems (TDS). - Continue to participate in technical working groups in support of test and engineering. - Continue to provide technical assistance to other programs supported by MCTSSA that involve the use of these systems as well as through the OFTSSC trouble calls. - Continue test and evaluation procedures for operations within a DevSecOps environment for TSOA. - Complete requirements for the addition of operation within a DevSecOps environment which is a cultural approach to automates the integration of security at every phase of the software development life-cycle, from initial design through integration, testing, deployment, and software delivery. - Initiate test and evaluation of TSOA capabilities within the JADC2 construct. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY 2023 to FY 2024 supports additional test and evaluation of TSOA capabilities within the JADC2 construct.					
Title: MAGTF C2: Management Services	1.296	1.757	1.810	0.000	1.810
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue to receive software engineering support to provide appropriate government direction in design and development of software, conduct of source code reviews, and prime vendor oversight from Federally Funded Research & Development Center (FFRDC). - Continue the examination and prototyping of AI applications for USMC tactical commanders.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Initiate requirements for the addition of operation within a DevSecOps environment which is a cultural approach to automates the integration of security at every phase of the software development lifecycle, from initial design through integration, testing, deployment, and software delivery. ***FY 2024 Base Plans:*** - Continue to receive software engineering support to provide appropriate government direction in design and development of software, conduct of source code reviews, and prime vendor oversight from FFRDC. - Continue the examination and prototyping of AI applications for USMC tactical commanders. - Continue requirements for the addition of operation within a DevSecOps environment which is a cultural approach to automates the integration of security at every phase of the software development lifecycle, from initial design through integration, testing, deployment, and software delivery. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY 2023 to FY 2024 supports continued software engineering support for the addition of operation within a DevSecOps and for the design, development of software, conducting of source code reviews, and for prime vendor oversight.					
Title: IDS-MC: Product Development	0.503	0.588	0.263	0.000	0.263
Articles:	-	-	-	-	-
FY 2023 Plans: - Develop/integrate software/hardware enhancements for collection device and interoperability between devices and data systems. ***FY 2024 Base Plans:*** - Continue to develop/integrate software/hardware enhancements and interoperability between devices and data systems ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:***					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Decrease from FY 2023 to FY 2024 reflects reduced software/hardware enhancements and interoperability efforts.					
Title: IDS-MC: Support	0.327	0.196	0.081	0.000	0.081
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue software engineering support. - Initiate integration of enhanced identity collection capabilities in advance of IDS-MC Increment 3.					
FY 2024 Base Plans: - Continue integration of enhanced identity collection capabilities. - Conclude software engineering support. - Initiate market research for the transaction management application tech refresh. - Initiate market research to support mobile collection device tech refresh.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: Decrease from FY 2023 to FY 2024 supports initiation of market research related to the transaction management application tech refresh and mobile collection device tech refresh.					
Title: Forensics Dominance System - Marine Corps (FDS-MC): Support	0.050	0.184	0.275	0.000	0.275
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue laboratory integration to facilitate network connectivity, cybersecurity updates, Technical Readiness Reviews, and software patching.					
FY 2024 Base Plans: - Conclude laboratory integration to facilitate cybersecurity updates, Technical Readiness Reviews, and software patching. - Conduct market research for risk reduction and tech refresh of the FDS-MC system.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Increase from FY 2023 to FY 2024 supports the market research related to risk reduction and tech refresh of the FDS-MC system.					
Title: Forensics Dominance System - Marine Corps (FDS-MC): Test and Evaluation	0.080	0.086	0.729	0.000	0.729
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue evaluation of COTS forensics components for risk reduction of the FDS-MC system. ***FY 2024 Base Plans:*** - Complete the evaluation of COTS forensics components for risk reduction of the FDS-MC system. - Initiate the evaluation and procurement of hardware components for the FDS-MC system. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The increase from FY 2023 to FY 2024 is due to the increased effort of evaluating and procuring test assets of hardware components ahead of a FY25 procurement decision					
Title: H2C2: Product Development	1.722	1.480	1.650	0.000	1.650
Articles:	-	-	-	-	-
FY 2023 Plans: -Continue to develop cybersecurity and vulnerability patches for fielded software. -Continue software development to incorporate cybersecurity patches and software updates to improve interoperability with existing C2 Systems and peripheral devices as part of future Engineering Change Proposals (ECPs). ***FY 2024 Base Plans:*** -Continue to develop cybersecurity and vulnerability patches for fielded software. -Continue software development to incorporate cybersecurity patches and software updates to improve interoperability with existing C2 Systems and peripheral devices as part of future ECPs. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:***					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Increase from FY 2023 to FY 2024 supports continuation of cybersecurity and development requirements associated with ECPs and wireless capabilities.					
Title: H2C2: Support	1.194	1.100	1.684	0.000	1.684
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue integration of additional software applications into the H2C2 end user device hardware platform. - Continue integration of emerging capabilities across the H2C2 portfolio to include: MAGTF Common Handheld (MCH) end user device, software application, peripheral equipment and integration with existing C2 programs of record. ***FY 2024 Base Plans:*** - Continue integration of additional software applications into the H2C2 end user device hardware platform. - Continue integration of emerging capabilities across the H2C2 portfolio to include MCH end user device, software application, peripheral equipment and integration with existing C2 programs of record. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY 2023 to FY 2024 supports continuation of development efforts related to Marine Corps requirement to integrate and maintain interoperability with other existing and emerging command and control programs of record.					
Title: H2C2: Test and Evaluation	0.960	1.020	1.100	0.000	1.100
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue testing of cybersecurity and vulnerability patches for current MCH software. - Continue interoperability testing between follow on MCH software updates and other existing C2 systems. ***FY 2024 Base Plans:*** - Continue testing of cybersecurity and vulnerability patches for current MCH software. - Continue interoperability testing between follow on MCH software updates and other existing C2 systems. ***FY 2024 OCO Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY 2023 to FY 2024 reflects continuation of cybersecurity and vulnerability patches for current MCH software testing as well as interoperability testing between follow on MCH software updates and other existing C2 systems.					
Title: SERPNT (formerly REPNT): Support ***Articles:*** ***FY 2023 Plans:*** - Continue evaluation of technologies to increase resiliency and assurance of PNT capabilities across the USMC enterprise. - Initiate development of Technical Data Packages (TDPs) and testing activities for follow-on technologies - Continue analysis of technologies for the Increment II handheld which will replace the DAGR. ***FY 2024 Base Plans:*** - Continue to support all technical and programmatic activities as the PNT CMO evaluates, procures, and fields M-Code and non-GPS capabilities to Marine operating forces. - Continue the evaluation of technologies that will increase the resiliency and assurance of PNT capabilities across the USMC enterprise. Assist PMOs with integration of M-Code capable A-PNT systems into their respective platforms, and assist client system PMOs in ensuring data interfaces work and that appropriate Graphical User Interfaces (GUIs) are developed to support combat operations in Navigation Warfare (NAVWAR) contested environments. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease from FY 2023 to FY 2024 reflects reduced integration efforts related to priority platform programs.	1.548 -	2.411 -	2.000 -	0.000 -	2.000 -
Title: SERPNT (formerly REPNT): Test and Evaluation ***Articles:*** ***FY 2023 Plans:*** - Continue laboratory analysis and simulations as well as field testing of Mounted PNT solutions during M-Code GPS implementation on Marine Corps focus of effort ground platforms.	1.840 -	3.022 -	1.256 -	0.000 -	1.256 -

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Initiate development of Technical Data Packages (TDPs) and testing activities for follow-on technologies. - Conduct analysis, testing, and evaluation on potential alternative PNT solutions. ***FY 2024 Base Plans:*** - Participate in Army's test events for the MAPS Gen II system which will lead to the successful fielding of the Marine Corps' Mounted Assured Resilient Navigation (MARNAV) capability. - Continue laboratory analysis and simulations as well as field testing of alternative PNT solutions as we field M-Code capable solutions to our priority host platforms. - Plan out future T&E activities to include the development of a TEMP and working hand-in-hand with MCOTEA. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease from FY 2023 to FY 2024 reflects reduced test and evaluation costs due to leveraging the Army's test events.					
Title: SERPNT: Management Services	1.848	0.759	0.720	0.000	0.720
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue MITRE Engineering support to develop and update PNT road map and technical studies focused on increasing resiliency and assurance of PNT capabilities across the USMC enterprise. - Continue research and development of technical strategies to ensure NAVWAR compliance during the Marine Corps' modernization to M-Code and other assured PNT capabilities. - Continue to provide subject matter expertise to the PNT CMO in all matters relevant to the GPS / PNT arena, and function as a technical liaison to other Service activities, industry partners, and academia. ***FY 2024 Base Plans:*** - Continue engineering and technical studies focused on increasing the resiliency and assurance of Assured PNT capabilities across the USMC enterprise. - Continue development of technical strategies that will ensure that NAVWAR compliance is implemented across the Marine Corps as M-Code capable solutions are identify, procured and fielded. - Continue to provide subject matter expertise to the PNT CMO in all matters relevant to the GPS / PNT arena, and function as a technical liaison to other Service activities, industry partners, and academia. ***FY 2024 OCO Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** No significant change from FY 2023 to FY 2024.					
Title: Mobile All-Domain Observation and Sensing System (MA-DOSS) : Product Development ***Articles:*** ***FY 2023 Plans:*** N/A ***FY 2024 Base Plans:*** MA-DOSS was previously funded in PE 0206625M, Project 2272 in FY 2023. - Continues product development and integration of GBOSS AI/ML hardware and software within Sensor Family of Systems which will provide object detection capabilities resulting in decreased time required to conduct Indications and Warnings (I&W). - Continues development efforts in support of the MA-DOSS FoS: The MA-DOSS Fos will provide the ability to observe, collect, detect, classify, identify, track, record, and report on contacts, objects of interest, and assess threats twenty-four hours a day utilizing a fused sensor data display while reducing manpower requirements and the cognitive workload on operators and analysts. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** MA-DOSS was previously funded in PE 0206625M, Project 2272 in FY 2023. Budget decrease from FY 2023 to FY 2024 reflects reduction of development efforts in support of GBOSS AI/ML.	0.000 -	0.000 -	17.380 -	0.000 -	17.380 -
Accomplishments/Planned Programs Subtotals	22.871	32.555	55.653	0.000	55.653

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• PMC/4652-1: *IDS-MC*	0.167	0.293	0.582	-	0.582	0.891	0.888	0.905	0.923	Continuing	Continuing

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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• PMC/4633-1: *SERPNT (formerly REPNT)*	1.500	30.957	35.444	-	35.444	19.821	20.054	30.455	30.864	Continuing	Continuing
• PMC/4631AB: *H2C2*	0.000	17.843	9.440	-	9.440	9.440	9.440	9.440	9.629	Continuing	Continuing
• PMC/4747/6438A: *MA-DOSS*	0.000	1.270	0.000	-	0.000	5.000	0.000	5.000	5.100	Continuing	Continuing
• PMC/4652-2: *FDS-MC*	0.000	0.000	1.200	-	1.200	1.100	0.000	0.000	0.000	0.000	2.300

Remarks

D. Acquisition Strategy

SERPNT (formerly REPNT): As the Position, Navigation, and Timing (PNT) Commodities Management Office (CMO), the Marine Corps program office will continue to leverage efforts conducted within the joint environment to assist in informing and implementing the enterprise PNT strategy for the Marine Corps. The program office will seek out opportunities to maximize the use of COTS/NDI products in its approach. The PNT CMO will identify opportunities for integration of emerging technologies across the variety of Marine Corps ground platforms.

MAGTF C2 Tactical Service Oriented Architecture (TSOA): TSOA program office has developed its Acquisition Strategy/Acquisition Plan (ASAP) to define the TSOA operational mission, business strategy and the detailed acquisition approach relative to cost, schedule and performance drivers. The TSOA program is being developed and managed using an "IT-Box" construct that supports agile development and requirements oversight for information systems." Requirements for TSOA are described in three key documents: the Information System Initial Capabilities Document (IS-ICD), the Requirements Definition Package (RDP), and the Capability Drop (CD).

IDS-MC: The IDS-MC Inc 2 acquisition strategy involved significant market research during FY 2017, resulting in a DoD Rapid Innovation Funding (RIF), Broad Agency Announcement (BAA) for IDS-MC Inc 2 prototyping, to provide a complete prototype identity operations system. Upon completion of the prototype system, the Program Office obtained a successful Milestone C/Full Rate Production (FRP) decision for IDS-MC Inc 2. The Program Office utilized a Justification and Approval to move into a traditional Federal Acquisition Regulations (FAR) based acquisition for both Low-Rate Initial Production and Full Rate Production contracts. IDS-MC Inc 2 achieved Full Operational Capability (FOC) in 3rd quarter FY 2022.

FDS-MC: The FDS-MC acquisition strategy is evolutionary, structured to deliver capabilities incrementally, recognizing the need for future capability improvements. This allows the current capability to be utilized in the field without interruption, while implementing updated components and improved technologies as they evolve. The FDS-MC acquisition strategy leverages market research, user feedback, and technology exploration to deliver a streamlined, efficient capability that can be easily sustainable by the Marine Corps going forward.

Handheld Command and Control (H2C2): H2C2 will use an evolutionary approach for technology insertion. The approach will leverage and mature COTS and NDI technologies to rapidly transition a handheld data capability to other acquisition programs. H2C2 inserts mature technology into existing programs in order to fill capability gaps and requirement shortfalls. These technologies will be inserted at different times along gaining program acquisition cycles. This strategy will apply to

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available technology at different proposed technology insertion points for each gaining program. Additionally, H2C2 has been tasked to develop a solution that meets the JBC-P dismounted requirements and requires C2SA interoperability with existing C2 programs of record. The current iteration of MCH provides a dismounted C2SA capability at the squad level via a tethered connection to tactical radios. Future iterations will incorporate enhanced software and hardware capabilities based on technological maturity over time in accordance with the evolutionary development approach.

Mobile All-Domain Observation and Sensing System (MA-DOSS): MA-DOSS makes maximum use of COTS, GOTS and NDI with Firm Fixed Price Production.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MAGTF C2 Product Development	C/CPFF	NIWC-LANT : Charleston, SC	63.823	2.130	Apr 2022	4.018	Apr 2023	6.392	Apr 2024	-		6.392	Continuing	Continuing	Continuing
MAGTF C2	C/CPFF	NIWC-PAC : San Diego, CA	13.332	2.179	May 2022	3.000	May 2023	3.600	May 2024	-		3.600	Continuing	Continuing	Continuing
MAGTF C2	WR	NIWC-LANT : Charleston, SC	13.736	0.000		2.602	Feb 2023	5.598	Feb 2024	-		5.598	0.000	21.936	-
MAGTF C2	WR	NRL : Washington, DC	4.957	1.500	Mar 2022	1.500	Mar 2023	0.000		-		0.000	Continuing	Continuing	Continuing
MAGTF C2	C/CPFF	ARL : Penn State, PA	1.200	1.500	Apr 2022	1.500	Apr 2023	0.000		-		0.000	0.000	4.200	-
MAGTF C2	C/CPFF	NG : San Diego, CA	8.614	0.707	Sep 2022	3.000	Apr 2023	5.785	Apr 2024	-		5.785	0.000	18.106	-
IDS-MC	C/CPFF	MCSC : Quantico, VA	0.116	0.163	May 2022	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
IDS-MC	C/FFP	AFRL/RI : Fairborn, OH	0.331	0.340	Feb 2022	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
IDS-MC	WR	NIWC-LANT : Charleston, SC	0.000	0.000		0.438	Nov 2022	0.263	Nov 2023	-		0.263	0.000	0.701	-
H2C2	WR	DPSS : China Lake, CA	1.433	1.722	Nov 2021	1.480	Nov 2022	1.650	Nov 2023	-		1.650	0.000	6.285	-
MA-DOSS GOV	WR	NSWC-CRANE : Crane,IN	0.000	0.000		0.000		4.677	Apr 2024	-		4.677	Continuing	Continuing	Continuing
MA-DOSS CTR	C/CPFF	NSWC-CRANE : Crane,IN	0.000	0.000		0.000		12.703	Apr 2024	-		12.703	Continuing	Continuing	Continuing
Prior Years Cumulative Funding	Various	Various : Various	170.399	0.000		0.000		0.000		-		0.000	0.000	170.399	-
IDS-MC	WR	GSA-FSA-QFOB : Washington, DC	0.000	0.000		0.150	Mar 2023	0.000		-		0.000	0.000	0.150	-
		Subtotal	277.941	10.241		17.688		40.668		-		40.668	Continuing	Continuing	N/A

Remarks

Product Development overall increase from FY 2023 to FY 2024 is largely attributed to the following:

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2270 / *Exp Indirect Fire Gen Supt Wpn Sys*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MAGTF C2 (TSOA) alignment and development of AI/ML within JADC2 capabilities and continuing efforts of funding to support the addition of operation within a DevSecOps environment requirements and system engineering support. MA-DOSS was previously funded in PE 0206625M, Project 2272 in FY 2023 and transitioned to Project 2270 beginning FY 2024.															

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MAGTF C2	WR	NIWC-P : San Diego, CA	11.253	1.387	Feb 2022	1.543	Mar 2023	1.600	Mar 2024	-		1.600	Continuing	Continuing	Continuing
IDS-MC	WR	NIWC LANT : Charleston, SC	2.338	0.035	Dec 2021	0.196	Oct 2022	0.081	Nov 2023	-		0.081	Continuing	Continuing	Continuing
IDS-MC	C/CPFF	AFRL/RI : Fairborn, OH	0.155	0.292	Feb 2022	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
FDS-MC	C/BA	NIWC LANT : Charleston, SC	0.066	0.027	Dec 2021	0.184	Oct 2022	0.275	Oct 2023	-		0.275	Continuing	Continuing	Continuing
FDS-MC	C/BA	AFRL/RI : Fairborn, OH	0.134	0.023	Feb 2022	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
H2C2	C/BA	NIWC LANT 1 : Charleston, SC	5.314	0.100	Dec 2021	0.100	Dec 2022	0.150	Dec 2023	-		0.150	0.000	5.664	-
H2C2	C/BA	NIWC LANT : Charleston, SC	2.556	0.000		0.286	Dec 2022	0.300	Dec 2023	-		0.300	0.000	3.142	-
H2C2	C/BA	NSWC Crane : Crane, IN	3.530	0.000		0.558	Dec 2022	0.600	Dec 2023	-		0.600	0.000	4.688	-
H2C2	C/BA	NSWC China Lake : China Lake, CA	5.137	0.594	Dec 2021	0.000		0.000		-		0.000	0.000	5.731	-
H2C2	C/BA	MCSC : Quantico, VA	0.844	0.200	Dec 2021	0.000		0.000		-		0.000	0.000	1.044	-
H2C2	C/BA	NSWC Crane2 : Crane, IN	0.360	0.000		0.156	Dec 2022	0.134	Dec 2023	-		0.134	0.000	0.650	-
H2C2	C/BA	MCTSSA : Camp Pendleton, CA	0.000	0.300	Dec 2021	0.000		0.500	Dec 2023	-		0.500	0.000	0.800	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206313M / *Marine Corps Comms Systems*	Project (Number/Name) 2270 / *Exp Indirect Fire Gen Supt Wpn Sys*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SERPNT	C/BA	NIWC LANT : Charleston, SC	1.645	1.107	Jan 2022	2.411	Oct 2022	2.000	Oct 2023	-		2.000	0.000	7.163	-
SERPNT	C/BA	NSWC Corona : Norco, CA	0.000	0.441	Dec 2021	0.000		0.000		-		0.000	0.000	0.441	-
Prior Years Cumulative Funding	Various	Various : Various	2.292	0.000		0.000		0.000		-		0.000	0.000	2.292	-
		Subtotal	35.624	4.506		5.434		5.640		-		5.640	Continuing	Continuing	N/A

Remarks

Support overall increase from FY 2023 to FY 2024 is largely attributed to H2C2 increased requirements to integrate and maintain interoperability with other existing and emerging command and control programs of record.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation (OT&E)	C/ FFPLOE	MCTSSA : Camp Pendleton, CA	9.531	2.100	Apr 2022	2.789	Apr 2023	3.730	Apr 2024	-		3.730	Continuing	Continuing	Continuing
Operational Test & Evaluation (OT&E)	MIPR	NIWC L : Charleston, SC	1.166	0.040	Nov 2021	0.086	Oct 2022	0.729	Nov 2023	-		0.729	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	C/FFP	ARL/RI : Fairborn, OH	0.134	0.040	Nov 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	NIWC LANT : Charleston, South Carolina	4.195	0.100	Dec 2021	0.523	Dec 2022	0.500	Dec 2023	-		0.500	0.000	5.318	-
Operational Test & Evaluation (OT&E)	WR	MCOTEA : Quantico, VA	2.185	0.000		0.000		0.000		-		0.000	0.000	2.185	-
Developmental Test & Evaluation (DT&E)	C/FFP	NIWC LANT : Charleston, SC	1.583	0.100	Dec 2021	0.387	Dec 2022	0.350	Dec 2023	-		0.350	0.000	2.420	-
Developmental Test & Evaluation (DT&E)	C/FFP	MCTSSA : Camp Pendleton, CA	1.984	0.760	Dec 2021	0.110	May 2023	0.250	May 2024	-		0.250	0.000	3.104	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206313M / *Marine Corps Comms Systems*	Project (Number/Name) 2270 / *Exp Indirect Fire Gen Supt Wpn Sys*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	NIWC ATLANTIC : Charleston, SC	0.000	1.840	Dec 2021	3.022	Oct 2022	1.256	Oct 2023	-		1.256	0.000	6.118	-
Operational Test & Evaluation (OT&E)	C/CPFF	NIWC LANT : Charleston, SC	1.372	0.000		0.000		0.000		-		0.000	0.000	1.372	-
Operational Test & Evaluation (OT&E)	C/CPFF	MCSC : Quantico, VA	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Operational Test & Evaluation (OT&E)	Various	Various : Various	32.285	0.000		0.000		0.000		-		0.000	0.000	32.285	-
		Subtotal	54.435	4.980		6.917		6.815		-		6.815	Continuing	Continuing	N/A

Remarks

Test and Evaluation: No significant change from FY 2023 to FY 2024.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MAGTF C2	C/CPFF	CECOM/MITRE : Ft. Monouth, NJ	12.716	1.296	Jun 2022	1.757	Jun 2023	1.810	Jun 2024	-		1.810	Continuing	Continuing	Continuing
FDS-MC	C/CPFF	CECOM/MITRE : Ft. Monouth, NJ	0.180	0.000		0.000		0.000		-		0.000	0.000	0.180	-
SERPNT	C/CPFF	CECOM/MITRE : Ft. Monouth, NJ	0.170	1.848	Feb 2022	0.759	Dec 2022	0.720	Oct 2023	-		0.720	0.000	3.497	-
Prior Years Cumulative Funding	Various	VARIOUS : VARIOUS	4.641	0.000		0.000		0.000		-		0.000	0.000	4.641	-
		Subtotal	17.707	3.144		2.516		2.530		-		2.530	Continuing	Continuing	N/A

Remarks

Management Services: No significant change from FY 2023 to FY 2024.

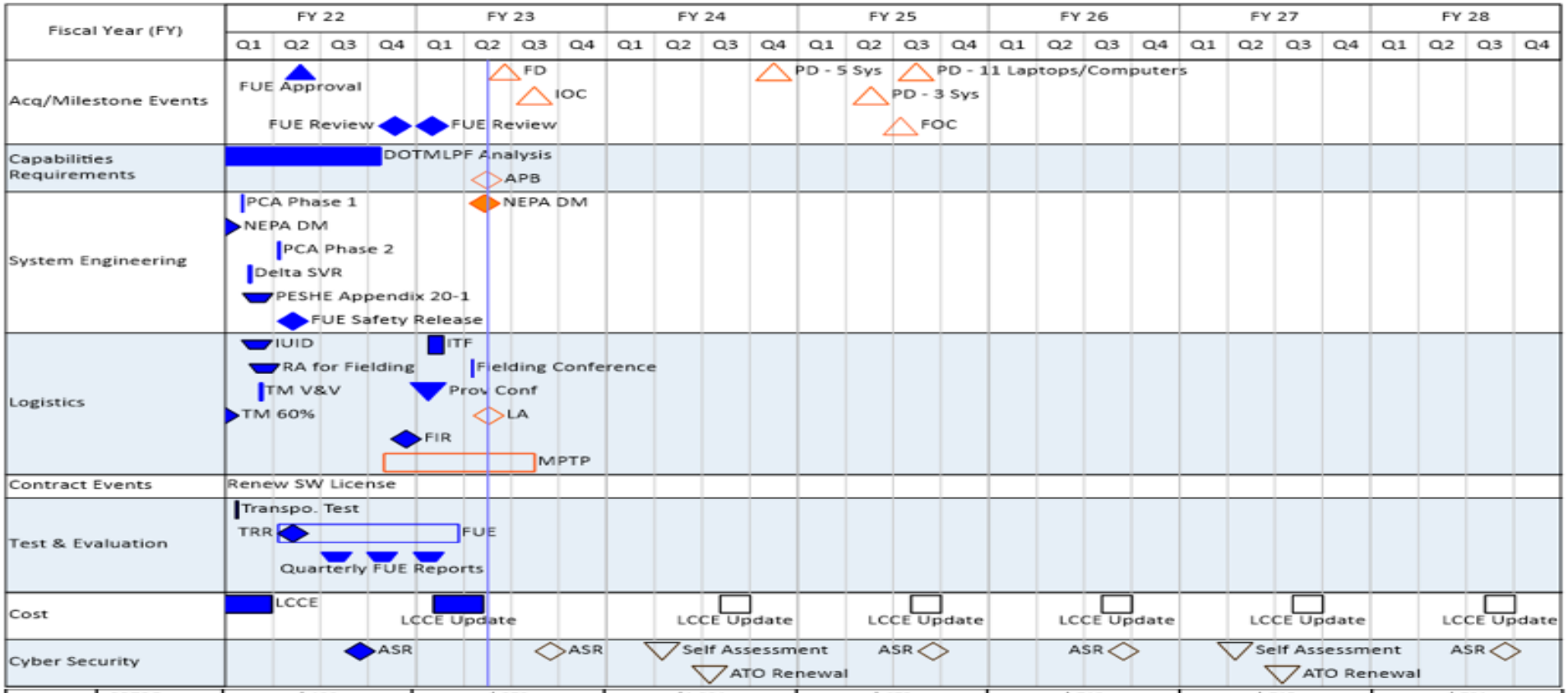
Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206313M / *Marine Corps Comms Systems*	Project (Number/Name) 2270 / *Exp Indirect Fire Gen Supt Wpn Sys*	

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	385.707	22.871		32.555		55.653		-		55.653	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2270 / *Exp Indirect Fire Gen Supt Wpn Sys*

FDS-MC



Funding ($ in Millions)	FY 22	FY 23	FY 24	FY 25	FY 26	FY 27	FY 28
RDT&E	$.130	$.270	$1.004	$.672	$.710	$.715	$.721
O&M	$3.687	$.506	$4.009	$4.134	$4.240	$4.366	$4.486
Procurement	-	-	$1.200	$1.100	-	-	-
Quantities	0	0	5	3	0	0	0
Totals	$3.817	$.776	$6.213	$5.906	$4.950	$5.081	$5.207

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2270 / *Exp Indirect Fire Gen Supt Wpn Sys*

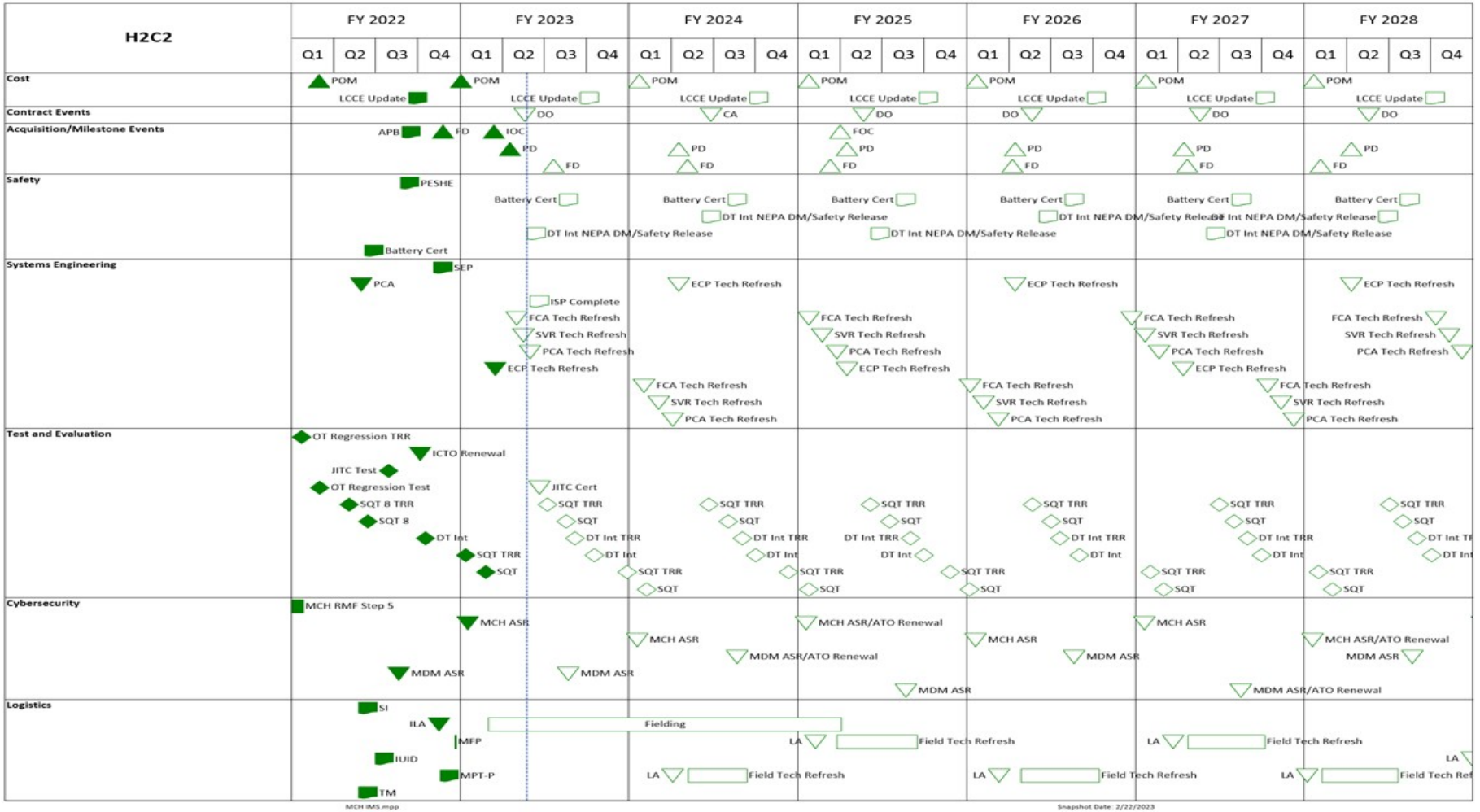


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2270 / *Exp Indirect Fire Gen Supt Wpn Sys*

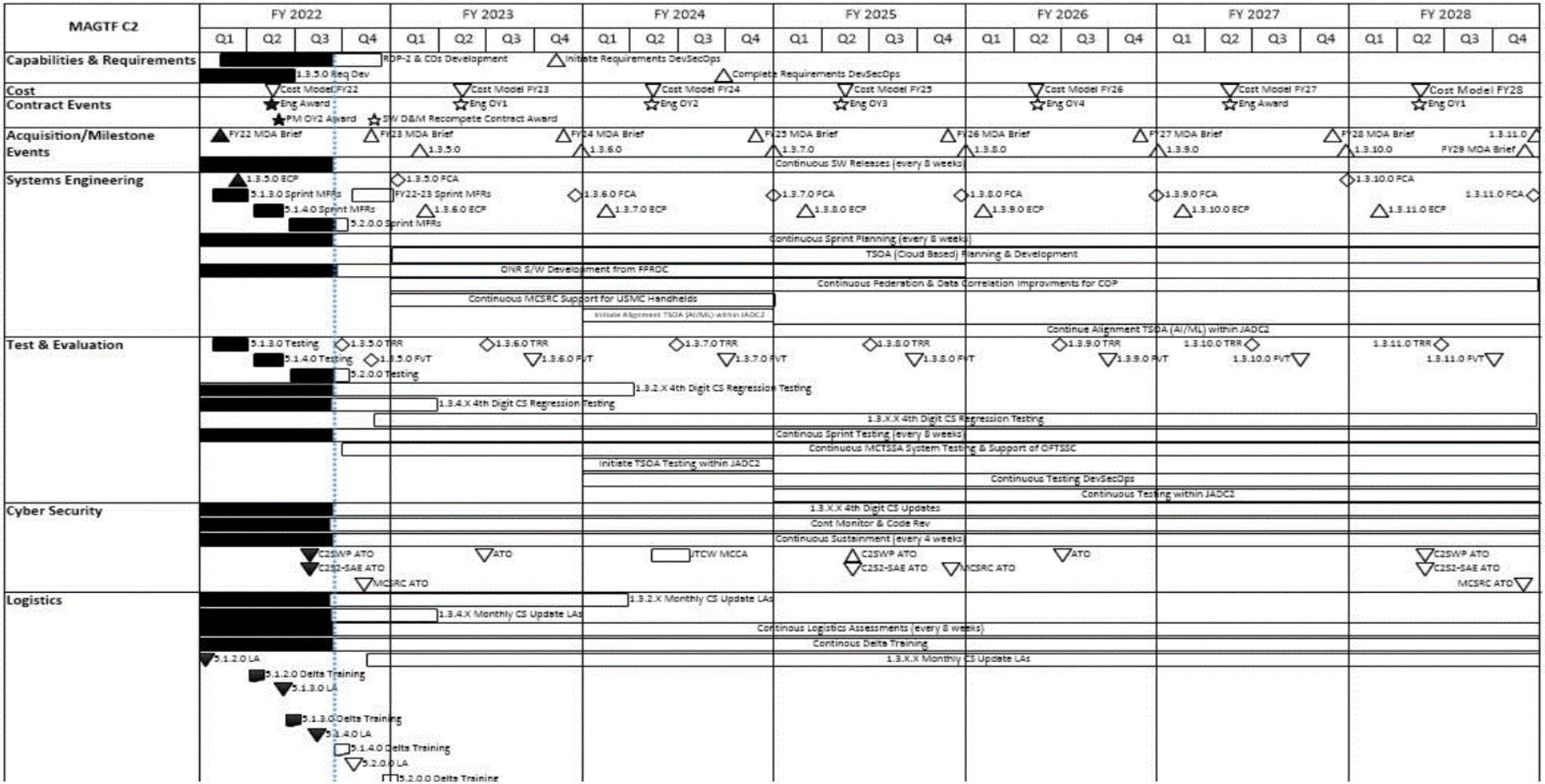


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2270 / *Exp Indirect Fire Gen Supt Wpn Sys*

MA-DOSS Schedule

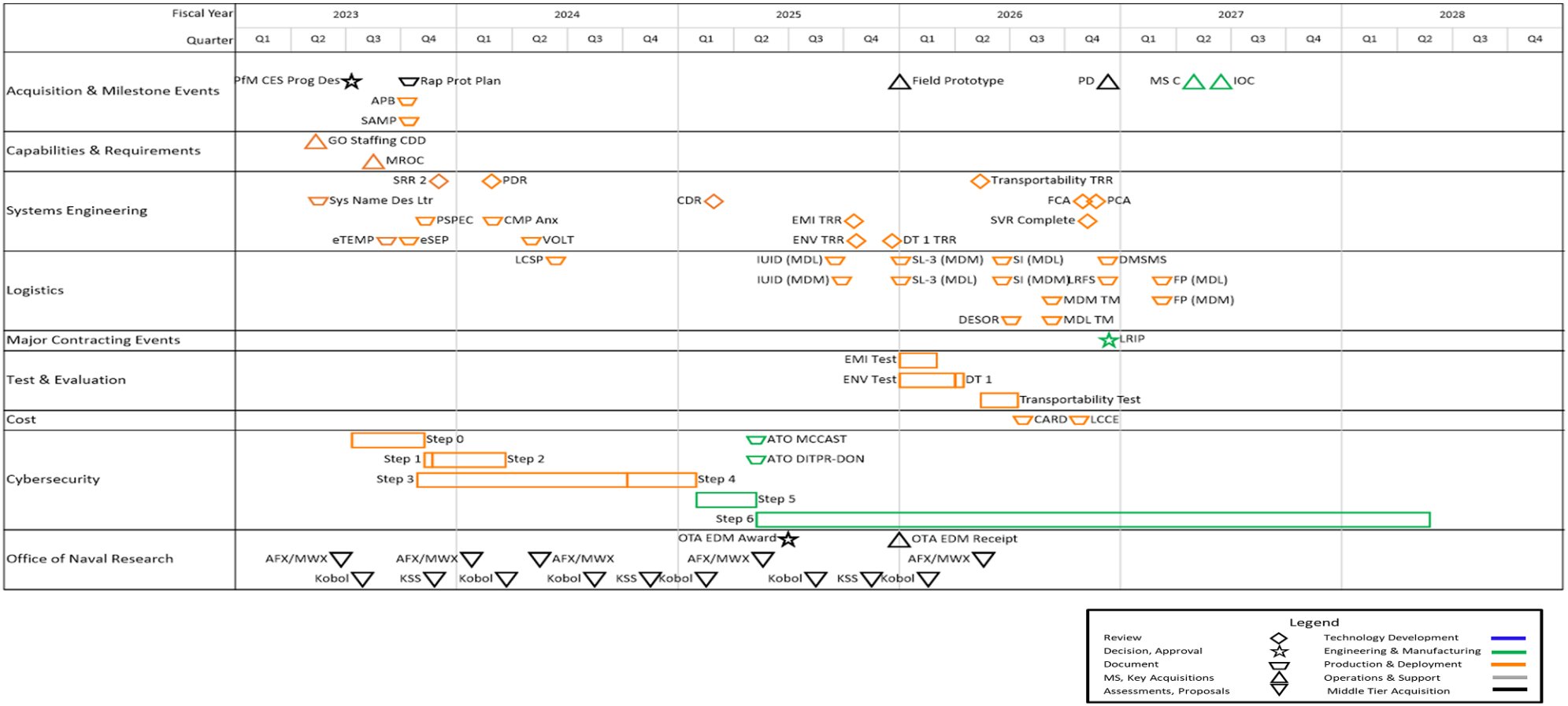


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2270 / *Exp Indirect Fire Gen Supt Wpn Sys*

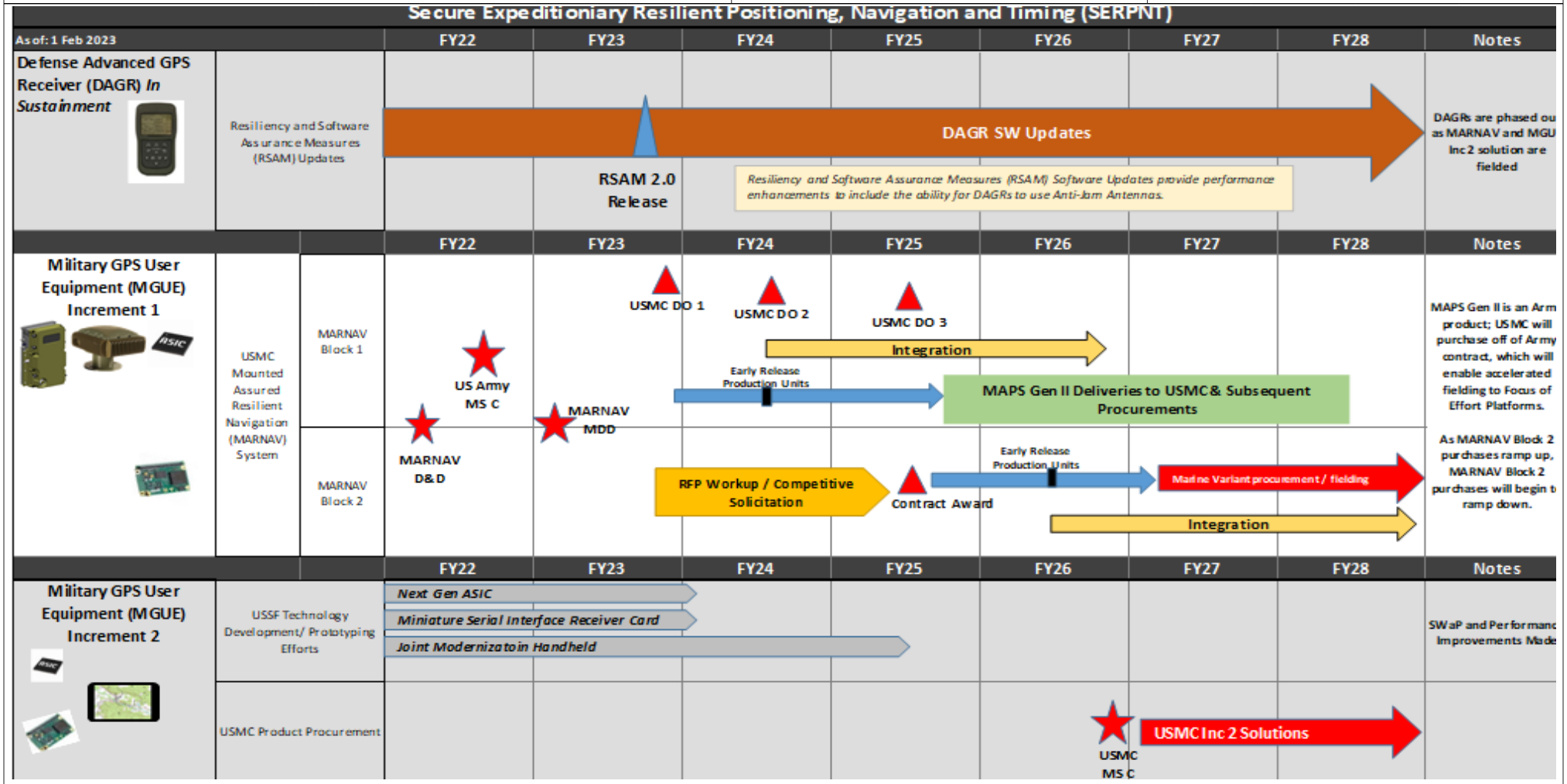


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2270 / *Exp Indirect Fire Gen Supt Wpn Sys*

IDS-MC

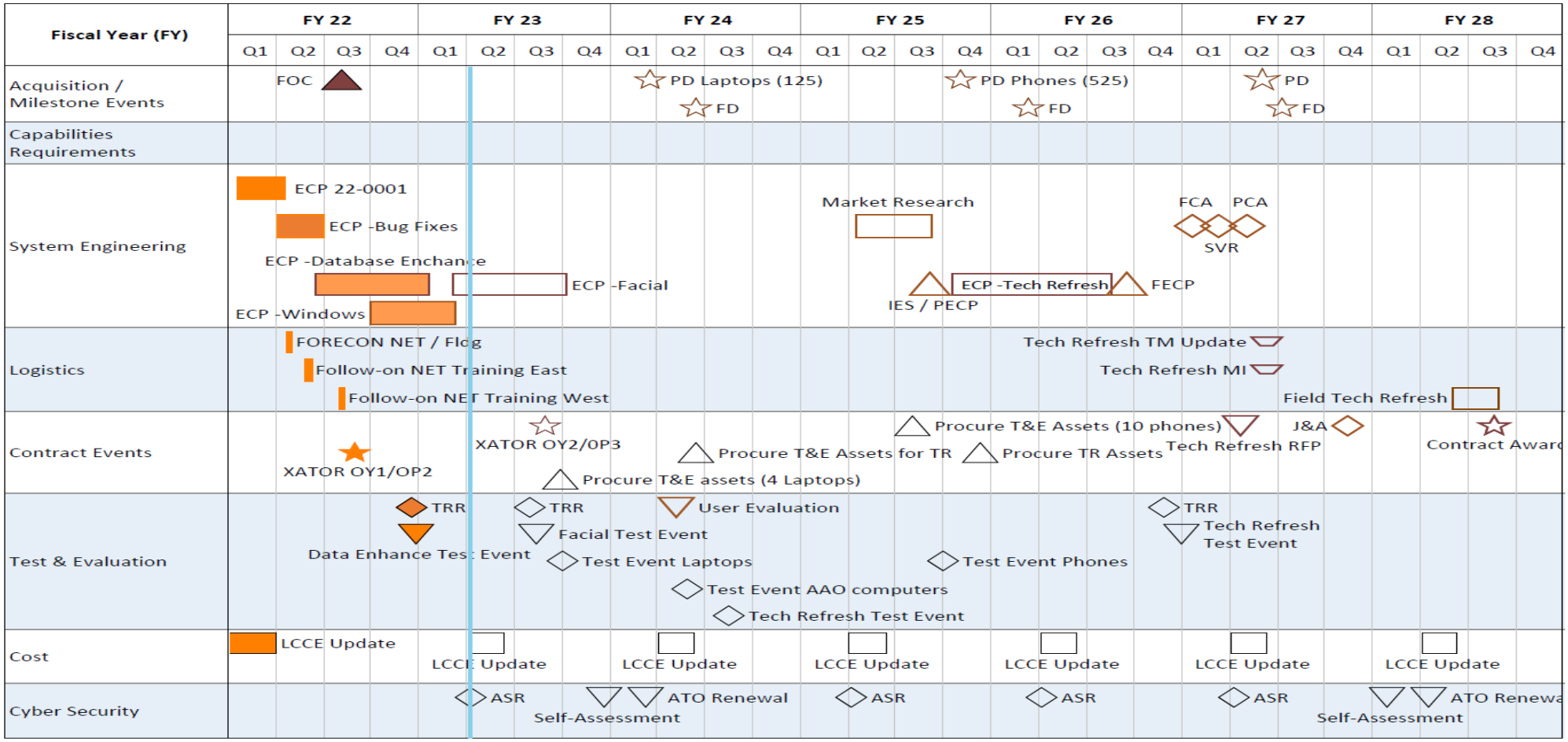


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2270 / *Exp Indirect Fire Gen Supt Wpn Sys*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2270				
MAGTF C2 5.1.3.0 FIP	1	2022	1	2022
MAGTF C2 5.1.2.0 Release	2	2022	2	2022
MAGTF C2 Eng Award	2	2022	2	2022
MAGTF C2 5.1.3.0 Release	2	2022	2	2022
MAGTF C2 5.1.4.0 Release	3	2022	3	2022
MAGTF C2 1.3.5.0 TRR	3	2022	3	2022
MAGTF C2 5.2.0.0 Release	4	2022	4	2022
MAGTF C2 1.3.5.0 FVT	4	2022	4	2022
MAGTF C2 1.3.5.0 Release	1	2023	1	2023
MAGTF C2 CIB	1	2023	1	2023
MAGTF C2 1.3.6.0 ECP	1	2023	1	2023
MAGTF C2 FIP	2	2023	2	2023
MAGTF C2 ENG OY1 AWARD	2	2023	2	2023
MAGTF C2 1.3.7.0 ECP	1	2024	1	2024
MAGTF C2 ENG OY2	2	2024	2	2024
MAGTF C2 1.3.7.0 TRR	3	2024	3	2024
MAGTF C2 1.3.7.0 FVT	4	2024	4	2024
IDS-MC Tech Refresh Contract Award	2	2024	2	2024
IDS-MC OTA Demo	3	2022	3	2022
FDS-MC FUE	2	2022	2	2023
FDS-MC MS C	2	2022	2	2022

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2270 / *Exp Indirect Fire Gen Supt Wpn Sys*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
FDS-MC IOC	2	2023	2	2023
MGUE Inc 1 MARNAV (MAPS) Procurement Decision	3	2022	3	2022
MGUE Inc 1 MARNAV (MAPS) Production Contract Award	2	2023	2	2023
MARNAV IOC	1	2025	1	2025
MADOSS Program Initiation MA-DOSS Medium (MDM) MA-DOSS Light (MDL)	2	2023	2	2023
H2C2 IOC	2	2022	2	2022
H2C2 Fielding	4	2022	2	2025
H2C2 Tech Refresh	2	2023	2	2023
H2C2 FCA Tech Refresh	2	2023	2	2023
H2C2 SVR Tech Refresh	2	2023	2	2023
H2C2 PCA Tech Refresh	2	2023	2	2023
H2C2 DT TRR	3	2023	3	2023
H2C2 ECP Tech Refresh	2	2024	2	2024
H2C2 FCA Refresh	1	2024	1	2024
H2C2 SVR Refresh	1	2024	1	2024
H2C2 SQT TRR	2	2024	2	2024

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206313M / *Marine Corps Comms Systems*	Project (Number/Name) 2273 / *Air Ops Cmd & Control (C2) Sys*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2273: *Air Ops Cmd & Control (C2) Sys*	461.900	6.946	12.087	15.473	-	15.473	12.922	9.125	9.018	9.077	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Composite Tracking Network (CTN) - The Composite Tracking Network (CTN) is a Commandant of the Marine Corps (CMC) Force Design (FD) program which distributes composite tracking data to Command and Control (C2) and weapon systems participating in the US Navy's Cooperative Engagement Capability (CEC) network, which is a sensor network with integrated fire control capability that improves battle force air and missile defense capabilities by combining data from multiple battle force air search sensors on CEC-equipped units into a single, real-time, composite track picture. CTN greatly enhances fleet air defense working in concert with CEC by significantly contributing to real-time situational awareness. The program received ACAT III designation in Nov 2001 and is an instantiation of the USN CEC Program. The program is USMC led with US Navy and US Army cooperation. The 12 April 1995 Mission Need Statement (MNS) No. AAS 48 for the Common Aviation Command and Control System (CAC2S) established the Marine Corps' need to upgrade its existing air defense architecture with capabilities to support improved situational awareness (SA) and advanced engagement concepts. The Composite Tracking Network (CTN) program was initiated to address this capability gap. The CTN system (AN/MSQ-143A(V)1) is an integration effort consisting of an AN/USG-4B (the USMC CEC CTN platform) and other US Marine-unique components. The CTN system interfaces with the AN/TPS-80 Ground/Air Task Oriented Radar (G/ATOR) and the Common Aviation Command and Control System (CAC2S) to provide the Marine Air-Ground Task Force (MAGTF) and Joint Task Force Commanders a real-time, line of sight, high data-rate sensor and engagement data distribution network that combines all distributed sensor data, including G/ATOR measurements, into a fire control quality track picture which is the same for all CEC network nodes. CEC data combined with G/ATOR contributions, will effectively increase Situational Awareness by providing accurate, composite, and real-time surveillance tracks, reduce ground-to-air and air-to-air fratricide, enable air and surface Naval Integrated Fire Control-Counter Air (NIFC-CA), and extend the air defensive capability of forces in the littorals. Through integration & fielding of CEC Increment II capabilities, CTN shall integrate new sensor types and track data sources into the network, such as surface search radars and passive detection sensors, as well as relevant data from other networks. CTN shall accommodate more CUs and provide a more complete, robust, and resilient situational awareness picture, composite identification, and Integrated Fire Control (IFC), with assured communications for Integrated Air and Missile Defense (IAMD), surface warfare, and electronic mission warfare domains.

Air Battle Management (ABM) - ABM is a Commandant of the Marine Corps (CMC) Force Design (FD) program which contains the Theater Battle Management Core Systems-Marine Corps (TBMCS-MC). TBMCS-MC is the joint mandated air war planning tool for generation, dissemination, and execution of Air Tasking Orders (ATO) and Airspace Control Orders (ACO). TBMCS-MC is a core C2 system in the Marine aviation combat element for the tools required to conduct Situational Awareness and Assessment, Airspace De-confliction, Mission Planning/Execution/Re-planning, and Assault Support Processing. The Marine Corps derives, develops, and sustains the core TBMCS software suite in joint cooperation with the United States Air Force (USAF) and maintains its configuration of TBMCS-MC while continually improving its cybersecurity posture in accordance with relevant DoD and Marine Corps requirements and timelines. The Marine Corps maintains the responsibility to ensure the system meets Marine air C2 requirements and its operational relevant employment in a joint theater of operations while maintain interoperability with numerous Joint, Marine Corps, Navy and Air Force command and control systems.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2273 / *Air Ops Cmd & Control (C2) Sys*

Remote Video Viewing Terminal (RVVT) - Consists of Commercial Off-The-Shelf (COTS) Video Down-Link (VDL) products such as the VideoScout Mobile Configuration 2 (VS-MC/2), VideoScout Mobile Configuration 3 (VS-MC/3), and Man Portable Video Down-Link (MPVDL) that allow for the viewing and exploitation of Full Motion Video (FMV) from Intelligence, Surveillance and Reconnaissance (ISR) assets. VDL systems are mission critical for coordination of direct and indirect fires and the prevention of fratricide. These systems provide the Fleet Marine "Forces" with critical video and metadata from all USMC manned and unmanned aircraft to include, but not limited to Raven B, Puma, Micro-UAS, Shadow, Predator, Fire Scout, and Litening Pod on P-3, AV8-B, F/A-18, and F35. These products ensure critical data is displayed to Forward Air Controllers (FACs), Forward Observers (FOs), Fire Support Teams (FSTs), Firepower Control Teams (FCTs), Tactical Air Control Parties (TACPs) and Reconnaissance Teams.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Composite Tracking Network (CTN): Support and Management Services	0.015	0.026	1.085	0.000	1.085
Articles:	-	-	-	-	-
FY 2023 Plans: - Complete travel, engineering support, and test support for Signal Data Processor (SDP) Next qualification testing. - Initiate travel, engineering support, and test support for CEC Block 2 (increment II) development. This ensure USMC CTN integration and software modifications align to support CEC Block 2. ***FY 2024 Base Plans:*** - Continue travel, engineering support, and test support for CEC Block 2 (increment II) development. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The increase from FY 2023 to FY 2024 is to support the expanded engineering support for CEC Block 2 development.					
Title: Composite Tracking Network (CTN): Engineering Development	0.303	3.202	6.157	0.000	6.157
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue software certification to maintain interoperability with CEC Network to include associated engineering support. - Development, integration, test, and certification activities required for insertion of new capabilities into CTN that interfaces to CAC2S & G/ATOR TPS-80. New capabilities currently include NIFC-CA, Mode S identify friend					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2273 / *Air Ops Cmd & Control (C2) Sys*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
or foe (IFF), Network Enabled Electronic Defense System (NEEDS) and Terrestrial Transmission Line of Sight (TRILOS) radio interoperability. ***FY 2024 Base Plans:*** - Continue software certification to maintain interoperability with CEC Network to include associated engineering support. - Continue the development, integration, test, and certification activities required for insertion of new capabilities into CTN that interfaces to CAC2S & G/ATOR TPS-80. - Develop SW changes/testing required to implement the full spectrum of Naval Integrated Fire Control (NIFC) - From the Sea within the CTN system. - CTN integration and SW modifications to support CEC Block 2 capabilities as required by the CEC Increment II CDD (approved in February 2022). ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The increase from FY 2023 to FY 2024 is to fund full spectrum of NIFC and integration and SW modifications to support CEC Block 2 capabilities.					
Title: Composite Tracking Network (CTN): Developmental Testing and Cyber Security	2.125	4.679	3.695	0.000	3.695
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue NIFC-CA system development with the Navy's CEC Network. - Continue systems engineering efforts and updates to the software baseline to support annual CEC FQT, maintain cybersecurity updates and its Authority to Operate. - Continue CEC Increment II development, integration and software modifications to support CEC Block 2 capabilities. - Complete Signal Data Processor (SDP) Next development and testing. ***FY 2024 Base Plans:*** - Continue NIFC-CA system development with the Navy's CEC Network. - Continue systems engineering efforts and updates to the software baseline to support annual CEC FQT, maintain cybersecurity updates and its Authority to Operate.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2273 / *Air Ops Cmd & Control (C2) Sys*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Continue CEC Increment II development, integration and software modifications to support CEC Block 2 capabilities ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The decrease from FY 2023 to FY 2024 is due to the completion of SDP Next development and testing with the US Navy.					
Title: Remote Video Viewing Terminal (RVVT): Software Development Support	1.300	1.377	0.023	0.000	0.023
Articles:	-	-	-	-	-
FY 2023 Plans: -Complete software development for the integration of encrypted video with new and fielded sensor platforms, to include 5th generation sensor and air platform. -Continue implementation of Target Mensuration from Full Motion Video Meta Data. ***FY 2024 Base Plans:*** -Complete implementation of Target Mensuration from Full Motion Video Meta Data. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The decrease from FY 2023 to FY 2024 is due to the completion of the integrated encrypted video with required sensor platforms.					
Title: Air Battle Management (ABM): Engineering Support	0.675	0.628	0.335	0.000	0.335
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue engineering support for further system integration development of the TBMCS-MC and its tech refresh. This is a continuation of the effort to upgrade the TBMCS-MC until the replacement system is fielded. ***FY 2024 Base Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2273 / *Air Ops Cmd & Control (C2) Sys*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Continue engineering support for further system integration development of the TBMCS-MC and its tech refresh. This is a continuation of the effort to upgrade the TBMCS-MC until the replacement system is fielded. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The decrease from FY 2023 to FY 2024 is due to the reduction in scope of needed engineering support for system integration development and sustainment of the TBMCS-MC until the replacement system is fielded.					
Title: Air Battle Management (ABM): Test and Evaluation	1.495	0.738	2.406	0.000	2.406
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue development and T&E of Air Force KRADOS modules to meet Marine Corps TBMCS-MC replacement Next Generation system capability requirements. - Continue IA testing on developmental software to meet cyber security posture and conduct risk reduction testing to identify potential software vulnerabilities. ***FY 2024 Base Plans:*** - Continue development and T&E of Air Force KRADOS modules to meet Marine Corps TBMCS-MC replacement Next Generation system capability requirements. - Continue IA testing on developmental software to meet cyber security posture and conduct risk reduction testing to identify potential software vulnerabilities. - Initiate transition software & hosting environment development and testing. This is a technical collaboration with USAF & joint partners to ensure the Marine Corps continues to manage Service-specific aviation assets and missions in the development of air battle plans. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The increase from FY 2023 to FY 2024 is due to the ramp up of testing and engineering support for transition software & hosting environment development and testing. This effort supports a technical collaboration with					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2273 / *Air Ops Cmd & Control (C2) Sys*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
USAF & joint partners to ensure the Marine Corps continues to manage Service-specific aviation assets and missions in the development of air battle plans.					
Title: Air Battle Management (ABM): Product Development	1.033	1.437	1.772	0.000	1.772
Articles:	-	-	-	-	-
FY 2023 Plans: - Initiate next generation equipment and application development to support replacement of TBMCS-MC as the system that provides the USMC its ABM capability. The ABM capability is vital to USMC Warfighting (i.e. Command and Control, Naval Operations, EABO, Composite Warfare) and develop joint integration with the US Navy and US Air Force in creating Air Battle Plans.					
FY 2024 Base Plans: - Continue the development of next generation equipment and application development to support the replacement of TBMCS-MC.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: The increase from FY 2023 to FY 2024 is due to development of the hosting environment as a part of the continued maturation and development of ABM's next generation system that will replace the TBMCS-MC.					
Accomplishments/Planned Programs Subtotals	6.946	12.087	15.473	0.000	15.473

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• PMC/4640: *Air Operations C2 Systems*	1.457	11.048	23.744	-	23.744	20.635	10.149	9.153	9.375	Continuing	Continuing

Remarks

D. Acquisition Strategy

ABM - The Marine Corps continues to sustain unique requirements in addition to Air Force requirements and deviates from the Air Force-developed TBMCS-Force Level configuration as necessary to sustain its TBMCS-MC. The USMC separately manages the development and fielding of software and hardware engineering

change proposals for Information Assurance (IA) and functionality updates to ensure daily direct support of the Air Battle Plan in joint theaters of operation. The Marine Corps prevents TBMCS-MC obsolescence through cyclic and as-needed technical refreshment of information technology hardware when applicable. The USD (AT&L) canceled the US Air Force's Air Operations Center - Weapon System (AOC-WS) 10.2 program in 2018 that included the Command and Control (C2) Air Operations Suite - C2 Information Services (C2AOS-C2IS), therefore Air Force Program Executive Officer (PEO) Digital subsequently transitioned its efforts to a middle tier of acquisition (MTA) (Section 804 of the FY 2016 NDAA) rapid prototyping effort under the AOC-WS Modifications "Block 20" program. AOC-WS "Block 20" capabilities are being developed by the Kessel Run Experimentation Lab (KREL); an organic Air Force software development MTA effort. The Marine Corps will primarily inherit the Air Force's software suite called the Kessel Run All Domain Operations Suite (KRADOS) - formerly C2AOS-C2IS - from the larger AOC-WS upgrade efforts. The KRADOS product will replace legacy TBMCS software as the joint ABM capability for the execution of the Air Battle Plan (ABP). As the USAF leads the development of its replacement for their TBMCS-Force Level capability, the Marine Corps is aligning its investments toward the ability to host the new capability in the Marine Corps cyber network and combat operating environments, to include cloud-based technology solutions and network architecture. The Marine Corps TBMCS Next Generation Suite strategy includes developmental and operational testing with joint partner laboratories (i.e. CAOC-X, Langley AFB; 45th Test Squadron) as well as Marine peculiar system of systems interoperability evaluations within its own engineering support centers (i.e. NSWC Crane; MCTSSA, Camp Pendleton) and Marine test events. The Air Force seeks a deployment of the new capability in Q1 FY 2023 of and the Marine Corps plans to stay aligned to this schedule by testing released software in concert with the Air Force but will not dispose of TBMCS-MC until Q4 FY 2023. The Marine Corps will determine replacement of the current legacy TBMCS-MC when testing and evaluation confirms the new system is ready to provide sufficient capability to enable Marines to plan and execute aviation command and control and Air Battle Management operations in a joint environment.

CTN - The USMC's CTN acquisition strategy is to participate in the USN's Cooperative Engagement Capability (CEC) program procurement and testing, making necessary modifications to support the Marine Corps' requirement. CTN is currently conducting a technology refresh (TR) of the CTN system. The TR will address system obsolescence and enable CTN to remain aligned with the development of US Navy CEC Block II (Increment II) and Signal Data Processor (SDP-Next) upgrades as well as maintain CEC interoperability which is vital as CTN is the USMC gateway to Naval Integrated Fire Control-Counter Air (NIFC-CA) that enables the ACE to achieve resiliency of joint air C2 in an Expeditionary Advanced Base Operations (EABO) environment and supports CMC FD initiatives. The TR upgrade will improve CTN components: the Signal Data Processor-Sierra (SDP-S), Compact Solid State Antenna (CSSA), voice communications, and AN/USG-4B Shelters. These upgrades will directly result in improved interfaces with the AN/TPS-80 Ground/Air Task Oriented Radar (G/ATOR) and the Common Aviation C2 System (CAC2S) through displacement of sensor and C2 via RF link and multiple radar connections, providing the Marine Air-Ground Task Force (MAGTF) and Joint Task Force Commanders an improved ground based sensor netting solution that interfaces with the Navy's CEC network.
The USMC Air Combat Element (ACE) Operational Planning Team (OPT) has directed an increase to the CTN Approved Acquisition Objective (AAO) in support of Force Design 2030. CTN will produce and field eight (8) CTN systems, increasing the AAO from 11 to 19 systems in support of Force Design.

RVVT - The RVVT acquisition strategy is to continue integration of Video Down-Link (VDL) systems into new and existing sensor platforms by enhancing the encryption, range, and reducing the power and weight requirements in order to support existing and planned capabilities supporting targeting and fires activities. Efforts to integrate Full Motion Video (FMV) to support Joint Fires Observers (JFOs) and Joint Terminal Attack Controllers (JTACs) is an ongoing requirement to maintain interoperability with new and existing sensor systems.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2273 / *Air Ops Cmd & Control (C2) Sys*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Years Cumulative Funding	Various	VARIOUS : VARIOUS	267.138	0.000		0.000		0.000		-		0.000	0.000	267.138	-
CTN Engineering Devlopment	C/CPFF	NAVSEA PEO IWS : Washington, DC	24.984	0.303	Feb 2022	3.202	Feb 2023	6.157	Feb 2024	-		6.157	Continuing	Continuing	Continuing
ABM Product Development	C/FFP	NSWC Crane : Crane, IN	0.689	1.033	Nov 2021	1.437	Nov 2022	1.772	Nov 2023	-		1.772	0.000	4.931	-
RVVT	WR	NAWC/China Lake : China Lake, CA	0.000	1.300	Nov 2021	1.377	Nov 2022	0.023	Nov 2023	-		0.023	0.000	2.700	-
		Subtotal	292.811	2.636		6.016		7.952		-		7.952	Continuing	Continuing	N/A

Remarks

CTN: The increase from FY 2023 to FY 2024 is to fund full spectrum of NIFC and integration and SW modifications to support CEC Block 2 capabilities.
ABM: The funding increase from FY 2023 to FY 2024 is due to development of the hosting environment as a part of the continued maturation and development of ABM's next generation system that will replace the TBMCS-MC.
RVVT: The decrease from FY 2023 to FY 2024 is due to the completion of the integrated encrypted video with required sensor platforms.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Years Cumulative Funding	Various	VARIOUS : VARIOUS	47.878	0.000		0.000		0.000		-		0.000	0.000	47.878	-
CTN Engineering Support	WR	NSWC : Dahlgren, VA	7.888	0.000		0.000		0.725	Nov 2023	-		0.725	0.000	8.613	-
CTN Engineering Support	Various	Travel-TAD : Not Specified	1.198	0.015	Sep 2022	0.026	Oct 2022	0.052	Oct 2023	-		0.052	Continuing	Continuing	Continuing
CTN Engineering Support	WR	NSWC : Crane, IN	0.000	0.000		0.000		0.308	Oct 2023	-		0.308	0.000	0.308	-
ABM Engineering Support	Various	Travel - TAD : Not Specified	0.150	0.165	Sep 2022	0.118	Oct 2022	0.059	Oct 2023	-		0.059	0.000	0.492	-
ABM C2 SME support	C/FFP	NSWC : Crane, IN	0.415	0.000		0.000		0.000		-		0.000	0.000	0.415	-
ABM C2 SME support	C/CPFF	DTIC : Fort Belvoir, VA	0.717	0.510	Nov 2021	0.510	Nov 2022	0.000		-		0.000	0.000	1.737	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206313M / *Marine Corps Comms Systems*	Project (Number/Name) 2273 / *Air Ops Cmd & Control (C2) Sys*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ABM C2 SME support	WR	NSWC : Indian Head, MD	0.000	0.000		0.000		0.276	Dec 2023	-		0.276	0.000	0.276	-
		Subtotal	58.246	0.690		0.654		1.420		-		1.420	Continuing	Continuing	N/A

Remarks

CTN: The increase in FY 2024 is to support the expanded engineering support for CEC Block 2 development.
ABM: The decrease in FY 2024 is due to the reduction in scope of needed engineering support for system integration development and sustainment of the TBMCS-MC until the replacement system is fielded.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation (OT&E)	Various	VARIOUS : VARIOUS	59.222	0.000		0.000		0.000		-		0.000	0.000	59.222	-
Developmental Test & Evaluation (DT&E)	WR	NSWC Corona : Corona, CA	2.981	0.238	Nov 2021	0.925	Nov 2022	0.952	Nov 2023	-		0.952	0.000	5.096	-
Operational Test & Evaluation (OT&E)	C/CPFF	NAVSEA PEO IWS : Washington DC	5.166	1.200	Dec 2021	2.785	Dec 2022	1.803	Dec 2023	-		1.803	0.000	10.954	-
Developmental Test & Evaluation (DT&E)	WR	NSWC Dahlgren : Dahlgren, VA	0.855	0.687	Nov 2021	0.969	Nov 2022	0.940	Nov 2023	-		0.940	0.000	3.451	-
Operational Test & Evaluation (OT&E)	WR	NSWC : Crane, IN	2.001	0.995	Jun 2022	0.234	Jun 2023	0.561	Jun 2024	-		0.561	0.000	3.791	-
Developmental Test & Evaluation (DT&E)	C/FFP	NSWC Indian Head : Indian Head, MD	0.194	0.500	Mar 2022	0.504	Jun 2023	0.924	Jun 2024	-		0.924	0.000	2.122	-
Operational Test & Evaluation (OT&E)	WR	MCOTEA : Quantico, VA	1.220	0.000		0.000		0.000		-		0.000	0.000	1.220	-
Developmental Test & Evaluation (DT&E)	C/FFP	NSWC Crane : Crane, IN	1.421	0.000		0.000		0.000		-		0.000	0.000	1.421	-
Developmental Test & Evaluation (DT&E)	C/FFP	MCTSSA : Camp Pendleton, CA	0.740	0.000		0.000		0.921	Jun 2024	-		0.921	0.000	1.661	-
		Subtotal	73.800	3.620		5.417		6.101		-		6.101	0.000	88.938	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2273 / *Air Ops Cmd & Control (C2) Sys*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

CTN: The decrease from FY 2023 to FY 2024 is due to the completion of SDP Next development and testing with the US Navy.
ABM: The increase from FY 2023 to FY 2024 is due to the ramp up of testing and engineering support for transition software & hosting environment development and testing.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Years Cumulative Funding	Various	VARIOUS : VARIOUS	36.391	0.000		0.000		0.000		-		0.000	0.000	36.391	-
ABM Program Support	C/FFP	NSWC Crane : Crane, IN	0.652	0.000		0.000		0.000		-		0.000	0.000	0.652	-
		Subtotal	37.043	0.000		0.000		0.000		-		0.000	0.000	37.043	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	461.900	6.946		12.087		15.473		-		15.473	Continuing	Continuing	N/A

Remarks

The increase from FY 2023 to FY 2024 is to support CTN NIFC integration, CEC Block 2 development and ABM testing and engineering support for transition software & hosting environment development.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2273 / *Air Ops Cmd & Control (C2) Sys*

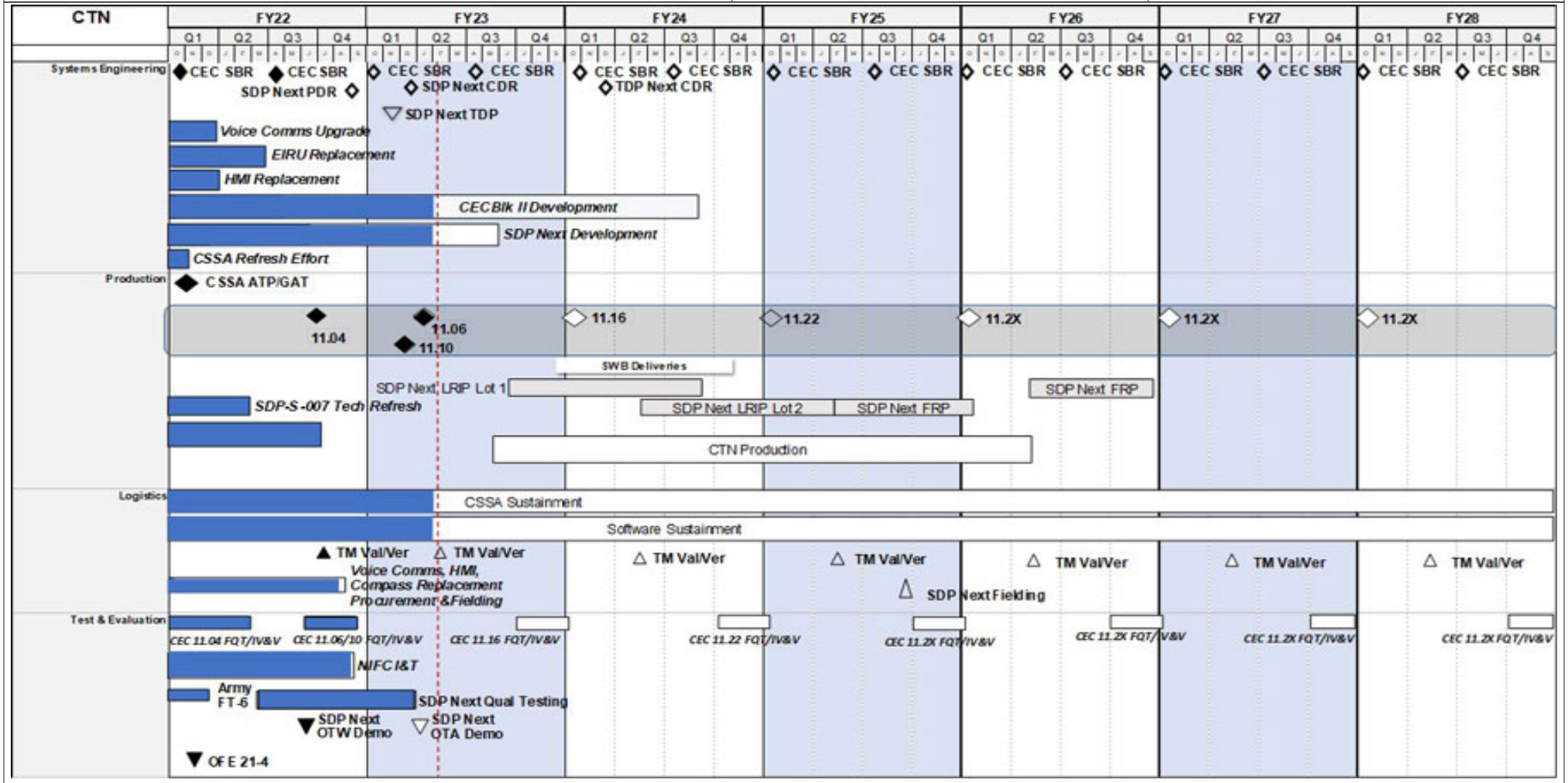


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2273 / *Air Ops Cmd & Control (C2) Sys*

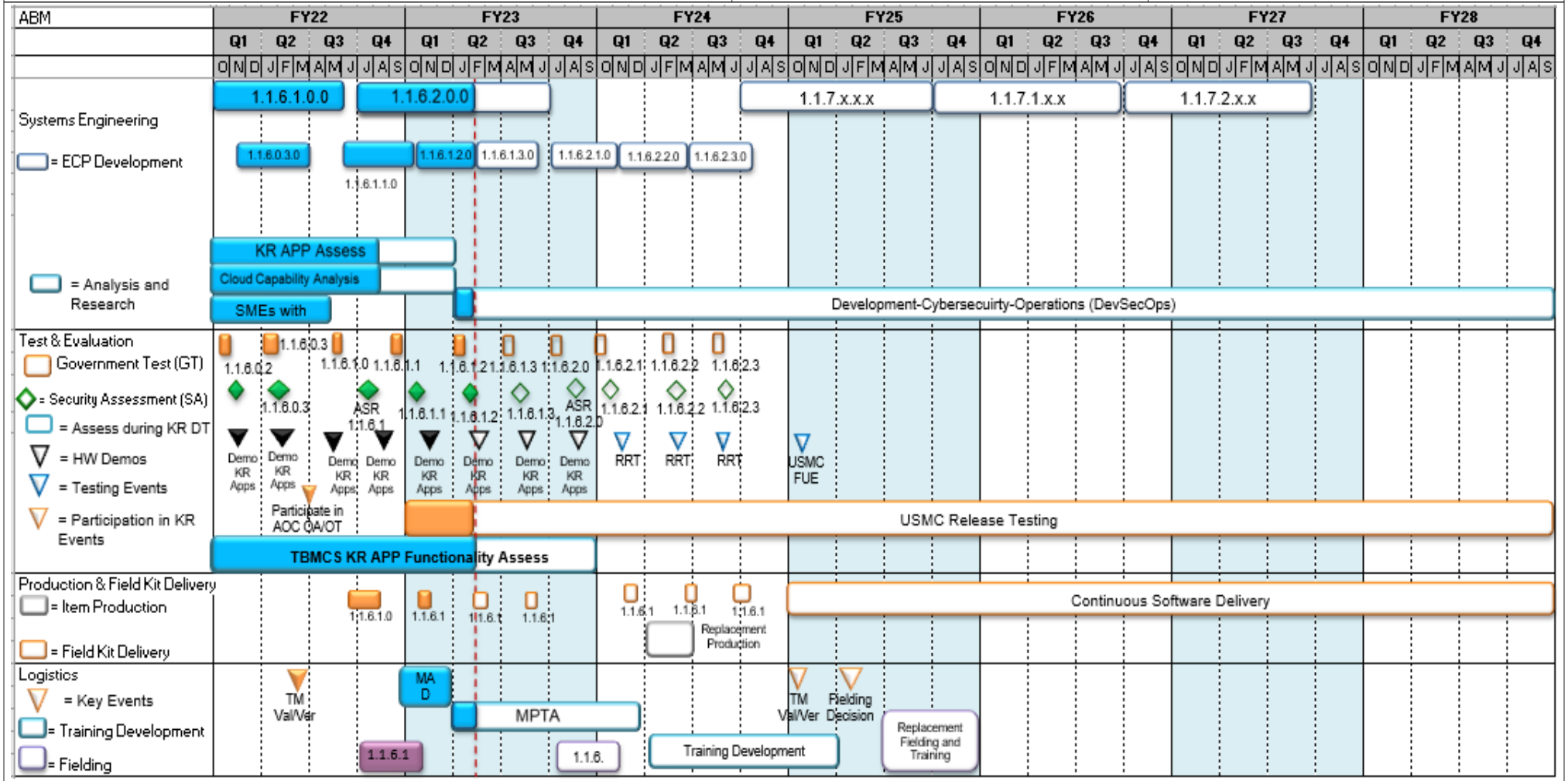
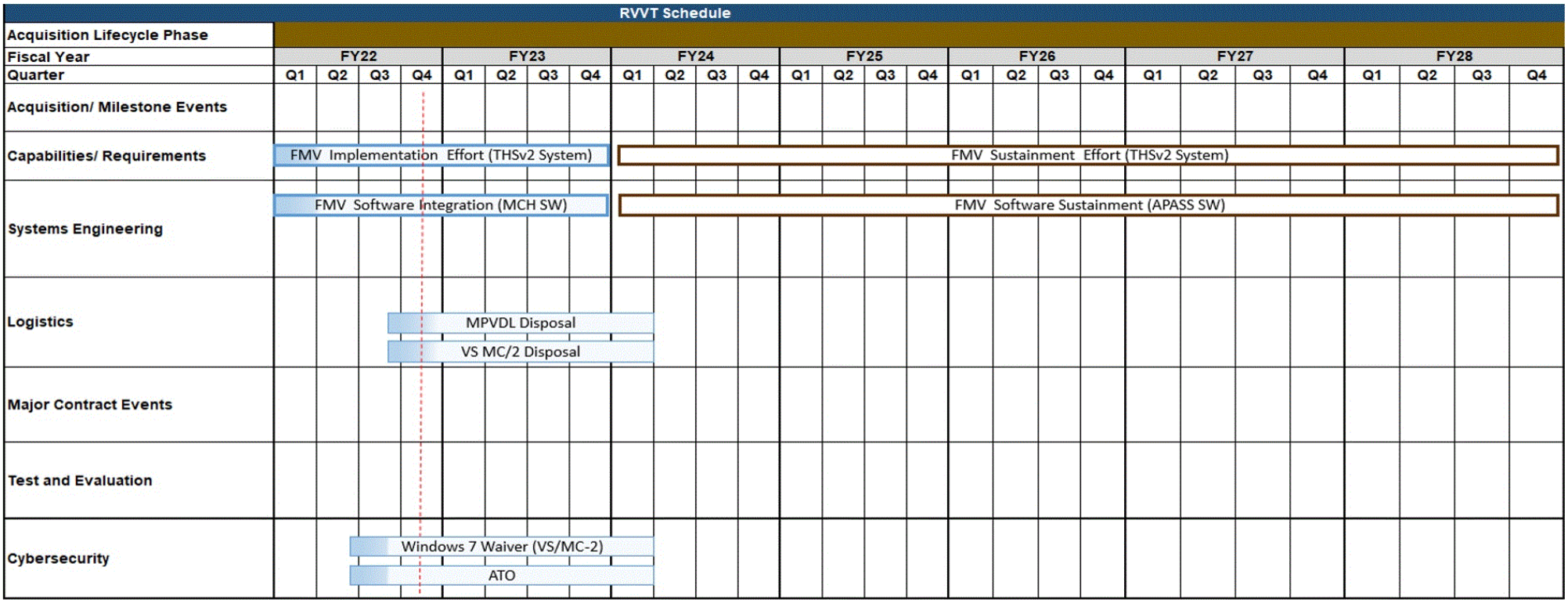


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2273 / *Air Ops Cmd & Control (C2) Sys*



LEGEND
- ☆ MDA Decision Approval (non-Milestone ((MS))
- △ MS/Key Acquisition Event
- ◇ Review
- ▭ Documentation
- ▽ Assessment, Proposal

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2273 / *Air Ops Cmd & Control (C2) Sys*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2273				
CTN IPP Schedule: CTN Technology Refresh (ECP-143)	1	2022	2	2022
CTN IPP Schedule: CEC Block II (Increment II) Development	1	2022	3	2024
CTN IPP Schedule: SDP Next Development	1	2022	3	2023
CTN IPP Schedule: CTN Tech refresh: CSSA tech refresh	1	2022	1	2022
CTN IPP Schedule: CTN Tech refresh: SDP-S tech refresh	1	2022	2	2022
CTN IPP Schedule: CTN Production	3	2023	2	2026
CTN IPP Schedule: CSSA Sustainment	1	2022	4	2028
CTN IPP Schedule: Software Sustainment	1	2022	4	2028
CTN IPP Schedule: CEC FQT/IV&V	1	2022	4	2028
CTN IPP Schedule: Naval Integrated Fire Control-Counter Air Integration and Testing	1	2022	4	2022
CTN IPP Schedule: Signal Data Processor (SDP) Next qualification testing	2	2022	2	2023
ABM IPP Schedule: Annual Software Update Releases (1.1.6 / 1.1.7)	1	2022	2	2027
ABM IPP Schedule: Annual software Government Test (GT) and Cyber security assessment (SA)	1	2022	3	2028
ABM IPP Schedule: TBMCS-MC Replacement system development Cloud capability analysis	2	2022	1	2023
ABM IPP Schedule: Development-Cybersecuirty-Operations	2	2023	4	2028
ABM IPP Schedule: TBMCS-MC Replacement system development	2	2022	4	2022
ABM IPP Schedule: USMC SW release testing	1	2023	4	2028
ABM IPP Schedule: Continuous SW Delivery	1	2023	4	2028
ABM IPP Schedule: TBMCS-MC Replacement Fielding	3	2025	4	2025
RVVT Schedule: Full Motion Video Implementation Effort	1	2022	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206313M / *Marine Corps Comms Systems*	Project (Number/Name) 2274 / *Command & Control Warfare Sys*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2274: *Command & Control Warfare Sys*	87.337	21.643	29.633	22.969	-	22.969	21.110	22.842	21.211	22.055	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Marine Electromagnetic Warfare Ground Family of Systems (MEGFoS): MEGFoS is the future of USMC ground electromagnetic warfare being developed to replace the current capability provided by the Multi-Function Electronic Warfare (MFEW) family of systems which provides counter IED and counter UAS capabilities. The MEGFoS family of systems (FoS) will provide Marine Corps Forces the ability to maneuver effectively in the electromagnetic spectrum (EMS) in a peer-to-peer environment. MEGFoS will employ artificial intelligence (AI) to identify signals of interest (SOI) and provides a networked EW capability equipped with low probability of intercept (LPI) and low probability of detection (LPD) antennas enabling the ability to sense and make sense of the (EMS) throughout the area of operations. MEGFos provides electronic warfare operators the ability to conduct electronic fires on site, remotely attack targets identified via systems employed by incidental operators, conduct coordinated techniques across multiple systems, or pass target data to other systems to attack with kinetic fires. MEGFoS provides state of the art electronic attack (EA), electronic support (ES), and electronic protection capabilities throughout the EMS. MEGFoS enables an exquisite ability to deny, disrupt, and degrade adversary communications, navigation, RADAR, and other systems operating in the EMS. The ability for instantaneous sensing, identification, exploitation, and disruption of enemy capabilities using non-traditional attack vectors and techniques to defeat sources of intentional and unintentional radiated electromagnetic energy ensures a technological edge to the Marine Corps in a peer-to-peer environment. The MEGFoS detects and protects friendly spectrum access; senses and identifies spectrum usage; and disrupts the adversary's decision cycle. The future operations solution is fulfilled by MEGFoS, a critical Force Design program enabling the Expeditionary Advanced Base Operations (EABO) construct, facilitating ground-based EW in support of Force Design 2030.

MEGFoS is being developed using the C5ISR/EW Modular Open Suite of Standards (CMOSS) and Sensor Open Systems Architecture (SOSA) standards (in coordination with the Army, Navy, and Air Force) that will provide an open architecture HW & SW non-proprietary platform to host "best of breed" capabilities from across industry. This construct will eliminate multiple proprietary "green boxes" carried by Marines lowering the weight and power requirements in operations, reduce training burdens, lower procurement costs, and reduce sustainment costs. MEGFoS will be employed throughout the FMF, the largest number of systems will be employed by the ground combat element and in Littoral Combat Regiments (LCR). MEGFoS provides coordinated EW in support of Fires and Maneuver, Force Protection, Spectrum Management, and Battlespace Awareness.

The Marine Corps is seeking to evolve EW capabilities from existing legacy, proprietary EW systems to capabilities for an advanced multi-function electronic warfare mission focused on supporting Electromagnetic Spectrum Operations (EMSO). MEGFOS is the future for team portable, vehicle mounted and dismounted advanced tactical warfare capabilities supporting the EMSO concept. The program is essential for ensuring Marines have the ability to protect friendly use of spectrum, sense all spectrum usage in an area of responsibility, and to target adversaries inside spectrum with the intent to deny, delay, or degrade an adversary's decision making cycle.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2274 / *Command & Control Warfare Sys*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: MEGFoS - Product Development	13.422	16.878	9.579	0.000	9.579
Articles:	-	-	-	-	-
FY 2023 Plans: -Continue integration of the developed common, open hardware backplane based off the C4ISR Modular Open Suites of Standards (CMOSS), and a Sensor Open Systems Architecture (SOSA). -Continue development of hardware components that will be interoperable across the mounted, dismounted and team portable systems for MEGFOS. -Continue development of networking capability for dismounted and team portable systems to provide a high level of situational awareness to commanders and Marines at the company level and fully realize advanced EA/ES capabilities for MEGFoS. -Continue development of MEGFoS Dismounted Systems. -Continue integration of Science and Technology (S&T) efforts into MEGFoS. -Initiate development of MEGFoS Mounted Systems. -Initiate development of techniques to counter emerging threats.					
FY 2024 Base Plans: - Continue integration of the developed common, open hardware backplane based off the C4ISR Modular Open Suites of Standards (CMOSS), and a Sensor Open Systems Architecture (SOSA). - Continue development of hardware components that will be interoperable across the mounted, dismounted and team portable systems for MEGFOS. -Continue development of networking capability for dismounted and team portable systems to provide a high level of situational awareness to commanders and Marines at the company level and fully realize advanced EA/ES capabilities for MEGFoS. -Complete development of MEGFoS Dismounted Systems. -Continue integration of Science and Technology (S&T) efforts into MEGFoS. -Continue development of MEGFoS Mounted Systems. -Continue development of techniques to counter emerging threats.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2274 / *Command & Control Warfare Sys*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
The decrease from FY 2023 to FY 2024 reflects completion of product development of the MEGFoS Dismounted Back-Packable chassis and Dismounted Small Form Factor development of base configurations of SDRs, amplifiers, and antennas in FY 2023 to meet IOC.					
Title: MEGFoS - Support	2.593	8.310	10.709	0.000	10.709
Articles:	-	-	-	-	-
FY 2023 Plans: -Continue providing systems engineering support for the MFEW (mounted and dismounted), MEGFoS Hardware backplane, and Universal Test Sets by analyzing performance impacts resulting from compatibility, technology and software updates and environmental risks. -Continue MEGFoS dismounted development support, providing systems engineering support for MEGFoS dismounted and integration support of developed S&T effort into MEGFoS dismounted. -Initiate MEGFoS mounted development support, providing systems engineering support for MEGFoS mounted and integration support of developed S&T efforts into MEGFoS mounted.					
FY 2024 Base Plans: -Continue providing systems engineering support for the MFEW (mounted and dismounted), MEGFoS Hardware backplane, and Universal Test Sets by analyzing performance impacts resulting from compatibility, technology and software updates and environmental risks. -Continue MEGFoS dismounted development support, providing systems engineering support for MEGFoS dismounted and integration support of developed S&T effort into MEGFoS dismounted. -Continue MEGFoS mounted development support, providing systems engineering support for MEGFoS mounted and integration support of developed S&T efforts into MEGFoS mounted.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: The increase from FY 2023 to FY 2024 reflects continuation of MEGFoS mounted development systems engineering, and integration of developed S&T efforts as well as initiation of systems engineering support for MEGFoS mission load development and software cyber security and information assurance.					
Title: MEGFoS - Test and Evaluation	5.628	4.445	2.681	0.000	2.681
Articles:	-	-	-	-	-
FY 2023 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2274 / *Command & Control Warfare Sys*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Continue developmental test of MEGFoS Architectures in relevant environments. - Continue testing new and developing load-sets ability to exploit or defeat advanced and emerging threat systems. - Complete testing of the mounted and dismounted MFEW engineering changes that will be procured and fielded. - Continue characterization testing for the Networking and enhanced Graphic User Interface (GUI) Engineering Change Proposal (ECP). -Conduct MEGFoS Team Portable Operational Demonstration, in preparation for Rapid Prototyping outcome decision. -Conduct MEGFoS dismounted developmental testing. ***FY 2024 Base Plans:*** -Continue developmental test of MEGFoS Architectures in relevant environments. -Continue testing new and developing load-sets ability to exploit or defeat advanced and emerging threat systems. -Continue MEGFoS Team Portable Operational Demonstration, in preparation for Rapid Prototyping outcome decision. -Continue MEGFoS dismounted developmental testing. -Initiate developmental testing of integrated MEGFoS research and development efforts. -Initiate developmental systems engineering testing for MEGFoS mission loads and software cyber security patches. -Initiate operational testing for the MEGFoS mounted variant. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The decrease from FY 2023 to FY 2024 is due to the completion of mounted and dismounted testing related to MFEW engineering changes that are being procured in FY 2023.					
Accomplishments/Planned Programs Subtotals	21.643	29.633	22.969	0.000	22.969

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2274 / *Command & Control Warfare Sys*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• PMC/6520: *EOD Systems*	61.733	113.116	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• PMC/4367: *Electro Magnetic Spectrum Operations (EMSO)*	0.000	0.000	177.270	-	177.270	191.591	85.827	87.328	89.074	0.000	631.090

Remarks

MEGFoS procurement transitions from Budget Line Item 6520 EOD Systems to Budget Line Item 4367 Electro Magnetic Spectrum Operations (EMSO) beginning FY 2024.

Project 2274 funding FY 2020 - FY 2023 totaling $33.150M reflects funding associated with MEGFoS Middle Tier Acquisition (MTA) for rapid prototyping in addition to RDTE Project C796 FY 2022 funding totaling $15.100M.

MTA Funding RDTEN/0206313M/2274:
FY 2020: $3.922M
FY 2021: $5.648M
FY 2022: $11.604M
FY 2023: $11.977M

MTA Funding RDTEN/0206313M/C7964:
FY 2022: $15.100

D. Acquisition Strategy

Marine Air Ground Task Force (MAGTF) Electronic Warfare (EW) Ground Family of Systems (MEGFoS): The MFEW programs will continue to develop new counter techniques, improve capabilities, enhance software and develop upgrades to counter evolving threats and prevent technology obsolescence. Activities include waveform development, non-recurring engineering for system enhancements, capability upgrades, and the testing and government studies required to support these changes. In FY 2021, the initial 300 MFEW Mounted systems began issuance to the FMF. An additional 417 MFEW Mounted systems are planned for procurement and issuance between FY 2022-2024. MFEW systems are based on a USON requirement and will be augmented by the MEGFoS systems starting in FY 2025. MEGFoS will provide a significant improvement in capability when compared to MFEW and what is commercially available today. The MEGFoS Team Portable system was authorized for Middle Tier of Acquisition Rapid Prototyping in 3Q FY 2020, with planned prototyping completion in 1Q FY 2024. Upon successful prototyping of the Team Portable variant, MEGFoS will procure 49 systems. The intent is to use the MEGFoS Team Portable solution as the basis for the Dismounted and Mounted variants. Procurement of the Dismounted systems, planned for FY 2024-2025, while the MEGFoS Mounted systems are being developed. The iterative development approach for MEGFoS, focusing on a common hardware and software standard, provides the opportunity to integrate all EW sensors into a common operating picture, allowing all elements of the MAGTF to gain and maintain awareness in the electromagnetic spectrum. This will include, but is not limited to, Cyber, Communications, Signature Management, and advanced signals detection and attack techniques.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206313M / *Marine Corps Comms Systems*	Project (Number/Name) 2274 / *Command & Control Warfare Sys*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MEGFoS	TBD	MCSC : QUANTICO, VA	0.000	4.123	Dec 2021	4.070	Jul 2023	5.906	Jul 2024	-		5.906	Continuing	Continuing	Continuing
MEGFoS	TBD	TBD : TBD	0.000	0.000		3.000	Dec 2022	0.000		-		0.000	0.000	3.000	-
MEGFoS	WR	NIWC-LANT : CHARLESTON,SC	2.835	3.635	Oct 2021	4.122	Oct 2022	0.605	Oct 2023	-		0.605	Continuing	Continuing	Continuing
MEGFoS	C/CPFF	NIWC-LANT : CHARLESTON, SC	5.652	3.071	Jun 2022	4.100	Jun 2023	0.000		-		0.000	Continuing	Continuing	Continuing
MEGFoS	C/CPFF	JHU/APL : LAUREL, MD	0.800	2.226	Dec 2021	0.840	Dec 2022	2.308	Dec 2023	-		2.308	Continuing	Continuing	Continuing
MEGFoS	WR	NSWC-Crane : CRANE, IN	0.000	0.000		0.746	Dec 2022	0.760	Dec 2023	-		0.760	0.000	1.506	-
Prior Years Cumulative Funding	Various	VARIOUS : VARIOUS	32.251	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	41.538	13.055		16.878		9.579		-		9.579	Continuing	Continuing	N/A

Remarks

The decrease from FY 2023 to FY 2024 reflects completion of the Dismounted Back-Packable chassis and Dismounted Small Form Factor development of base configurations of SDRs, amplifiers, and antennas in FY 2023 to meet IOC requirements.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MEGFoS	WR	NIWC-LANT : CHARLESTON, SC	0.742	0.760	Dec 2021	1.000	Dec 2022	5.209	Dec 2023	-		5.209	Continuing	Continuing	Continuing
MEGFoS	C/CPFF	NIWC-LANT : CHARLESTON	0.090	2.800	Nov 2021	4.930	Nov 2022	4.750	Nov 2023	-		4.750	Continuing	Continuing	Continuing
MEGFoS	TBD	TBD : TBD	0.000	1.424	Jun 2022	1.445	Jun 2023	0.000		-		0.000	Continuing	Continuing	Continuing
MEGFoS	WR	NSWC-CRANE : CRANE, IN	1.004	0.000		0.935	Jun 2023	0.750	Jun 2024	-		0.750	0.000	2.689	-
Prior Years Cumulative Funding	Various	VARIOUS : VARIOUS	7.849	0.000		0.000		0.000		-		0.000	0.000	7.849	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206313M / *Marine Corps Comms Systems*	Project (Number/Name) 2274 / *Command & Control Warfare Sys*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	9.685	4.984		8.310		10.709		-		10.709	Continuing	Continuing	N/A

Remarks

The Support increase from FY 2023 to FY 2024 reflects initiation of systems engineering support for the MEGFoS for mission load development and software cyber security and information assurance.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	MIPR	YPG : YUMA, AZ	0.219	0.863	May 2022	1.574	Oct 2022	0.575	Oct 2023	-		0.575	Continuing	Continuing	Continuing
Operational Test & Evaluation (OT&E)	WR	NIWC-CD : CRANE, IN	0.599	0.500	Oct 2021	0.571	Oct 2022	0.000		-		0.000	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	NIWC-LANT : CHARLESTON, SC	0.105	2.091	Oct 2021	2.100	Oct 2022	1.064	Dec 2023	-		1.064	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	C/CPFF	NIWC-LANT : CHARLESTON, SC	0.000	0.150	Dec 2021	0.200	Jun 2023	1.042	Aug 2024	-		1.042	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	C/CPFF	MCSC : QUANTICO, VA	0.200	0.000		0.000	Jun 2023	0.000		-		0.000	0.000	0.200	-
Developmental Test & Evaluation (DT&E)	Various	VARIOUS : VARIOUS	21.931	0.000		0.000		0.000		-		0.000	0.000	21.931	-
		Subtotal	23.054	3.604		4.445		2.681		-		2.681	Continuing	Continuing	N/A

Remarks

Decrease from FY 2023 to FY 2024 is due to the completion of mounted and dismounted testing related to MFEW engineering changes that will be procured in FY 2023.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206313M / *Marine Corps Comms Systems*	Project (Number/Name) 2274 / *Command & Control Warfare Sys*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Years Cumulative Funding	Various	VARIOUS : VARIOUS	13.060	0.000		0.000		0.000		-		0.000	0.000	13.060	-
		Subtotal	13.060	0.000		0.000		0.000		-		0.000	0.000	13.060	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	87.337	21.643		29.633		22.969		-		22.969	Continuing	Continuing	N/A

Remarks

Overall decrease from FY 2023 to FY 2024 is primarily attributed to the completion of the Team Portable Middle Tier Acquisition development and mounted and dismounted testing related to MFEW engineering changes that will be procured in FY 2023.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2274 / *Command & Control Warfare Sys*

Multi-Function Electronic Warfare (MFEW) FoS

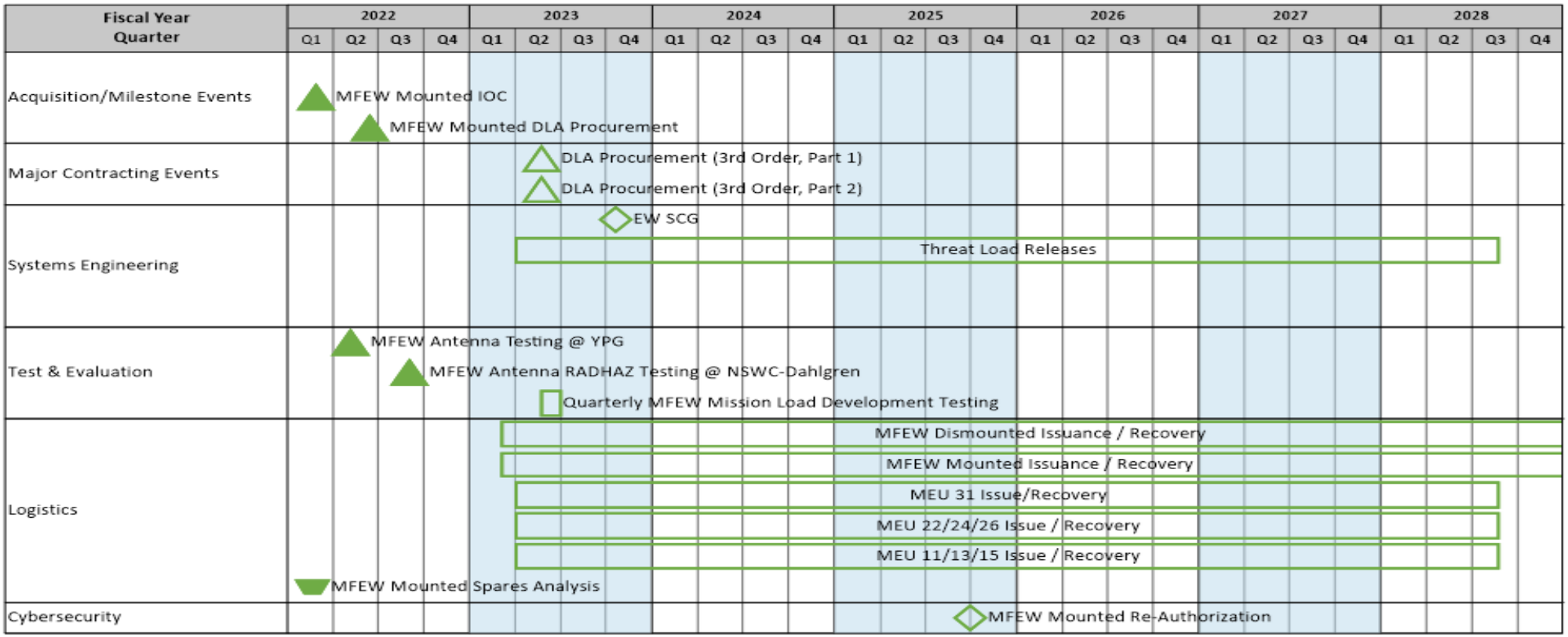


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2274 / *Command & Control Warfare Sys*

Marine Air Ground Task Force (MAGTF) Electronic Warfare (EW) Ground Family of Systems (MEGFoS)

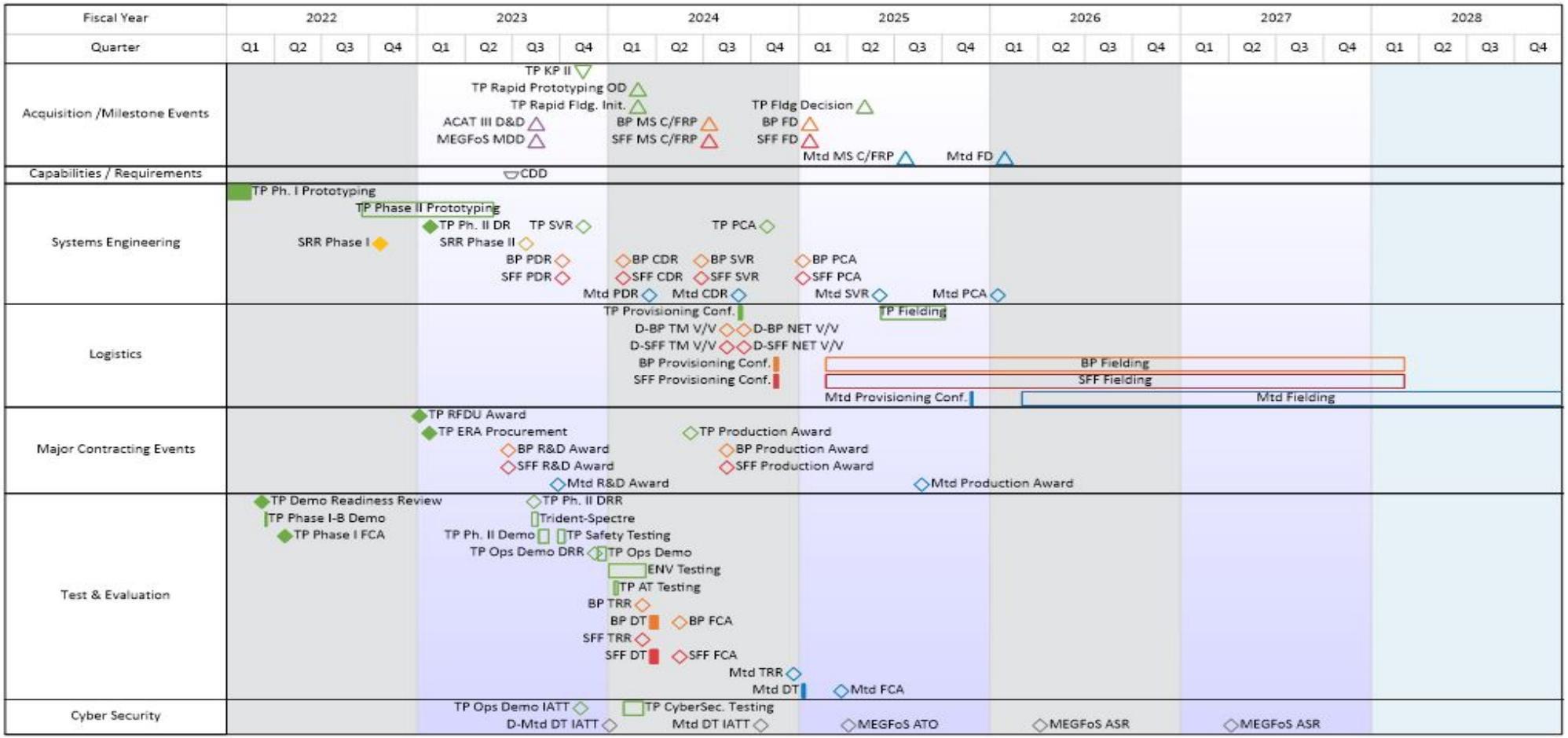


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2274 / *Command & Control Warfare Sys*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2274				
MFEW Mounted and Dismounted Issuance & Recovery	1	2023	4	2028
MFEW Mounted and Dismouted DLA Procurement	2	2023	2	2023
MFEW Mounted and Dismounted Spares DLA Procurement	2	2024	2	2024
MEGFoS Team Portable Phase II Test and Ops Demo	3	2023	3	2023
MEGFoS Dismounted and Mounted MDD	3	2023	3	2023
MEGFoS Team Portable Rapid Prototyping Outcome Decision	2	2025	2	2025
MEGFoS Dismounted Milestone C/FRP	3	2024	3	2024
MEGFoS Team Portable Fielding Decision	2	2025	2	2025

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206313M / *Marine Corps Comms Systems*	Project (Number/Name) 2275 / *Marine Corps Tactical Radio Systems*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2275: *Marine Corps Tactical Radio Systems*	92.427	14.683	17.566	47.985	-	47.985	34.813	24.025	23.757	16.809	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Tactical Communications Modernization (TCM): TCM contains multiple CMC Force Design programs. TCM supports the research, testing, and evaluation of non-developmental tactical voice and data radio systems for mounted and dismounted operations within all echelons of the Marine Air-Ground Task Force. The testing will ensure the communication systems are joint networking capable and support National Security Agency (NSA) Communications Security (COMSEC) Modernization requirements. The funding provides contracted engineering support, facility test support, and test reporting for multiple systems. These include the Mobile User Objective System (MUOS), High Frequency Radio II (HFR II), and Multi-Channel Radio Family of System (MCR FoS) [Multi-Channel Man Pack (MCMP) and Multi-Channel Handheld (MCHH)] radios, Ground Link-16, antennas, current systems requiring updates or obsolescence issues, and Joint Enterprise Network Manager (JENM). Systems Planning Engineering Evaluation Device (SPEED) is a USMC government-off-the-shelf software program for communications planning and analysis. SPEED provides the Marine Corps and other services with a standard set of software tools used to perform radio link engineering and propagation analysis studies in support of a tactical environment.

Networking on the Move (NOTM): NOTM is a critical CMC Force Design program, essential to achieving Force Design initial operational capability (IOC) in FY 2023 and sustaining the momentum to achieve Force Design full operational capability (FOC) by 2030. NOTM is a critical enabler for "Command and Control (C2) in a Degraded Environment," a Force Design 2030 Line of Effort. NOTM enables persistence inside contested environments, and the conduct of sea denial operations as part of the Naval Expeditionary Force. NOTM achieves this by providing a state-of-the-art turn-key open architecture solution that enables forces to exercise command and control across operational domains - land, sea, air, and while transitioning between domains, by providing terrestrial line of sight and beyond line of sight satellite communication gateway services, and access to services and applications that enable forces to exercise command and control while transitioning between static and mobile positions. NOTM provides critical radio, voice, and data command and control links to key leaders in dynamic environments across multiple domains. The USMC has two NOTM programs, the NOTM Ground Combat Vehicle (NOTM-GCV), and the NOTM Airborne (NOTM-A) with requirements to field kits for the following platforms: High Mobility Multipurpose Wheeled Vehicle (HMMWV), Joint Light Tactical Vehicle (JLTV), Amphibious Assault Vehicle (AAV), Amphibious Combat Vehicle (ACV), Ultra-Light Tactical Vehicle (ULTV), KC-130J Hercules and MV-22 Osprey. One NOTM system for HMMWV, JLTV, and AAV consists of three vehicles per system ((1) Point of Presence (POP) and (2) Staff Vehicles). Each NOTM system for ULTV, ACV, and airborne platforms consists of one vehicle per system (POP vehicle). NOTM also supports Navy shipboard integration by installing NOTM Tactical Entry Point (TEP) Modem Kits on Amphibious L-class ships to provide services to Marine Littoral Regiment (MLR) forces ashore. COSMOS details are held at a higher classification.

Wideband Satellite Communications (WSATCOM) (formerly VSAT): This is a critical CMC Force Design program. WSATCOM is an integrated satellite communications family of systems (FoS) that is the primary beyond line-of-sight (BLOS) communications platform for the MAGTF. This FoS supports the expeditionary advanced base operations concept by enabling communication throughout all levels of distributed MAGTF operations. WSATCOM systems' modular architecture supports technology insertion through scalable and flexible SATCOM technologies. WSATCOM uses commercial Ku and military X and Ka frequency bands to provide BLOS connectivity to

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2275 / *Marine Corps Tactical Radio Systems*

support intra-MAGTF communications (NIPRNET, SIPRNET, telephony) at all levels of the MAGTF. It directly and indirectly supports the seven functions of information operation concepts, enabling commanders at all levels to reliably command and control forces and to support a wide range of information operation missions. Individuals of this FoS include Very Small Aperture Terminal (VSAT) Small, Medium, and Large. These systems are being replaced by the Marine Corps Wide-Band SATCOM (MCWS) Expeditionary (MCWS-X), and Light and Heavy (MCWS-L/H) and FY 2024 will focus on testing of the MCWS-L/H test assets systems.

Secure Mobile Anti-Jam Reliable Tactical-Terminal (SMART-T): SMART-T provides tactical users with protected data and voice via Advanced Extremely High Frequency (AEHF) satellite communications. The SMART-T system is transported on High Mobility Multipurpose Wheeled Vehicles (HMMWVs), providing MAGTF Commanders a secure, survivable, long-haul, low/medium data rate communications link not subject to terrain masking and horizon limitations. The SMART-T is the only USMC asset that possesses a SATCOM AEHF capability.

Terrestrial Wideband Transmission Systems (TWTS): This is a CMC Force Design program. TWTS is a portfolio that provides the Fleet Marine Force with the capabilities of high throughput secure Beyond Line of Sight (BLOS) and Line of Sight (LOS) terrestrial digital data transmission. TWTS consists of systems that are Leading Readiness Indicators for the Marine Corps Force Design Effort supporting the conduct of Command and Control in a degraded environment. The Next Generation Troposcatter (NGT) will provide the BLOS capability, which is currently in the Engineering and manufacturing Development Phase. The NGT capability will provide significantly higher bandwidth communications over longer distances compared to the Army/Navy Transportable Radio Communications-170A (AN/TRC-170A) that has been in operations and sustainment since 1992. The Line-of-Sight Radio System Family of Systems (LRS FoS) which began fielding in FY 2022, and an optical communications system. The LRS FoS will provide Naval integration over long distances with both shore-to-shore and shore-to-ship connectivity. This capability is critical to the Force Design goals of establishing resilient communications architectures capable of closing kill webs in austere environments. LRS FoS includes a Transit Case based system for operational flexibility and the Tactical Elevated Antenna Mast II (TEAMS II) which provides the antenna height needed for transmitting over significant distances. The optical communications system operates outside of the Radio Frequency spectrum to provide Marines with an extremely high data rate communications pathway. The capabilities within the TWTS portfolio will modernize the Marine Corps ability to connect networks over long distances in contested and satellite denied environments.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: TCM: Product Development	0.254	5.804	22.424	0.000	22.424
Articles:	-	-	-	-	-
FY 2023 Plans: - Initiate MBR-II replacement development Continue funding the Marine Corp's fair share cost for development of the Joint Enterprise Network Manager (JENM) application required for MUOS. - Fund the procurement of antenna test asset and support during test events. (This initiative supports the following National Defense Strategy objective: sustain joint force military advantage)					
FY 2024 Base Plans: - Continue development efforts related to Multi-Band Radio II (MBR II) replacement systems.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2275 / *Marine Corps Tactical Radio Systems*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Continue funding the Marine Corp's fair share cost for development of the Joint Enterprise Network Manager (JENM) application required for MUOS. - Initiate SPEED software development efforts. - Initiate Waveform Modernization efforts to include MUOS, SATURN, SINCGARS Frequency Hop, and WREN. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase reflects the initiation of MBR II replacement development efforts, SPEED software development and waveform modernization efforts.					
Title: TCM: Engineering and Program Support	2.674	2.022	3.632	0.000	3.632
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue engineering and support efforts for USMC Tactical radios, such as Multi-Channel Radios, High Frequency Radios, Multi Band Radios, HALO C2, Ground Link-16, as well as crypto modernization efforts. ***FY 2024 Base Plans:*** - Continue engineering and support efforts for USMC Tactical radios, such as Multi-Channel Radios, High Frequency Radios, Multi Band Radios, SPEED, Ground Link-16, Halo C2 as well as complete crypto modernization efforts. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase reflects additional support associated with SPEED developmental efforts and Ground LINK-16 requirements.					
Title: TCM: Test and Evaluation Support	2.181	0.716	0.730	0.000	0.730
Articles:	-	-	-	-	-
FY 2023 Plans: - Fund test events including software development test, road shock, shake and vibration testing and MIL-STD testing for TCM FoS and system updates or obsolescence. ***FY 2024 Base Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Conduct Ground Link-16 software ECP testing. - Conduct ECP testing for MCMP, MCHH, HFR II, MBR II. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** No significant change from FY 2023 to FY 2024.					
Title: TCM: Management Services	1.276	0.737	0.752	0.000	0.752
Articles:	-	-	-	-	-
FY 2023 Plans: - Support FFRDC engineering and program support for the TCM Family of Systems (FoS), HFR II, MCR FoS, MBR II equipment, legacy equipment reaching obsolescence, and research/testing of new technology. ***FY 2024 Base Plans:*** - Support FFRDC engineering and program support for the TCM Family of Systems (FoS), HFR II, MCR FoS, MBR II equipment, legacy equipment reaching obsolescence, and research/testing of new technology. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** No significant change from FY 2023 to FY 2024.					
Title: NOTM: Product Development	4.324	1.602	0.728	0.000	0.728
Articles:	-	-	-	-	-
Description: Networking on the Move (NOTM) Research and Development funding supports the design, development, prototyping and Engineering for technology refresh and upgrades, system refreshes and new capabilities. ***FY 2023 Plans:*** - Complete prototyping efforts in support of NOTM Amphibious Combat Vehicle (ACV) integration. - Continue development efforts in support of network and SATCOM resiliency tools, including additional bands.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Initiate Development effort for platform agnostic quick disconnect couplings to NOTM GCV components to allow for kits to be moved to multiple vehicles. ***FY 2024 Base Plans:*** - Continue development efforts in support of network and SATCOM resiliency tools, including additional bands. - Complete Development effort for platform agnostic quick disconnect couplings to NOTM GCV components ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease reflects completion of prototyping efforts in support of NOTM ACV integration.					
Title: NOTM: Test and Evaluation Support	2.521	1.475	0.400	0.000	0.400
Articles:	-	-	-	-	-
Description: Networking on the Move (NOTM) Test and Evaluation funding supports acquisition testing for design, development, production, engineering and fielding of system variants and equipment upgrades. ***FY 2023 Plans:*** - Continue testing in support of network configuration and network management tool suit. - Continue integration and usability testing in support of prototype SATCOM and network management tools/ upgrades, including Transport Security (TRANSEC) and potential lower profile SATCOM Antennas. ***FY 2024 Base Plans:*** - Complete usability evaluation for platform agnostic quick disconnect couplings to NOTM GCV components - Complete integration and usability testing in support of prototype SATCOM and network management tools/ upgrades, including Transport Security (TRANSEC) and potential lower profile SATCOM Antennas. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease reflects the reduction of Transport Security (TRANSEC) solution integration and testing activities.					
Title: WSATCOM (formerly VSAT): Engineering and Program Support	0.579	0.770	0.790	0.000	0.790
Articles:	-	-	-	-	-
FY 2023 Plans:					

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Initiate engineering documentation, to include the Program Protection Plan, PSPEC, and Cyber Security Plan in support of Man-Portable Secure Anti-Jam Terminal (MSAT) and Low Earth Orbit (LEO) - Initiate Cybersecurity documentation and RMF planning for MSAT and LEO. - Support engineering events and documentation development for MCWS FoS ECPs. ***FY 2024 Base Plans:*** - Produce engineering documentation in support of NIR, FCA, SVR for MCWS-Light and Heavy in preparation for MS-C. - Provide support for development of Test and Evaluation and Cybersecurity documentation. - Provide support to engineering events and documentation development for MCWS FoS ECPs. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** No significant change from FY 2023 to FY 2024.					
Title: WSATCOM: Product Development	0.000	0.000	2.500	0.000	2.500
Articles:	-	-	-	-	-
FY 2023 Plans: N/A ***FY 2024 Base Plans:*** - Conduct research and development for the following Secure/Assured SATCOM capabilities: Protected Tactical Waveform (PTW), low probability of interception / low probability of detection (LPI / LPD), Polar, Phased Array technology, and SATCOM Diversity. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase reflects development of Secure/Assured SATCOM upgrades associated with the MCWS FoS.					
Title: WSATCOM (formerly VSAT): Management Services	0.021	0.137	0.646	0.000	0.646
Articles:	-	-	-	-	-
FY 2023 Plans:					

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Complete engineering efforts through a FFRDC in support of analysis of requirements and research for Man-Portable Secure Anti-Jam Terminal (MSAT). - Support development of MCWS FoS Concept of Employment (CONEMP). ***FY 2024 Base Plans:*** - Conduct acquisition engineering through a FFRDC to support research of Secure/Assured SATCOM. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase reflects initiation of acquisition and engineering support related to Secure/Assured SATCOM development efforts.					
Title: WSATCOM: Test and Evaluation	0.000	0.000	1.200	0.000	1.200
Articles:	-	-	-	-	-
FY 2023 Plans: N/A ***FY 2024 Base Plans:*** - Initiate Government Acceptance Testing of MCWS-Light Test Assets - Initiate developmental testing of MCWS-Light Test Assets ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase reflects initiation of developmental testing associated with MCWS-Light test assets.					
Title: COSMOS: Product Development	0.000	1.300	8.903	0.000	8.903
Articles:	-	-	-	-	-
FY 2023 Plans: - Details for COSMOS are held at a higher classification level. ***FY 2024 Base Plans:*** - Details for COSMOS are held at a higher classification level. ***FY 2024 OCO Plans:***					

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Details for COSMOS are held at a higher classification level					
Title: COSMOS: Engineering and Program Support	0.000	0.050	1.189	0.000	1.189
Articles:	-	-	-	-	-
FY 2023 Plans: - Details for COSMOS are held at a higher classification level. ***FY 2024 Base Plans:*** - Details for COSMOS are held at a higher classification level. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Details for COSMOS are held at a higher classification level.					
Title: COSMOS: Test and Evaluation Support	0.000	2.100	2.783	0.000	2.783
Articles:	-	-	-	-	-
FY 2023 Plans: - Details for COSMOS are held at a higher classification level. ***FY 2024 Base Plans:*** - Details for COSMOS are held at a higher classification level. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Details for COSMOS are held at a higher classification level.					
Title: TWTS: Test and Evaluation	0.470	0.467	0.910	0.000	0.910
Articles:	-	-	-	-	-
FY 2023 Plans: - Complete LRS FoS test and evaluation activities. - Continue test and evaluation activities for Optical Capability.					

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Continue test and evaluation activities for TEAMS II (Independent Mast) Capability. ***FY 2024 Base Plans:*** - Complete test and evaluation activities for TEAMS II (Independent Mast) Capability. - Continue test and evaluation activities for Optical Capability. - Initiate test and evaluation of waveforms, licenses, and antennas that enhance fielded system's ability to evade adversarial detection and jamming. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase reflects the initiation of test and evaluation efforts related to the waveforms, licenses, and antennas to evade adversarial detection and jamming.					
Title: TWTS: Product Development	0.383	0.386	0.398	0.000	0.398
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue support of technology scouting, prototype development, and evaluation support for TWTS programs. - Initiate product development for advanced, lightweight, non-traditional cases for TWTS systems. ***FY 2024 Base Plans:*** - Complete product development for advanced, lightweight, non-traditional cases for TWTS systems. - Continue support of technology scouting, prototype development, and evaluation support for TWTS programs. - Initiate product development of for waveforms and antennas that contribute to system and network resiliency. - Continue technology scouting and prototype development for waveforms and antennas that contribute to system and network resiliency. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** No significant change from FY 2023 to FY 2024.					
Accomplishments/Planned Programs Subtotals	14.683	17.566	47.985	0.000	47.985

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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• PMC/4633-1: *TCM*	274.279	260.357	357.713	-	357.713	136.132	143.800	123.670	126.143	Continuing	Continuing
• PMC/4631-1: *NOTM*	48.537	35.593	61.667	-	61.667	34.263	31.609	18.517	18.860	Continuing	Continuing
• PMC/4633-2: *WSATCOM (formerly VSAT)*	1.890	16.284	88.662	-	88.662	106.443	97.589	20.385	20.793	Continuing	Continuing
• PMC/4633-4: *TWTS*	166.615	204.668	57.454	-	57.454	3.549	3.624	3.696	3.770	Continuing	Continuing

Remarks

D. Acquisition Strategy

Tactical Communications Modernization (TCM): TCM will maximize the use of non-developmental radio solutions to meet the next generation of Marine Corps tactical radio requirements. The Mobile User Objective System (MUOS) testing at contracted government test labs to include environmental, shock, electromagnetic compatibility, and interoperability testing until full capability is completed. The Multi Channel Radios (MCR) Family of Systems (FoS) is an evolutionary program that will field non-developmental software defined radios (SDR) to meet the National Security Agency's (NSA) Communications Security Modernization end of Calendar Year 2024 deadline. Multi-Channel Radio Family of Systems, consists of the Multi Channel Hand Held (MCHH) and Multi-Channel Man-Pack (MCMP) systems. The MCHH system will be openly competed for Contract Award estimated in February 2022. RFP was released to industry in March 2021. The MCMP system procurement has been delayed to allow industry to resolve catastrophic heating issued that were discovered in testing, causing both a safety and performance risk. Anticipated procurement of this capability to be 4Q FY 2023 to meet COMSEC modernization by 1Q FY 2025.

Networking on the Move (NOTM): NOTM will use an evolutionary acquisition strategy that leverages Commercial-Off-The-Shelf (COTS) and Government-Off-The-Shelf (GOTS) technology to procure, sustain, and meet emerging requirements. The design of the system provides for internal growth capability through an open system architecture enabling technology refresh to extend the system's life, maintain interoperability, Information Assurance (IA) compliance, and reduce costs due to Diminishing Manufacturing Sources and Material Shortages (DMSMS). It is envisioned that technology refresh will occur on the NOTM hardware and software periodically due to component obsolescence, user-driven requests for improvements, IA compliance, and mission-related requirements. Refresh will include investments to incorporate evolving capabilities to ensure compatibility with other systems, create lighter and more efficient equipment that is platform agnostic, and keep pace with evolving software requirements. End-of-life equipment refresh is expected throughout the program's life cycle and may be managed through kit purchases, replacement through Engineering Change Proposals (ECPs), or as replacement parts as equipment is repaired.

Wideband Satellite Communications (WSATCOM)(formerly VSAT): The VSAT Family of Systems (FoS) was fielded over 10 years and as a result, many subcomponents have reached End-of-Life/End-of-Sale (EoL/EoS). The WSATCOM acquisition strategy leverages Commercial-Off-The-Shelf (COTS) technology to keep the systems relevant and capable. Program will execute the MCWS-L/H efforts using the traditional acquisition framework. PM CS will procure Non-Developmental Item (NDI) technology. Market research and industry responses indicated that MCWS-L/H requirements can be met through integration of NDI. Specific areas of focus include a reduction of Size, Weight, and Power from the legacy VSAT FoS, as well as open architecture features to support future upgrades such as modem replacements and security enhancements. MCWS L/H is designated as an ACAT-IVT, with entrance into the acquisition framework at post MS B. Milestone Decision Authority (MDA)

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is delegated to the Portfolio Manager (PfM) Command Element Systems (CES). The acquisition for MCWS-L/H will be sought through full and open competition. The program office plans to award an Indefinite Delivery/Indefinite Quantity (IDIQ) for test assets and production quantities. The first ordering period will be for MCWS-L and MCWS-H test asset development and testing, and follow-on ordering periods will be for MCWS-L and MCWS-H production quantities.

Secure Mobile Anti-Jam Reliable Tactical-Terminal (SMART-T): SMART-T is an Army led, ACAT II program. The Marine Corps SMART-T has fielded the full Authorized Acquisition Objective (AAO) of 42 terminals and 35 AN/PSQ-17 Network Planning tools and completed the Advanced Extremely High Frequency (AEHF) upgrades. The SMART-T Project Office will procure non developmental items utilizing an Army contract to mitigate obsolescence, Diminishing Manufacturing Sources and Material Shortages (DMSMS), and components whose warranty has expired. This strategy will continue until a NEXGEN AEHF solution is identified.

Terrestrial Wideband Transmission Systems (TWTS): TWTS is a portfolio that provides the Fleet Marine Force with the capabilities of secure Beyond Line of Sight (BLOS) and Line of Sight (LOS) terrestrial digital data transmission. The BLOS capability will be provided by the Next Generation Troposcatter (NGT) which is currently in the Engineering and Manufacturing Development Phase. NGT procurements for testing and fielding are being made through the Marine Corps FFP contract awarded in Q1 FY 2020. The LOS capability is being provided by the Line-of-Sight Radio System Family of Systems (LRS FoS) which is being purchased through an Army contract and began fielding in FY 2022. NGT and LRS are both Leading Readiness Indicators for the Marine Corps Force Design Effort supporting the conduct of Command and Control in a degraded environment. The LOS capability also includes an optical communications system with test assets being procured through an Other Transaction Authority (OTA) agreement and production systems being procured through a traditional contract.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
TCM JENM Development	SS/CPFF	ARL : Aberdeen, MD	6.822	0.000	Feb 2022	1.207	Feb 2023	1.012	Feb 2024	-		1.012	Continuing	Continuing	Continuing
TCM FoS Development	Various	MCSC : Quantico, VA	0.000	0.254	Jul 2022	0.590	Jun 2023	0.855	Jun 2024	-		0.855	Continuing	Continuing	Continuing
TCM SPEED Development	Various	Crane, Indiana : NSWC Crane	0.000	0.000		0.000		3.420	Mar 2024	-		3.420	Continuing	Continuing	Continuing
TCM Test Assets	C/IDIQ	PRP : San Diego, CA	4.129	0.524	Jul 2022	0.000	Mar 2023	0.456	Mar 2024	-		0.456	0.000	5.109	-
TCM MBR II PIII	C/FFP	NIWC LANT : Charleston, SC	0.000	0.000		3.752	Mar 2023	3.806	Apr 2024	-		3.806	Continuing	Continuing	Continuing
TCM Ground Link-16	MIPR	NIWC-PAC : San Diego, CA	0.000	0.000		0.255	May 2023	0.275	May 2024	-		0.275	Continuing	Continuing	Continuing
TCM MBR II Replacement P3I	TBD	MCSC : Quantico, VA	0.000	0.000		0.000		12.600	Mar 2024	-		12.600	0.000	12.600	-
NOTM Development	WR	NIWC-PAC : San Diego, CA	5.052	0.241	Dec 2021	0.242	Dec 2022	0.228	Dec 2023	-		0.228	Continuing	Continuing	Continuing
NOTM Development/ Enhancement	C/CPFF	NIWC-PAC : San Diego, CA	0.000	0.360	Dec 2021	0.360	Dec 2022	0.000		-		0.000	0.000	0.720	-
NOTM Development	C/CPFF	NIWC-LANT : Charleston, SC	7.909	3.723	Dec 2021	1.000	Dec 2022	0.500	Dec 2023	-		0.500	0.000	13.132	-
NOTM COSMOS	Various	NIWC-PAC : San Diego, CA	0.000	0.000		1.300	Nov 2022	8.903	Nov 2023	-		8.903	0.000	10.203	-
TWTS Development	C/FFP	MCSC : Quantico, VA	0.559	0.383	May 2022	0.386	Jan 2023	0.398	Jan 2024	-		0.398	0.000	1.726	-
WSATCOM Secure/Assure SATCOM	TBD	Various : Various	0.000	0.000		0.000		2.500	Aug 2024	-		2.500	0.000	2.500	-
Prior Years Cumulative Funding	Various	Various : Various	28.925	0.000		0.000		0.000		-		0.000	0.000	28.925	-
		Subtotal	53.396	5.485		9.092		34.953		-		34.953	Continuing	Continuing	N/A

Remarks

Product Development overall increase is largely attributed to the initiation of MBR II Replacement efforts, TCM SPEED software development and waveform modernization efforts as well as COSMOS product development.

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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
TCM Engineering Support Gov	MIPR	NIWC-LANT : Charleston, SC	0.000	0.000		0.386	Nov 2022	0.402	Nov 2023	-		0.402	0.000	0.788	-
TCM Engineering Support	Various	MCSC : Quantico, VA	1.127	2.674	May 2022	1.430	May 2023	2.866	May 2024	-		2.866	Continuing	Continuing	Continuing
TCM Engineering Support	C/FFP	NIWC-LANT : Charleston, SC	0.000	0.000		0.206	Jul 2023	0.364	Jul 2024	-		0.364	0.000	0.570	-
WSATCOM/VSAT Engineering Support	WR	NIWC-PAC : San Diego, CA	1.576	0.000		0.000	Oct 2022	0.000		-		0.000	Continuing	Continuing	Continuing
WSATCOM/VSAT Engineering Support	WR	NIWC-LANT : Charleston, SC	0.029	0.000		0.000		0.000		-		0.000	0.000	0.029	-
WSATCOM Engineering Support	C/FFP	MCSC : Quantico, VA	0.000	0.579	May 2022	0.770	May 2023	0.790	May 2024	-		0.790	0.000	2.139	-
SMART-T Engineering Support 2	WR	NIWC-PAC : San Diego, CA	0.021	0.000		0.000		0.000		-		0.000	0.000	0.021	-
NOTM COSMOS	Various	NIWC-PAC : San Diego, CA	0.000	0.000		0.050	Nov 2022	1.189	Nov 2023	-		1.189	0.000	1.239	-
Prior Years Cumulative Funding	Various	Various : Various	7.239	0.000		0.000		0.000		-		0.000	0.000	7.239	-
		Subtotal	9.992	3.253		2.842		5.611		-		5.611	Continuing	Continuing	N/A

Remarks

Support overall increase is largely attributed to TCM SPEED developmental efforts and Ground LINK-16 requirements as well as COSMOS support.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation (OT&E)	Various	Various : Various	7.657	0.950	Aug 2022	0.000	Aug 2023	0.000	Aug 2024	-		0.000	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	MIPR	DTIC : Fort Belvoir, VA	1.726	0.707	Nov 2021	0.716	Jan 2023	0.730	Jan 2024	-		0.730	0.000	3.879	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206313M / *Marine Corps Comms Systems*	Project (Number/Name) 2275 / *Marine Corps Tactical Radio Systems*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	NIWC-PAC : San Diego, CA	0.150	2.521	Nov 2021	1.475	Nov 2022	0.400	Nov 2023	-		0.400	0.000	4.546	-
Developmental Test & Evaluation (DT&E)	C/FFP	MCSC : Quantico	0.580	0.470	Mar 2022	0.467	Feb 2023	0.910	Jan 2024	-		0.910	0.000	2.427	-
Developmental Test & Evaluation (DT&E)	C/FFP	MCSC : Quantico, VA	0.000	0.000		0.000		1.200	Aug 2024	-		1.200	0.000	1.200	-
Developmental Test & Evaluation (DT&E)	WR	NIWC PAC : San Diego	0.000	0.000		2.100	Nov 2022	2.783	Nov 2023	-		2.783	0.000	4.883	-
		Subtotal	10.113	4.648		4.758		6.023		-		6.023	Continuing	Continuing	N/A

Remarks

Test and Evaluation overall increase is largely attributed to initiation of WSATCOM developmental testing associated with MCWS-Light test assets.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
TCM Engineering Support	FFRDC	US Army, MITRE : Stafford, VA	2.548	1.276	Jan 2022	0.737	Feb 2023	0.752	Jan 2024	-		0.752	Continuing	Continuing	Continuing
WSATCOM Engineering Support	FFRDC	US Army, MITRE : Stafford, VA	6.454	0.021	Feb 2022	0.137	Feb 2023	0.646	Jan 2024	-		0.646	Continuing	Continuing	Continuing
SMART-T Engineering Support	FFRDC	US Army, MITRE : Stafford, VA	0.508	0.000		0.000	Feb 2023	0.000		-		0.000	0.000	0.508	-
Prior Years Cumulative Funding	FFRDC	US Army, MITRE : Stafford, VA	9.416	0.000		0.000	Feb 2023	0.000		-		0.000	0.000	9.416	-
		Subtotal	18.926	1.297		0.874		1.398		-		1.398	Continuing	Continuing	N/A

Remarks

Management Services overall increase is largely attributed to engineering and program support for the TCM Family of Systems (FoS), HFR II, MCR FoS, MBR II equipment, legacy equipment reaching obsolescence, and research/testing of new technology. Increase is also attributed to WSATCOM initiation of acquisition and engineering support related to Secure/Assured SATCOM development.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206313M / *Marine Corps Comms Systems*	Project (Number/Name) 2275 / *Marine Corps Tactical Radio Systems*	

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	92.427	14.683		17.566		47.985		-		47.985	Continuing	Continuing	N/A

Remarks

Overall increase is largely attributed to initiation of TCM MBR II Replacement, SPEED software development, and waveform modernization efforts.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2275 / *Marine Corps Tactical Radio Systems*

NOTM-A and NOTM-GCV All ECPs

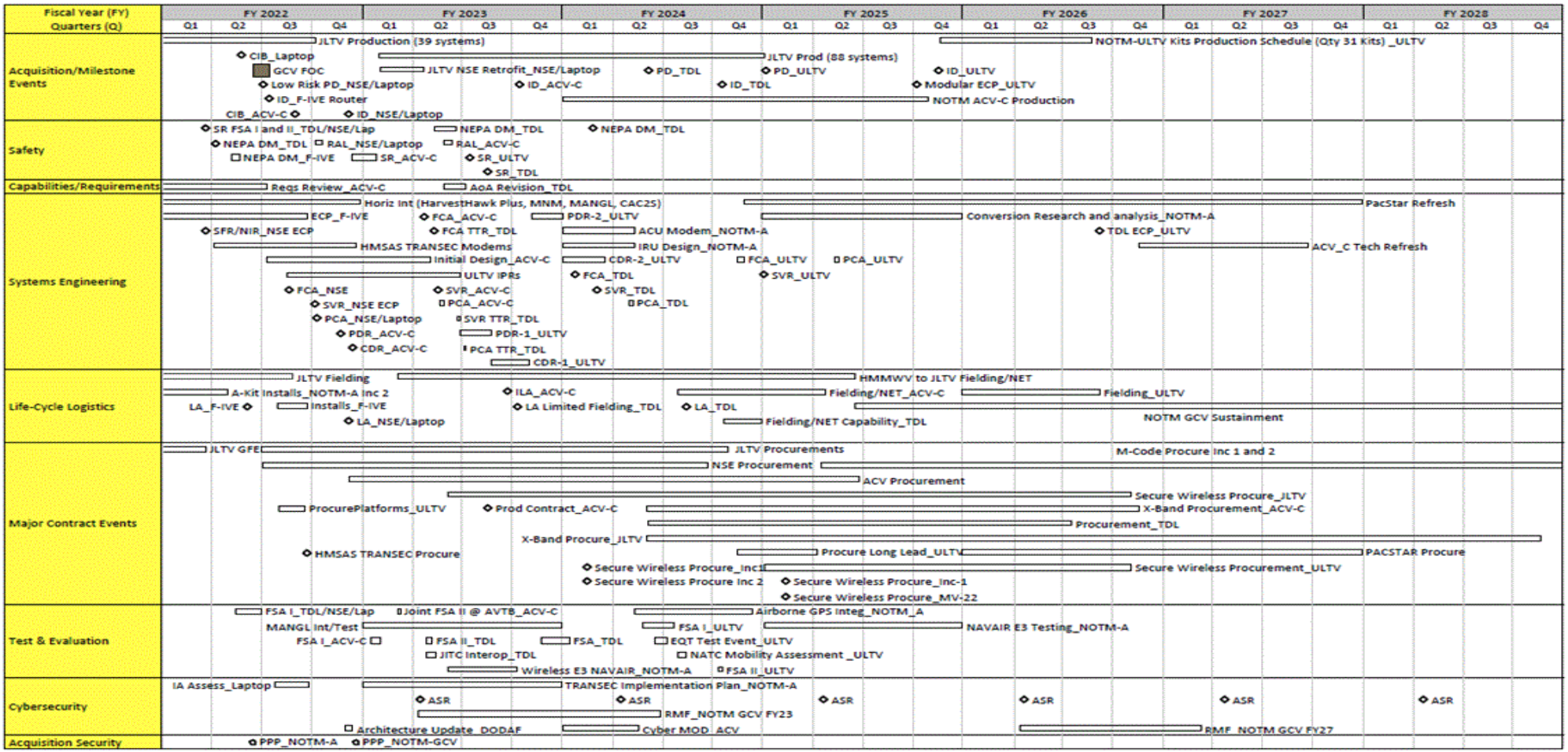


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2275 / *Marine Corps Tactical Radio Systems*

TWTS FY22-28 Schedule

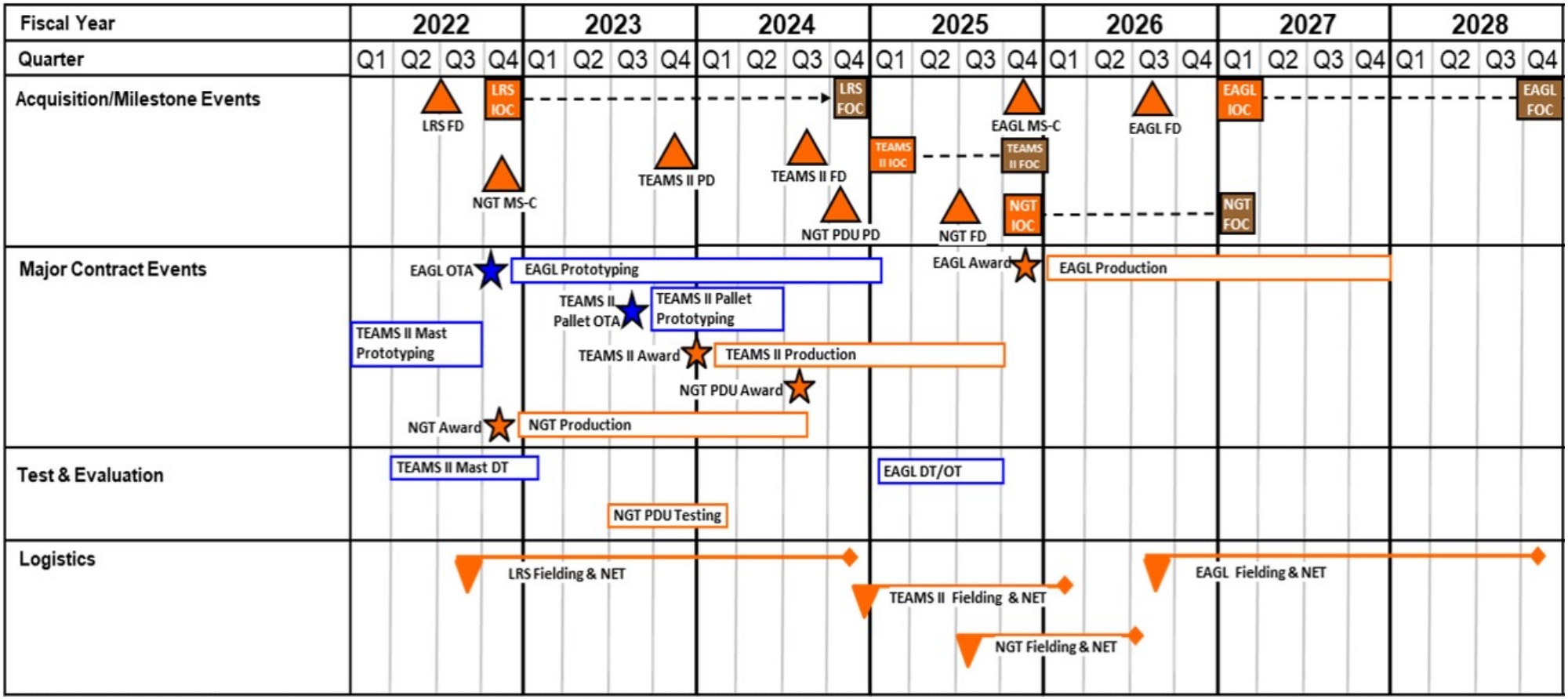
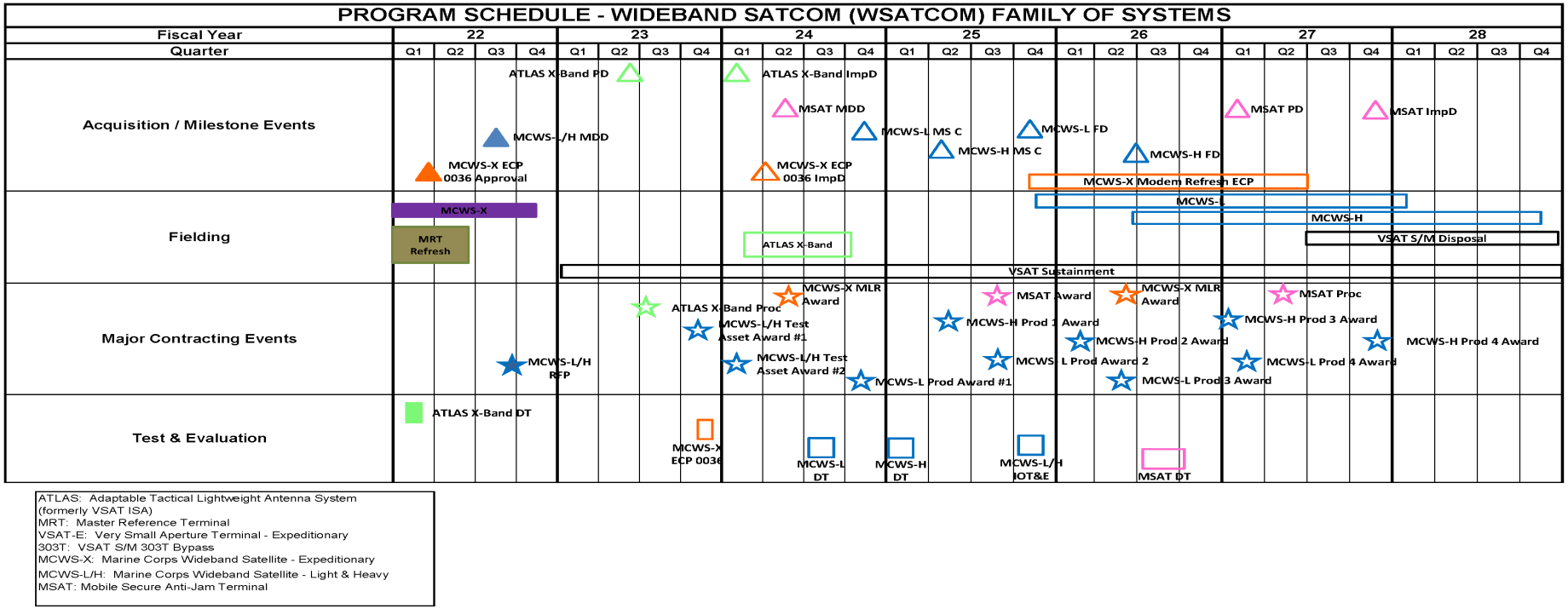


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2275 / *Marine Corps Tactical Radio Systems*



ATLAS: Adaptable Tactical Lightweight Antenna System (formerly VSAT ISA)
MRT: Master Reference Terminal
VSAT-E: Very Small Aperture Terminal - Expeditionary
303T: VSAT S/M 303T Bypass
MCWS-X: Marine Corps Wideband Satellite - Expeditionary
MCWS-L/H: Marine Corps Wideband Satellite - Light & Heavy
MSAT: Mobile Secure Anti-Jam Terminal

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2275 / *Marine Corps Tactical Radio Systems*

TCM-MCMP

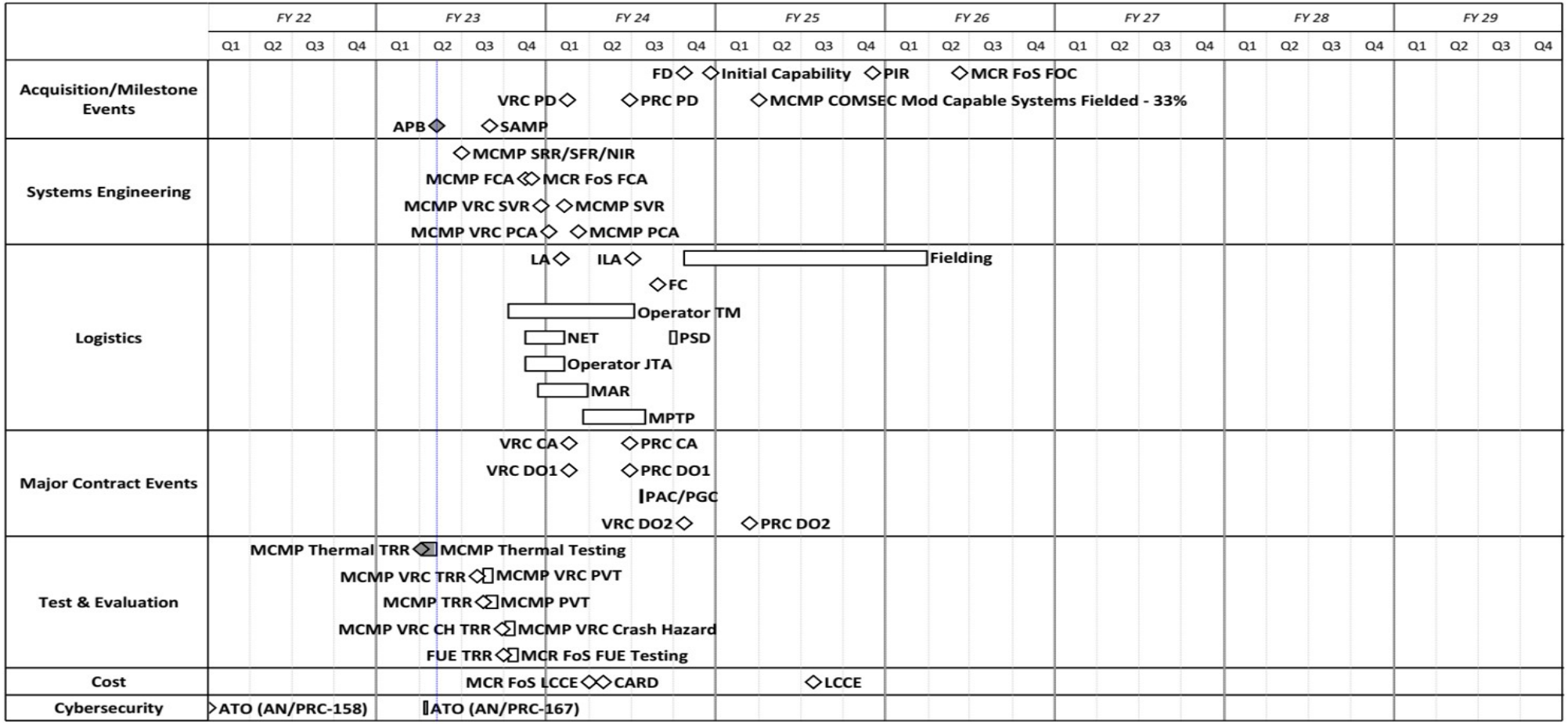


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2275 / *Marine Corps Tactical Radio Systems*

TCM-MCHH

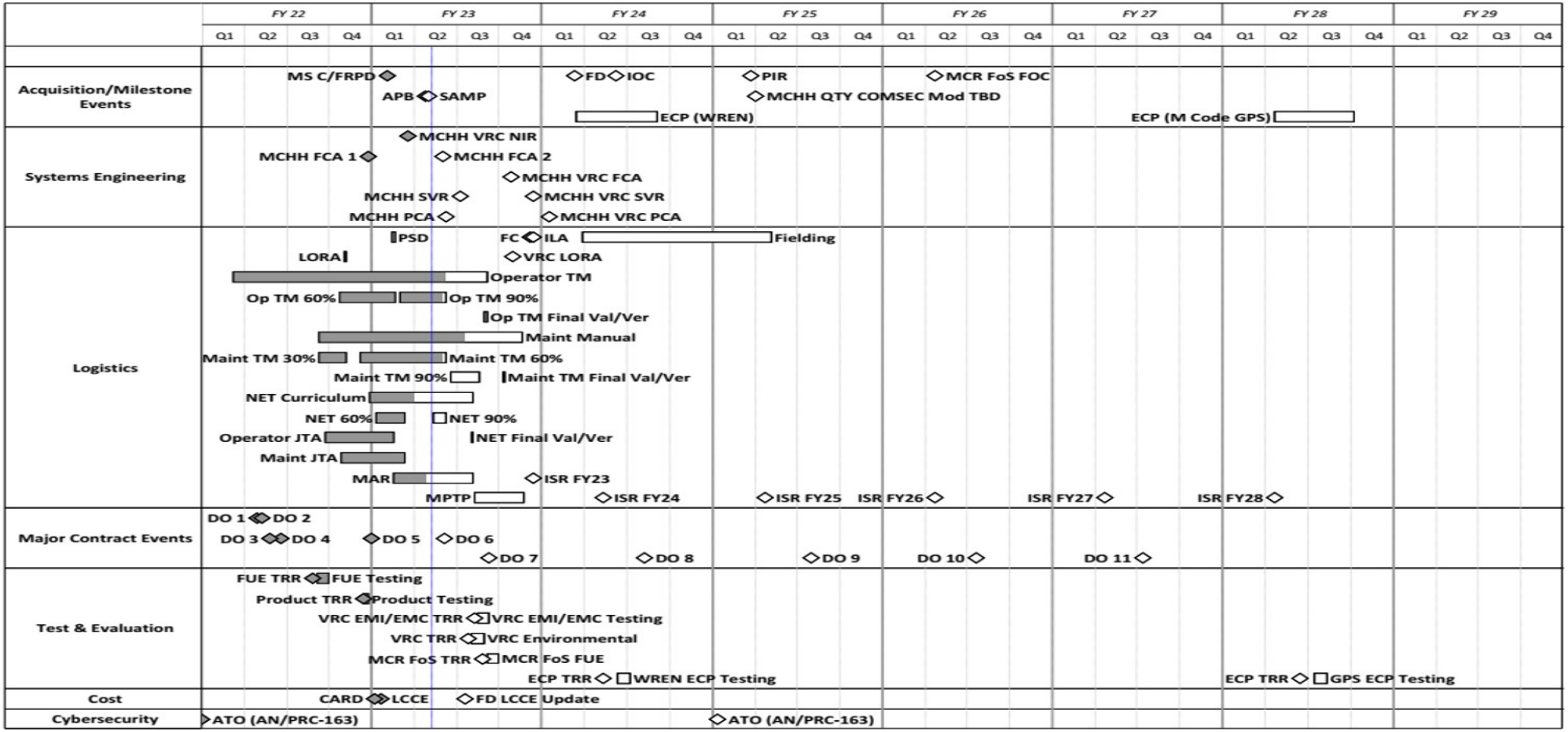


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2275 / *Marine Corps Tactical Radio Systems*

TCM-HFR II

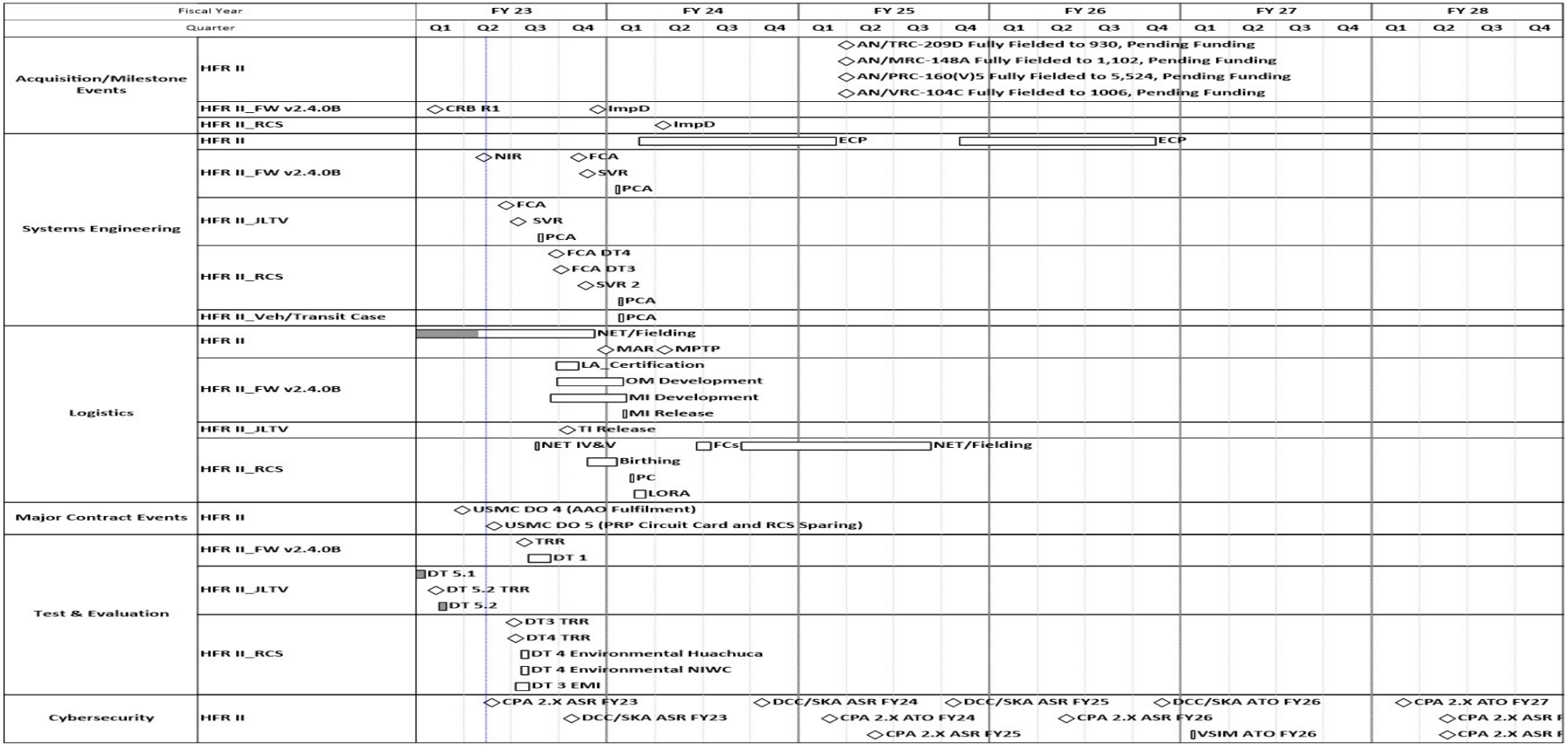


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2275 / *Marine Corps Tactical Radio Systems*

TCM-MBR II

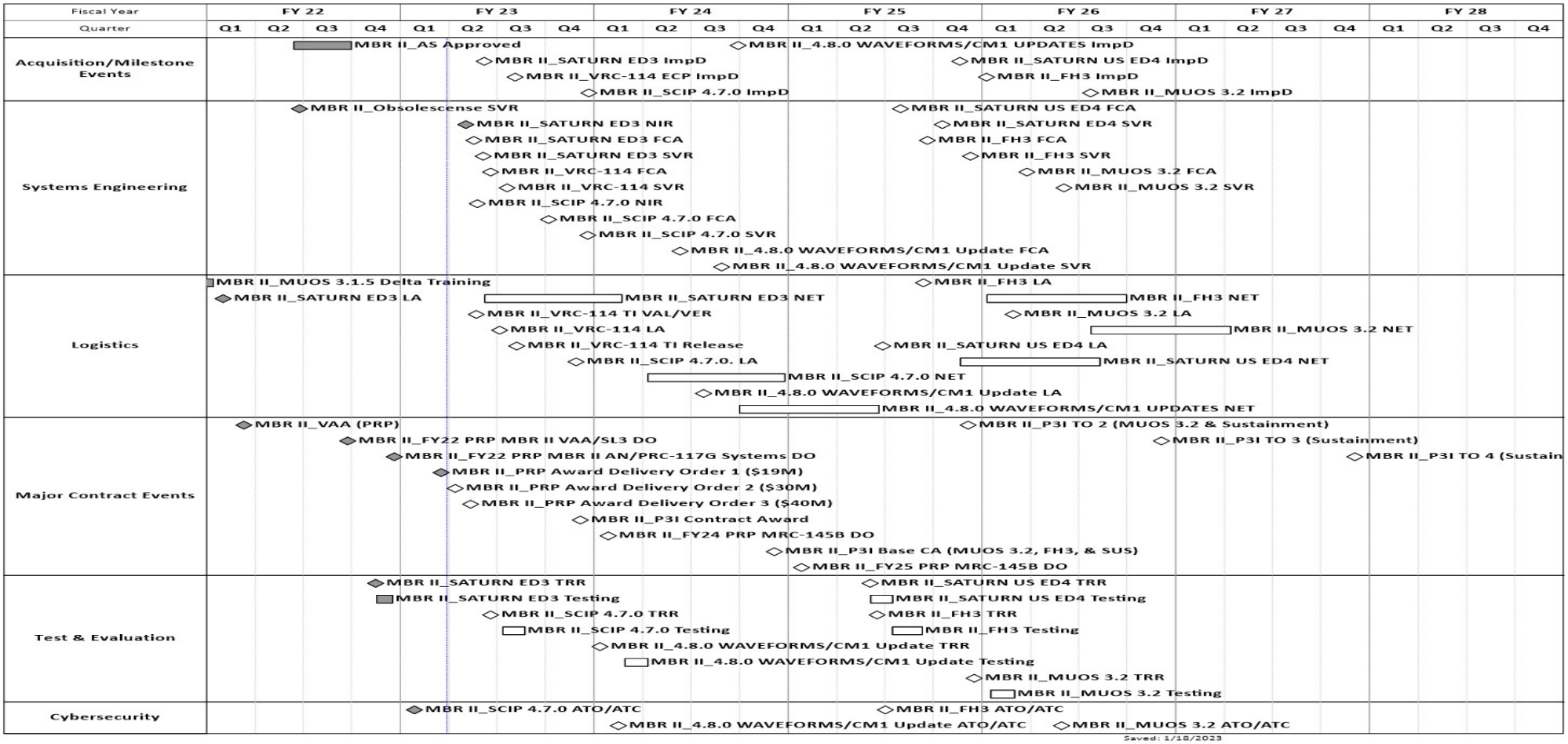


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2275 / *Marine Corps Tactical Radio Systems*

SPEED Schedule

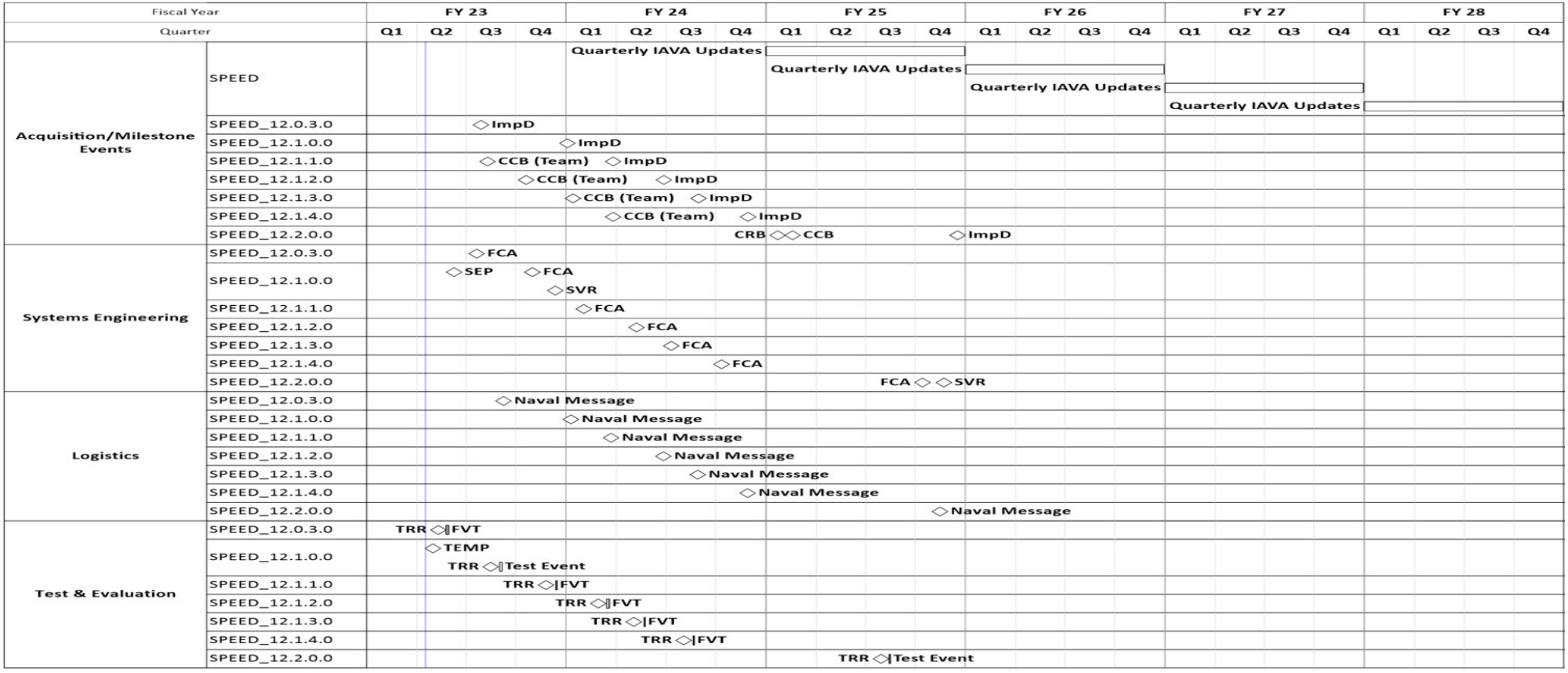


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2275 / *Marine Corps Tactical Radio Systems*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2275				
TCM MCMP: MCMP PRC Fielding and NET	4	2024	2	2026
TCM MCMP: MCMP VRC Fielding and NET	4	2024	2	2026
TCM MCMP: MCMP PRC FD	4	2024	4	2024
TCM MCMP: MCMP VRC FD	4	2024	4	2024
TCM MCMP: MCMP PRC PD	3	2024	3	2024
TCM MCMP: MCMP VRC PD	1	2024	1	2024
TCM MCMP: MCMP VRC DO 1	1	2024	1	2024
TCM MCMP: MCMP PRC DO !	3	2024	3	2024
TCM MCMP: MCMP IOC	1	2025	1	2025
TCM MCMP: MCMP FOC	2	2026	2	2026
TCM HFR II: HFR II Remotes Fielding and NET	4	2023	4	2024
TCM HFR II: HFR II Fielding and NET	1	2023	4	2023
TCM HFR II: HFR II DO #1	3	2022	3	2022
TCM HFR II: HFR II Final Operating Capability (FOC)	4	2025	4	2025
TCM HFR II: HFR II DO #2	2	2023	2	2023
TCM MCHH: Contract Award DO #1	2	2022	2	2022
TCM MCHH: PRC Procurement Decision (PD)	4	2022	4	2022
TCM MCHH: PRC FD	1	2024	1	2024
TCM MCHH: PRC DO #2	2	2022	2	2022
TCM MCHH: PRC/VRC IOC	2	2024	2	2024
TCM MCHH: VRC Procurement Decision (PD)	4	2023	4	2023

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2275 / *Marine Corps Tactical Radio Systems*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
TCM MCHH: VRC DO #1	3	2023	3	2023
TCM MCHH: VRC FD	3	2024	3	2024
TCM MCHH: VRC DO #2	2	2024	2	2024
TCM SPEED: SPEED Software Development	1	2024	2	2025
TCM SPEED: SPEED Developmental Test	2	2024	2	2024
TCM SPEED: SPEED Developmental Test 2	3	2024	3	2024
TCM SPEED: SPEED Operational Test	4	2024	1	2025
TCM SPEED: SPEED UI/UX User Feedback	1	2024	4	2024
NOTM: NOTM Preliminary Design Review (PDR) Amphibious Combat Vehicle- C	1	2022	1	2022
NOTM: NOTM Critical Design Review (CDR) Amphibious Combat Vehicle- C	2	2022	2	2022
NOTM: NOTM Systems Verification Review (SVR) Amphibious Combat Vehicle- C	2	2023	2	2023
NOTM: NOTM Technical Data Link Systems Verification Review (SVR) 2	1	2024	1	2024
NOTM: NOTM Ultra Light Tactical Vehicle Systems Verification Review (SVR)	4	2024	1	2025
TWTS: TWTS TEAMS II Mast Prototype Testing	2	2022	1	2023
TWTS: TWTS TEAMS II Development Testing	2	2022	1	2023
TWTS: TWTS Optical Prototype Award	4	2022	4	2022
TWTS: TWTS TEAMS II Procurement Decision	4	2023	4	2023
TWTS: TWTS TEAMS II Contract Award	4	2023	4	2023
TWTS: TWTS TEAMS II Fielding Decision	3	2024	3	2024
TWTS: TWTS NGT PDU Procurement Decision	4	2024	4	2024
TWTS: TWTS NGT PDU Award	4	2024	4	2024
TWTS: TWTS Optical Development Testing	1	2025	3	2025
TWTS: TWTS Optical Operational Testing	2	2025	3	2025
WSATCOM: WSATCOM MCWS-L/H Test Asset Award DO #1	4	2023	4	2023
WSATCOM: WSATCOM MCWS-L/H Test Asset Award DO #2	1	2024	1	2024

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2275 / *Marine Corps Tactical Radio Systems*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
WSATCOM: WSATCOM MCWS-Light Test Asset Developmental Test	3	2024	3	2024
WSATCOM: WSATCOM MCWS-Heavy Test Asset Developmental Test	1	2025	1	2025
WSATCOM: WSATCOM MCWS-Light Production Award DO #1	4	2024	4	2024
WSATCOM: WSATCOM MCWS-Light Fielding Decision	4	2025	4	2025
WSATCOM: WSATCOM MCWS-Heavy Fielding Decision	3	2026	3	2026
WSATCOM: WSATCOM MCWS-X MLR Award	2	2024	2	2024
TCM Ground Link-16: Ground Link-16 Fielding and NET	2	2024	3	2025
TCM Ground Link-16: Ground Link-16 Procurement Decision	1	2024	1	2024
TCM Ground Link-16: Ground Link-16 Fielding Decision	2	2024	2	2024

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206313M / *Marine Corps Comms Systems*	Project (Number/Name) 2276 / *Comms Switching and Control Sys*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2276: *Comms Switching and Control Sys*	54.480	4.053	2.122	1.008	-	1.008	2.955	2.224	1.703	1.737	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Combat Data Network (CDN): The CDN provides a modular, integrated and interoperable suite of deployable network infrastructure equipment that facilitates network, routing, switching and hosting capability across all tactical echelons of the Marine Air-Ground Task Force (MAGTF). CDN enables Non-secure Internet Protocol Router Network (NIPRNet), Secret Internet Protocol Router Network (SIPRNet) and coalition network enclaves and serves as the hardware component responsible for hosting the Marine Corp's tactical cloud (Common Hosting Environment (CHE)). The CHE tactical cloud hosts warfighting applications and services that support Command and Control (C2) at the tactical edge. The CDN bridges the gap between current capabilities and the future of the tactical data communications backbone, Operational Command Post (OCP). The Operational Command Post delivers distinct new capabilities to the MAGTF enhancing tactical maneuverability, dispersion, signature management, and situational awareness. OCP takes existing networking and cloud capabilities, modernizes these capabilities, and delivers the Fleet Marine Force tactical users one intuitive System of Systems (SoS) capable of being deployed in numerous fashions to support unique mission sets.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: CDN/OCP: Product Development	3.055	1.240	0.095	0.000	0.095
Articles:	-	-	-	-	-
Description: CDN/OCP Product Development: Funds support sustainment and modernization of existing CDN network infrastructure and technology insertion of new capabilities under OCP.					
FY 2023 Plans: - Continue development of required hardware/software upgrades to support cloud-based technologies and mitigate obsolescence and cybersecurity risks, in addition to activities associated with OCP enhancements. Development efforts will focus on integration and testing of components selected for technology refresh and incorporation of new capabilities.					
FY 2024 Base Plans: - Continue development of required hardware/software upgrades to support cloud-based technologies and mitigate obsolescence and cybersecurity risks, in addition to activities associated with OCP enhancements. Development efforts will focus on integration and testing of components selected for technology refresh and incorporation of new capabilities.					
FY 2024 OCO Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2276 / *Comms Switching and Control Sys*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease from FY 2023 to FY 2024 reflects the completion of product development efforts associated with OCP capabilities.					
Title: CDN/OCP: Developmental Test and Evaluation	0.563	0.882	0.913	0.000	0.913
Articles:	-	-	-	-	-
Description: CDN/OCP Developmental Test and Evaluation: Funds testing and evaluation support for sustainment and modernization of existing CDN network infrastructure and technology insertion of new capabilities under OCP. ***FY 2023 Plans:*** - Continue to support test and evaluation of the CDN system, to include upcoming technology refreshes for servers and firewalls, upgrades to the hosting environment, joint interoperability testing and demonstration, and new capabilities in support of transitioning to OCP. ***FY 2024 Base Plans:*** - Continue to support test and evaluation of the CDN system, to include upcoming technology refreshes, upgrades to the hosting environment, joint interoperability testing and demonstration, and new capabilities in support of transitioning to OCP. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY 2023 to FY 2024 reflects test and evaluation efforts associated with the OCP technology insertion.					
Title: CDN: Management Services	0.435	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: CDN Management Services: : Funds Federally Funded Research and Development Contracts (FFRDC) support for technology research and assessments for CDN sustainment/modernization and OCP new capabilities and enhancements. ***FY 2023 Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2276 / *Comms Switching and Control Sys*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A ***FY 2024 Base Plans:*** N/A ***FY 2024 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	4.053	2.122	1.008	0.000	1.008

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• PMC/4634: *CDN*	41.268	42,507.000	45.217	-	45.217	39.892	40.230	40.948	41.768	Continuing	Continuing

Remarks

D. Acquisition Strategy

CDN maximizes the use of commercial and government off the shelf technologies to maintain and modernize the core deployable tactical network capability for the Marine Corps. CDN leverages a variety of external contracts and government warfare centers to upgrade fielded hardware and software to mitigate obsolescence and cybersecurity risks, in addition to maintaining interoperability with Joint and Coalition forces and compatibility with other critical Marine Corps command and control capabilities. Research, development, test, and evaluation efforts will focus on integration and testing of next generation hardware components, enhancements to the Common Hosting Environment (CHE), and technology insertion of new capabilities supporting the transition to Operational Command Post (OCP). OCP will be the successor to CDN and provide critical technology enhancements and advanced capabilities to the existing tactical network infrastructure in order to enable Force Design 2030 objectives at the tactical edge. Key OCP enhancements include: National Security Administration (NSA) approved secure wireless connectivity, cross domain solutions (CDS) to allow for secure transfer of data, Radio over Internet Protocol (RoIP), tactical chat, Mission Partner Environment, cellular connectivity, tactical cloud enhancements, and hosting of Artificial Intelligence and Machine Learning (AI/ML) capabilities.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206313M / *Marine Corps Comms Systems*	Project (Number/Name) 2276 / *Comms Switching and Control Sys*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CDN Development Efforts	MIPR	NIWC-LANT : Charleston, SC	4.547	3.055	Jun 2022	1.240	Feb 2023	0.095	Feb 2024	-		0.095	Continuing	Continuing	Continuing
CDN EFFORTS	C/FFP	MCTSSA : Camp Pendleton, CA	0.000	0.000		0.000		0.000	May 2024	-		0.000	0.000	0.000	-
Prior Year Cumulative Funding	Various	Various : Various	30.590	0.000		0.000		0.000		-		0.000	0.000	30.590	-
		Subtotal	35.137	3.055		1.240		0.095		-		0.095	Continuing	Continuing	N/A

Remarks

Decrease from FY 2023 to FY 2024 to the completion of product development efforts associated with OCP capabilities.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Cumulative Funding	Various	Various : Various	5.696	0.000		0.000		0.000		-		0.000	0.000	5.696	-
		Subtotal	5.696	0.000		0.000		0.000		-		0.000	0.000	5.696	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	MIPR	NIWC Pacific : San Diego, CA	2.092	0.563	Jun 2022	0.563	Mar 2023	0.586	Mar 2024	-		0.586	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	Various	Various : Various	2.886	0.000		0.000		0.000		-		0.000	0.000	2.886	-
Developmental Test & Evaluation (DT&E)	MIPR	NSWC Indian Head : Indian Head, MA	0.000	0.000		0.319	Mar 2023	0.327	Mar 2024	-		0.327	0.000	0.646	-
		Subtotal	4.978	0.563		0.882		0.913		-		0.913	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206313M / *Marine Corps Comms Systems*	Project (Number/Name) 2276 / *Comms Switching and Control Sys*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Increase from FY 2023 to FY 2024 reflects test and evaluation efforts in support of Operational Command Post (OCP) technology insertion.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CDN	FFRDC	MITRE : Stafford, VA	3.137	0.435	Jun 2022	0.000	Dec 2022	0.000		-		0.000	Continuing	Continuing	Continuing
Prior Year Cummulative Funding	FFRDC	MITRE : Stafford, VA	5.532	0.000		0.000		0.000		-		0.000	0.000	5.532	-
		Subtotal	8.669	0.435		0.000		0.000		-		0.000	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	54.480	4.053		2.122		1.008		-		1.008	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2276 / *Comms Switching and Control Sys*

CDN/OCP

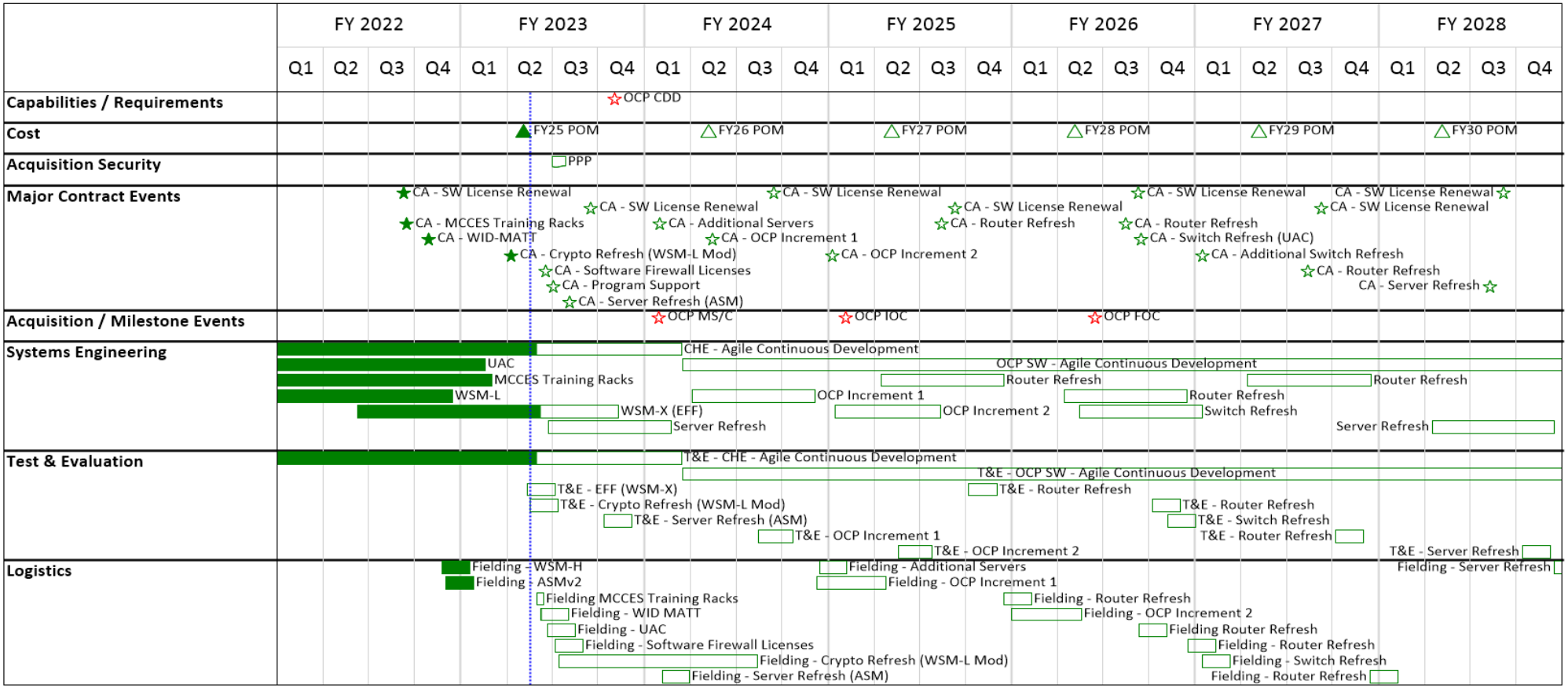


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2276 / *Comms Switching and Control Sys*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2276				
OCP CDD	4	2023	4	2023
CA - MCCES TRAINING RACKS	3	2022	3	2022
CA - WID-MATT	3	2022	3	2022
CA - CRYPTO REFRESH (WSM - L MOD)	2	2023	2	2023
CA - SOFTWARE FIREWALL LICENSE	2	2023	2	2023
CA - PROGRAM SUPPORT	2	2023	2	2023
CA - SERVER REFRESH	3	2022	3	2022
CA - OCP INCREMENT 1	2	2024	2	2024
CA - OCP INCREMENT 2	1	2025	1	2025
CA - ROUTER REFRESH	3	2025	3	2025
OCP MS/C	1	2024	1	2024
OCP IOC	1	2025	1	2025
OCP FOC	2	2026	2	2026

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206313M / *Marine Corps Comms Systems*	Project (Number/Name) 2277 / *System Engineering and Integration*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2277: *System Engineering and Integration*	47.406	1.873	4.767	17.846	-	17.846	14.969	9.535	6.376	6.503	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Systems Engineering and Integration provides funding for engineering, test, and evaluation activity, which ensures that the systems being developed within the Program Element (PE) employ consistent standards for interoperability, and to the maximum extent feasible, use of hardware and software which is uniform and standard across programs.

Expeditionary Energy Office (E2O): The Commandant established the USMC Expeditionary Energy Office (E2O) with the mission to analyze, develop, and direct the Marine Corps' energy strategy in order to optimize expeditionary capabilities across all warfighting functions. E2O's role is to advise the Marine Requirements Oversight Council (MROC) on all energy and resource related requirements, acquisitions, and programmatic decisions. This office, both personnel and funding, directly supports execution of the USMC Expeditionary Energy Strategy and Implementation Plan, and priorities identified in Force Design 2030. The Marine Corps program aligns with the Commandant's Planning Guidance, the National Defense Authorization Act, DoD directives and SECNAV goals. This funding will support the achievement of the Strategy, and the activities of the USMC Expeditionary Energy Concepts process, managed by the E2O.

Joint Interoperability of Tactical Command and Control Systems (JINTACCS) is a Joint Chiefs-of-Staff (JCS)/DoD-mandated program for joint development, implementation, and testing of tactical data links and US Message Text Format (MTF) under the direction of the Defense Information Systems Agency (DISA) and Office of the Secretary of Defense/ Networks and Information Integration (OASD/NII) per the Commander Joint Chiefs of Staff (CJCSI) Instructions 6610.01F and CJCS16241.04 respectively. This effort also covers interoperability analyses, standardization, and testing of tactical message standards such as Link 16, Joint Range Extension Application Protocol (JREAP), and Variable Message Format (VMF) used between the Marine Corps and joint forces. Responsible for the development of Net Centric standards (XML, Web Services) to meet requirements of USMC/DoD/Coalition Net Centric Data Strategies. Efforts in this area include Marine Corps representation in tactical data link and tactical data message joint working groups and configuration control boards and application of the Interoperability Enhancement Process (IEP) across Marine Air Ground Task Force systems and platforms.

Systems Engineering, Integration and Coordination (SEIC) is MCSC Chief Engineer's systems engineering and integration program. SEIC provides the decision support tools and engineering analysis resources needed to assess, identify and resolve Marine Air Ground Task Force (MAGTF) inter-systems' Systems of Systems (SoS) issues and challenges. SEIC supports DC CD&I, DC PP&O, DC A, DC I&L, DC M&RA, HQMC C4, and HQMC INT in the analysis, evaluation, and assessment of MAGTF Systems and SoS requirements. SEIC centralized management of Command, Control, Communications, Computers and Intelligence Surveillance and Reconnaissance (C4ISR) programs allows the implementation of systems engineering certification process in support of milestone decision approval; a requirements and functional analysis process enabling system of systems engineering and an overarching C4ISR systems architecture, and a product realization process to support budget decisions. SEIC engineering conducts functional analyses for emergent system of systems challenges and ensures seamless integration and maximum interoperability of materiel across USMC, Naval, Joint, and DoD programs consistent with the Commandant's Vision and Strategy 2025.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2277 / *System Engineering and Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Expeditionary Energy Office (E2O)	1.291	2.054	13.770	0.000	13.770
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue to support the USMC Expeditionary Energy Strategy and Implementation Plan, as well as the USMC Expeditionary Energy Water and Waste Initial Capabilities Document. - Continue to evaluate technologies for small unit power informing the Acquisition Requirement Micropower. - Initiate R&D efforts that explore and quantify engineering characteristics that promote battlefield electrification in support of Presidential Climate Change directives.					
FY 2024 Base Plans: - Continue to support the USMC Expeditionary Energy Strategy and Implementation Plan, as well as the USMC Expeditionary Energy Water and Waste Initial Capabilities Document. - Continue to evaluate technologies for small unit power in order to inform the Acquisition Requirement for power generation. - Continue to support R&D efforts that explore and quantify engineering characteristics that promote battlefield electrification in support of Presidential Climate Change directives. - Initiate alternative energy technologies that will replace legacy systems per Force Design (FD) 2030. - Initiate an aviation ground support equipment electrification testing and evaluation effort to support DoD energy and climate objectives. - Initiate alternate energy efforts to include man-portable hydrogen fuel cell (HFC) generator prototyping, water production via HFC exhaust capture, HFC battery electric vehicle direct current (DC) fast charging system for tactical and contingence operations, and compressed hydrogen storage aviation testing and airworthiness standards development. - Initiate efforts exploring highly efficient, high power, and lightweight range extenders for battery dominant hybrid electric vehicles and modular nuclear reactors. - Initiate testing and evaluation of advanced fuel filter technology that would drastically reduce weight and space, compared to current versions, and will potentially replace fuel filters throughout the Marine Corps. - Initial the research and development for the replacement of the Helicopter Expeditionary Refueling System (HERS), Hose Reel System (HRS), Ground Expeditionary Refueling System (GERS), and the Beach Receiving Unit (BRU). Currently systems contain legacy equipment that greatly limits capability, throughput, and storage.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2277 / *System Engineering and Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Initiate testing and evaluation of Artic FARP capabilities. The Marine Corps is currently not equipment to perform bulk fuel operations in severe cold weather temperatures. This would allow FARP operations in <30 degrees. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The increase is due to a combination of program growth and DoD's increased Expeditionary Energy efforts. These include vehicle electrification research and development initiatives, alternative energy technological developments, hydrogen production, distribution and power generation systems, advanced energy storage and battery technologies, energy harvesting, fuel distribution and reporting systems, and industry interface.					
Title: JINTACCS: JCS and DoD CIO Data Links Testing	0.581	1.384	1.619	0.000	1.619
Articles:	-	-	-	-	-
Description: Joint Interoperability of Tactical Command and Control Systems (JINTACCS) is a United States military program for the development and maintenance of tactical information exchange configuration items (CIs) and operational procedures. It was originated to ensure that the command and control (C2 and C3) and weapons systems of all US military services and NATO forces would be interoperable. MARCORSYSCOM Systems Engineering and Acquisition Logistics directs the JINTACCS Program. Created as a non-acquisition R&D engineering program it provides for critical engineering services in several areas. JINTACCS is essential to USMC development and maintenance of tactical data exchange standards (Link 16, VMF, MTF, etc.), maintenance of C2 systems interoperability issues, development of Net Centric standards (XML, Web Services) to meet requirements of DoD/USMC Net Centric Data Strategy, and participation in Marine Corps, Joint, and Coalition Interoperability Certification testing to DoD/JCS/USMC/NATO requirements in an ever-changing cyber environment. ***FY 2023 Plans:*** - Continue to provide Marine Corps representation at TDL and tactical data message working groups, CCBs, and other interoperability forums. Continue to assess and represent Marine Corps positions on ALL TDL and tactical data message ICPs, RFEs, and other initiatives. - Continue data collection and information dissemination associated with the Marine Corps IEP. Enter system bit-level information into the eSMART tool; conduct interoperability assessments of MAGTF systems using the eSMART tool to highlight gaps and identify investment opportunities to meet emerging interoperability needs;					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2277 / *System Engineering and Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
provide feedback to JCS representatives concerning shortfalls or recommended improvements to the eSMART tool. - Provide training to Marine Corps Systems Command and Program Executive Office Land Systems programs in the use of the eSMART tool to enter system bit-level information into the eSMART tool; conduct interoperability assessments of MAGTF systems using the eSMART tool to highlight gaps and identify investment opportunities to meet emerging interoperability needs, - Support program office development of tactical data link and tactical data message documentation in support of Joint Interoperability Test Command certifications. - Continue to provide TDL subject matter expert support to Marine Corps Systems Command and Program Executive Office Land Systems programs to support test, certification, and modernization of Marine Corps capabilities. - Provide SME support in implementing, modernizing and sustaining VMF messages to USMC programs to enable them to remain interoperable within the MAGTF and with the naval, joint and coalition forces. (impacts GCCS-TCO, JTCW, AFATDS, CAC2S, M777, HIMARS, JWARN, THS, etc.). - Provide engineering expertise required to plan and implement the USG directed migration of USMC C2 systems and networks to eXtensible Machine Language (XML) - to facilitate continued interoperability with the Joint, naval and coalition force, as well as with other USG agencies.					
FY 2024 Base Plans: - Continue to provide Marine Corps representation at TDL and tactical data message working groups, CCBs, and other interoperability forums. -Continue to assess and represent Marine Corps positions on all TDL and tactical data message ICPs, RFEs, and other initiatives. - Continue data collection and information dissemination associated with the Marine Corps IEP. Enter system bit-level information into the eSMART tool; conduct interoperability assessments of MAGTF systems using the eSMART tool to highlight gaps and identify investment opportunities to meet emerging interoperability needs; provide feedback to JCS representatives concerning shortfalls or recommended improvements to the eSMART tool. - Provide training to Marine Corps Systems Command and Program Executive Office Land Systems programs in the use of the eSMART tool to enter system bit-level information into the eSMART tool; conduct interoperability assessments of MAGTF systems using the eSMART tool to highlight gaps and identify investment opportunities to meet emerging interoperability needs,					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2277 / *System Engineering and Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Support program office development of tactical data link and tactical data message documentation in support of Joint Interoperability Test Command certifications. - Continue to provide full TDL subject matter expert support to Marine Corps Systems Command and Program Executive Office Land Systems programs to support test, certification, and modernization of Marine Corps capabilities. - Provide full SME support in implementing, modernizing and sustaining VMF messages to USMC programs to enable them to remain interoperable within the MAGTF and with the naval, joint and coalition forces. (impacts GCCS-TCO, JTCW, AFATDS, CAC2S, M777, HIMARS, JWARN, THS, NMESIS, etc.). - Provide full engineering expertise required to plan and implement the USG directed migration of USMC C2 systems and networks to eXtensible Machine Language (XML) - to facilitate continued interoperability with the Joint, naval and coalition force, as well as with other USG agencies. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase is due to meeting full engineering expertise required to plan and implement the USG directed migration of USMC C2 systems and networks to eXtensible Machine Language (XML). This will facilitate continued digital interoperability with the Joint, naval and coalition force, as well as with other USG agencies.					
Title: SEIC: Engineering and Technical Support	0.001	1.329	2.457	0.000	2.457
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue the integration of MAGTF C2 systems and C4 services with shipboard C2 architectures and C4ISR infrastructures in direct support of MEU deployments via Deploying Group Systems Integration Test (DGSIT). - Initiate the transition to a digital 3D solid model environment to support and align with DoD and DON digital engineering strategies and allow more efficient and error free support of Marine Corps systems resulting in more efficient advanced manufacturing processes and increased readiness. ***FY 2024 Base Plans:*** - Continue the integration of MAGTF C2 systems and C4 services with shipboard C2 architectures and C4ISR infrastructures in direct support of MEU deployments via Deploying Group Systems Integration Test (DGSIT)					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2277 / *System Engineering and Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Continue to transition to a digital 3D solid model environment to support and align with DoD and DON digital engineering strategies and allow more efficient and error free support of Marine Corps systems resulting in more efficient advanced manufacturing processes and increased readiness ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase is due to transitioning to model-based systems engineering tools, process and requirements to convert existing engineering artifacts to digital formats. Also, increased costs associated with providing support for integration of MAGTF C2 systems and C4 services in support of MEU deployments.					
Accomplishments/Planned Programs Subtotals	1.873	4.767	17.846	0.000	17.846

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The System Engineering and Integration programs utilizes a non-traditional acquisition strategy. The program utilizes the Naval Surface Warfare Centers and contractor support for system engineering support services.

EEO - Expeditionary Energy Strategy and Implementation Plan, and priorities identified in the USMC Expeditionary Energy Water and Waste Initial Capabilities Document/Capabilities Based Assessment. The program utilize the Naval Surface Warfare Centers for system engineering support services.

JINTACCS - Created as a non-acquisition R&D engineering program it provides for critical engineering services in several areas. (JINTACCS) is a United States military program for the development and maintenance of tactical information exchange configuration items (CIs) and operational procedures. It was originated to ensure that the command and control (C2 and C3) and weapons systems of all US military services and NATO forces would be interoperable. MARCORSYSCOM Systems Engineering Directorate, Integration Division directs the JINTACCS Program, and is supported by Marine Corps Tactical Systems Support Activity (MCTSSA).

SEIC - Provides the decision support tools and engineering analysis resources needed to assess, identify and resolve Marine Air Ground Task Force (MAGTF) inter-systems' SoS issues and challenges. SEIC supports the Marine Corps in the analysis, evaluation, and assessment of MAGTF Systems and SoS requirements. The program utilize the Naval Surface Warfare Centers and contractor support for system engineering support services.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206313M / *Marine Corps Comms Systems*	Project (Number/Name) 2277 / *System Engineering and Integration*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hydrogen Fuel Cell BEV Charger	WR	Naval Research Lab : Washington, DC	0.000	0.000		0.000		1.100	Feb 2024	-		1.100	0.000	1.100	-
Hydrogen ULTV (H2 RZR)	WR	US Army GVSC : Detroit, MI	0.000	0.000		0.000		0.400	Feb 2024	-		0.400	0.000	0.400	-
Tactical Range Extender - Enhanced (TREE)	WR	US Army GVSC : Detroit, MI	0.000	0.000		0.000		1.000	Feb 2024	-		1.000	0.000	1.000	-
AMPOL Mobile Nuclear Reactor	MIPR	Los Alamos National Lab : Los Alamos, NM	0.000	0.000		0.000		1.000	Feb 2024	-		1.000	0.000	1.000	-
Prior Years Cumulative Funding	Various	Various : Various	10.899	0.000		0.000		0.000		-		0.000	0.000	10.899	-
		Subtotal	10.899	0.000		0.000		3.500		-		3.500	0.000	14.399	N/A

Remarks

Increase is due to a combination of program growth profile and DoD increased E2O Expeditionary Energy efforts. These include Hydrogen Fuel Cell BEV Charger, Hydrogen ULTV (H2 RZR), Tactical Range Extender-Enhanced (TREE), and AMPOL Mobile Nuclear Reactor.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MAGTF SEI&C	WR	NSWC : Dahlgren, VA	5.964	0.001	Mar 2022	0.000		1.300	Nov 2023	-		1.300	Continuing	Continuing	Continuing
MAGTF SEI&C	WR	NSWC : DAM NECK, VA	0.420	0.000		0.250	Nov 2022	0.300	Nov 2023	-		0.300	0.000	0.970	-
MAGTF SEI&C	C/FP	MANTECH : Stafford, VA	2.809	0.000		0.519	Nov 2022	0.578	Jan 2024	-		0.578	0.000	3.906	-
MAGTF SEI&C	WR	NIWC-LANT : Charleston, SC	0.000	0.000		0.560	Mar 2023	0.279	Nov 2023	-		0.279	0.000	0.839	-
JINTACCS	C/FFP	MCTSSA : Camp Pendleton, CA	2.909	0.300	Mar 2022	0.887	Apr 2023	1.054	Apr 2024	-		1.054	0.000	5.150	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206313M / *Marine Corps Comms Systems*	Project (Number/Name) 2277 / *System Engineering and Integration*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
JINTACCS	C/FFP	MANTECH : Quantico, VA	0.664	0.225	Jan 2022	0.208	Jan 2023	0.250	Jan 2024	-		0.250	0.000	1.347	-
JINTACCS	C/FFP	GDIT : Stafford, VA	0.000	0.000		0.225	Apr 2023	0.250	Apr 2024	-		0.250	0.000	0.475	-
E2O-Experimentionary Advanced Base Operations	WR	Various : Various	2.968	0.000		0.100	Feb 2023	0.200	Feb 2024	-		0.200	0.000	3.268	-
E2O-Small Unit Power (SUP)	WR	NSWC : Carderock	1.470	0.275	Nov 2021	0.400	Feb 2023	0.000		-		0.000	0.000	2.145	-
E2O-Experimentionary Advanced Base Operations	WR	NAVFAC EXWC : Port Hueneme, CA	1.517	0.000		0.000		2.000	Jan 2024	-		2.000	0.000	3.517	-
E2O-Experimentionary Advanced Base Operations	WR	NSWC : Panama City, FL	0.609	0.254	Nov 2021	0.000		1.270	Jan 2024	-		1.270	0.000	2.133	-
E2O-Lightweight Energy Storage (REPS)	WR	NSWC : Crane, IN	1.313	0.275	Nov 2021	0.400	Feb 2023	0.000		-		0.000	0.000	1.988	-
E2O-Experimentionary Advanced Base Operations	C/FFP	DTIC : FT. Belvoir	0.350	0.075	Apr 2022	0.000		1.000	Feb 2024	-		1.000	0.000	1.425	-
E2O-Experimentionary Advanced Base Operations	WR	NSWC Dahlgreen : Dahlgren, VA	0.744	0.150	Mar 2022	0.000		0.000		-		0.000	0.000	0.894	-
E2O-Experimentionary Advanced Base Operations	WR	Naval Research Lab : Washington, DC	0.200	0.262	Apr 2022	0.436	Feb 2023	0.000		-		0.000	0.000	0.898	-
E2O-Experimental Forward Operating Base	WR	Various : Various	0.000	0.000		0.718	Nov 2022	0.000		-		0.000	0.000	0.718	-
E2O-Experimental Forward Operating Base	WR	NAVAIR : Patuxent River, MD	0.000	0.000		0.000		1.000	Jan 2024	-		1.000	0.000	1.000	-
E2O-Experimental Forward Operating Base	WR	DIU : Colorado Springs, CO	0.000	0.000		0.000		2.000	Feb 2024	-		2.000	0.000	2.000	-
Prior Years Cumulative Funding	Various	Various : Various	6.488	0.000		0.000		0.000		-		0.000	0.000	6.488	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2277 / *System Engineering and Integration*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	28.425	1.817		4.703		11.481		-		11.481	Continuing	Continuing	N/A

Remarks

E2O:
Increase is due to a combination of program growth profile and DoD increased Expeditionary Energy efforts. These include alternative energy technological developments, hydrogen power generation sources, more capable energy storage and battery technologies, energy harvesting, bio-fuel development, and industry interface.
MAGTF SEI&C:
Increase reflects transitioning to model-based systems engineering tools, process and requirements to convert existing engineering artifacts to digital formats. Also, increased costs associated with providing support for integration of MAGTF C2 systems and C4 services in support of MEU deployments.
JINTACCS:
Increase is due to meeting full engineering expertise required to plan and implement the USG directed migration of USMC C2 systems and networks to eXtensible Machine Language (XML). This will facilitate continued digital interoperability with the Joint, naval and coalition force, as well as with other USG agencies.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	NAWCAD Lakehurst : Lakehurst, NJ	0.000	0.000		0.000		0.500	May 2024	-		0.500	0.000	0.500	-
Developmental Test & Evaluation (DT&E)	MIPR	US Army GVSC : Detroit, MI	0.000	0.000		0.000		1.300	Feb 2024	-		1.300	0.000	1.300	-
Developmental Test & Evaluation (DT&E)	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.000		1.000	Feb 2024	-		1.000	0.000	1.000	-
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	Various	Various : Various	7.611	0.000		0.000		0.000		-		0.000	0.000	7.611	-
		Subtotal	7.611	0.000		0.000		2.800		-		2.800	0.000	10.411	N/A

Remarks

Increase is due to a combination of program growth profile and DoD increased E2O Expeditionary Energy efforts. These include Aviation Ground Support Equipment (GSE) Electrification Experimentation, Hydrogen Fuel Cell BEV Charger, and Hydrogen Storage Aviation Safety Testing and Standards.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2277 / *System Engineering and Integration*

Management Services ($ in Millions)

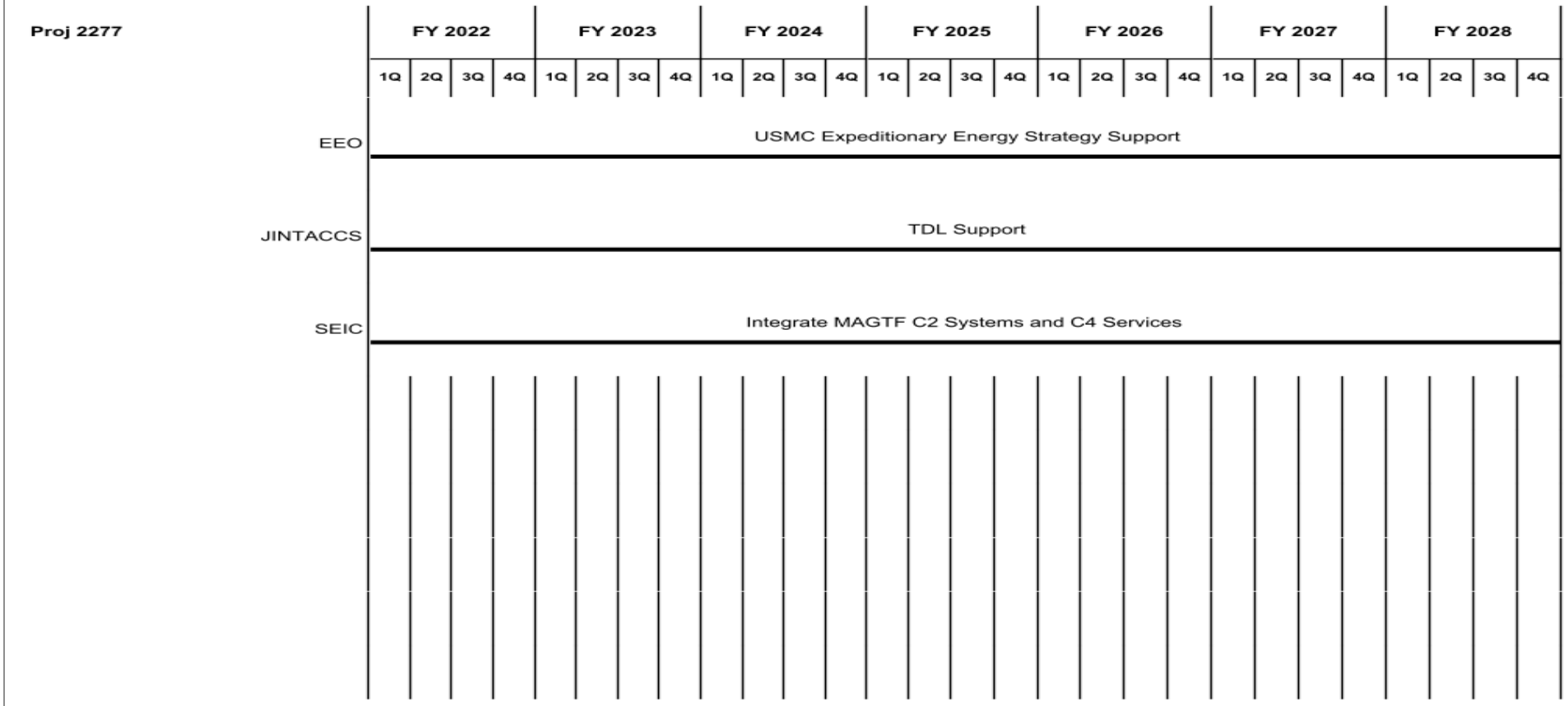
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
JINTACCS-Travel	Various	PROGRAM : TRAVEL	0.471	0.056	Feb 2022	0.064	Jun 2023	0.065	Aug 2024	-		0.065	Continuing	Continuing	Continuing
		Subtotal	0.471	0.056		0.064		0.065		-		0.065	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	47.406	1.873		4.767		17.846		-		17.846	Continuing	Continuing	N/A

Remarks

Over all increase is due to a combination of program growth and DoD's increased E2O Expeditionary Energy efforts. These include vehicle electrification research and development initiatives, alternative energy technological developments, hydrogen production, distribution and power generation systems, advanced energy storage and battery technologies, energy harvesting, fuel distribution and reporting systems, and industry interface.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2277 / *System Engineering and Integration*



2024PB - 0206313M - 2277

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2277 / *System Engineering and Integration*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2277				
EEO: USMC Expeditionary Energy Strategy Support	1	2022	4	2028
JINTACCS: TDL Support	1	2022	4	2028
SEIC: Integrate MAGTF C2 Systems and C4 Services	1	2022	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206313M / *Marine Corps Comms Systems*	Project (Number/Name) 2510 / *MAGTF CSSE & SE*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2510: *MAGTF CSSE & SE*	290.725	0.940	0.991	1.021	-	1.021	1.032	1.053	1.070	1.091	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

(U) The Marine Air Ground Task Force (MAGTF) Combat Service Support Element & Supporting Establishment (CSSE & SE) consists of mutually supporting Logistics Information Technology (IT) programs that support force deployment, planning, and execution; sustainment and distribution; and contributes to the Combatant Commander's Common Operating Picture to support rapid accurate decision making.

JOINT FORCE REQUIREMENTS GENERATOR II (JFRG II) is an Automated Information System (AIS), standalone desktop software application that operates in a classified environment to provide the Marine Corps users the capability to support Joint Command and Control (JC2) contingency and crisis deployment operations and plans. It serves as the single link between the Joint Operation Planning and Execution System (JOPES), Sea Service Deployment Module (SSDM) and War Reserve System (WRS)/Integrated Materiel Solution Toolset (IMAT). JFRG II desktop application permits multi-level planning with entry of Time-Phased Force and Deployment Data (TPFDD), including equipment and personnel data, transportation/movement data, and the phasing of the total force throughout the entire movement timeline. JFRG II desktop application generates standard, executive, and ad hoc reports and performs database queries to support JC2 deployment requirements.

MAGTF LOGISTICS SUPPORT SYSTEMS (MLS2): This is a Marine Corps Force Design Program. Composed of several main components including the Electronic Maintenance Support System (EMSS). EMSS is a rugged organizational-level (O-level), light-weight, one-man portable maintenance device capable of supporting multiple platforms and systems across maintenance communities. It provides a Commercial Off-The-Shelf (COTS) hardware device equipped with Built-In-Test/ Built-In-Test Equipment interfaces, and Software Defined Test Instrument General Purpose Electronic Test Equipment capabilities. These hardware capabilities will enable commercial or custom DoD and USMC software capabilities including interactive electronic technical manuals, computer based training, and other maintenance applications to be hosted on EMSS. EMSS also has the capability to connect to the Marine Corps Enterprise Network and access sites like Global Combat Support System - Marine Corps in order to facilitate maintenance and supply transactions, thereby improving readiness. With these capabilities, maintainers will make more informed decisions and sustain force readiness over time.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: JOINT FORCE REQUIREMENTS GENERATION II (JFRG II)	0.206	0.212	0.217	0.000	0.217
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue Engineering Change Proposals (ECPs) to increase user functionality for the desktop software application and deploy JFRG II Planning Toolset (J-PT) in 4Q FY 2023.					
FY 2024 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2510 / *MAGTF CSSE & SE*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- JFRG II PMO's plan is to provide Post Deployment Software Support and upgrade J-PT and desktop application to keep pace with JOPES/JPES transition and JC2 operational requirements. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY 2023 to FY 2024 is due to inflation. JFRG II program will maintain two software baselines until EOL or they are replaced by new solutions.					
Title: MAGTF LOGISTICS SUPPORT SYSTEMS (MLS2)	0.734	0.779	0.804	0.000	0.804
Articles:	-	-	-	-	-
FY 2023 Plans: - Initiate initial testing of artificial intelligence to be used in EMSS Marine Diagnostic Software capabilities and Wireless "At the Platform" Test Sets (WATS). - Continue to develop additional GOTS diagnostic software capability for additional Heavy Equipment, Motor Transport, Ordnance and Engineer weapon systems in order to enhance maintenance capabilities, migrate away from more expensive commercial off the shelf (COTS) solutions, and decrease total ownership cost (TOC) for supported platforms.					
FY 2024 Base Plans: - Continue to develop the use of Artificial Intelligence (AI) to perform hardware bench testing of EMSS, WATS, and other connected hardware. Initiate the usage data tracking software to provide data to AI and Machine Learning (ML) algorithms to streamline the EMSS user experience. - Continue to develop additional GOTS diagnostic software capability for additional Heavy Equipment, Motor Transport, Ordnance and Engineer weapon systems in order to enhance maintenance capabilities, migrate away from more expensive commercial off the shelf (COTS) solutions, and decrease total ownership cost (TOC) for supported platforms.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2510 / *MAGTF CSSE & SE*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
The increase from FY 2023 to FY 2024 is due to continued support of artificial intelligence (AI) of EMSS, WATS and other connected hardware.					
Accomplishments/Planned Programs Subtotals	0.940	0.991	1.021	0.000	1.021

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• PMC/BLI 4181: *MAGTF Logistics Support Systems*	15.126	12.434	12.683	-	12.683	12.937	13.197	13.462	13.732	Continuing	Continuing

Remarks

D. Acquisition Strategy

JOINT FORCE REQUIREMENTS GENERATOR II (JFRG II) desktop application requires upgrades in order to continuously support the JC2 Capabilities Development Document requirements and keep pace with JOPES transition. JOPES will be replaced with the Joint Planning and Operation Services in June 2023. JFRG II Planning Toolset, a web application with the cross-domain solution is in development to automate TPFDD sharing between JOPES/JPES, SSDM, and WRS/IMAT via unclassified and classified servers. The upgrades will increase data protection and data processing efficiency to meet current cybersecurity requirements and replace the current air gap procedure. JFRG II desktop software application will remain supported until end of life or it is replaced by another application.

MAGTF LOGISTICS SUPPORT SYSTEMS (MLS2) is pursuing an evolutionary acquisition strategy in order to sustain operationally suitable and supportable capability across the Marine Corps as a maintenance aid. Electronic Maintenance Support Systems must evolve in concert with the supported platforms maintenance philosophy to provide extended functionality and access to network connectivity.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206313M / *Marine Corps Comms Systems*	Project (Number/Name) 2510 / *MAGTF CSSE & SE*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
JFRG II	C/IDIQ	SAIC : Stafford, VA	2.706	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
JFRG II	WR	NIWC LANT : Charleston, SC	0.804	0.147	Nov 2021	0.212	Jan 2023	0.217	Jan 2024	-		0.217	Continuing	Continuing	Continuing
JFRG II	WR	DISA : Ft Meade, MD	0.502	0.060	Nov 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
OT&E EMSS/MAGTF Logistics Support Systems	WR	NSWC, Crane : Crane, IN	2.757	0.733	Feb 2022	0.388	Feb 2023	0.804	Feb 2024	-		0.804	Continuing	Continuing	Continuing
OT&E EMSS/MAGTF Logistics Support Systems	WR	MCLC, Albany : Albany, GA	0.703	0.000	Feb 2022	0.391	Feb 2023	0.000		-		0.000	Continuing	Continuing	Continuing
Prior Years Cumulative Funding	Various	Various : Various	283.253	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	290.725	0.940		0.991		1.021		-		1.021	Continuing	Continuing	N/A

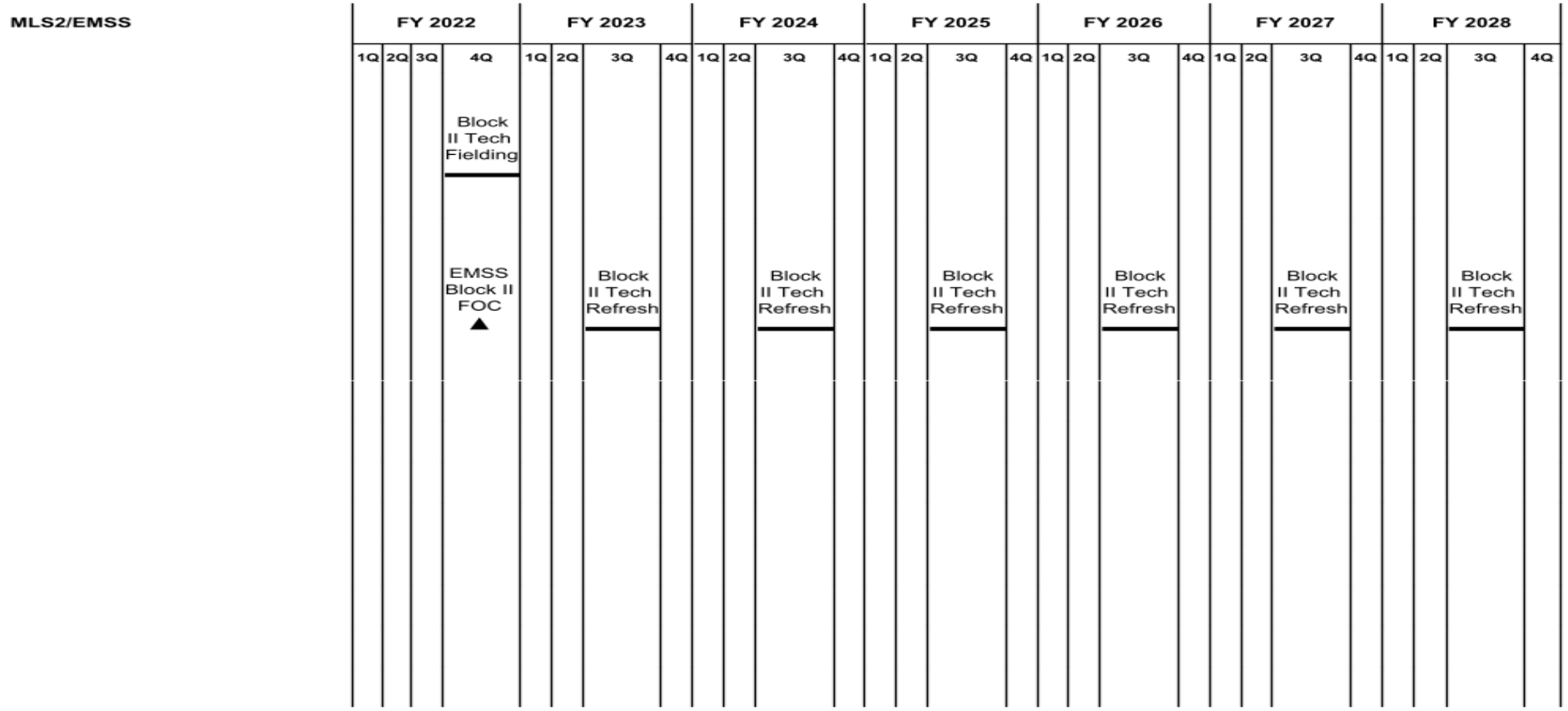
Remarks

The FY 2023 to FY 2024 increase is due to continued support of artificial intelligence (AI) of EMSS, WATS and other connected hardware.

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	290.725	0.940		0.991		1.021		-		1.021	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2510 / *MAGTF CSSE & SE*



2024DON - 0206313M - 2510

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2510 / *MAGTF CSSE & SE*

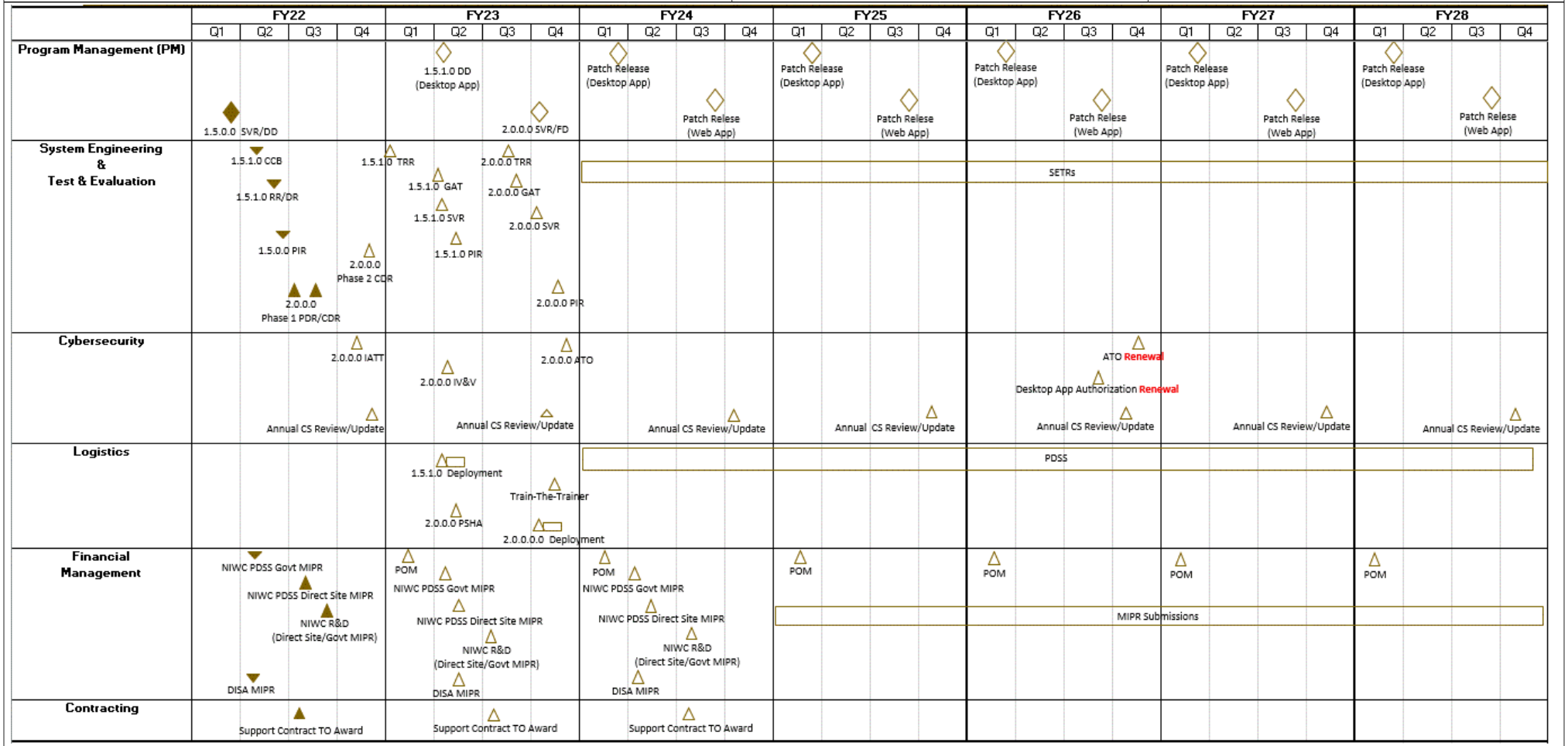


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 2510 / *MAGTF CSSE & SE*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
MLS2/EMSS				
FY22 EMSS Block II Fielding	4	2022	4	2022
FY22 EMSS Block II FOC	2	2023	2	2023
FY23 EMSS Block II Refresh	3	2023	3	2023
FY24 EMSS Block II Refresh	3	2024	3	2024
FY25 EMSS Block II Refresh	3	2025	3	2025
FY26 EMSS Block II Refresh	3	2026	3	2026
FY27 EMSS Block II Refresh	3	2027	3	2027
FY28 EMSS Block II Refresh	3	2028	3	2028
JFRG II				
Cont. Development of CDS Platform (J-PT)	1	2022	1	2022
ECP for Cyber Compliance	1	2023	1	2027

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206313M / *Marine Corps Comms Systems*	Project (Number/Name) 3099 / *Radar System*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
3099: *Radar System*	229.062	1.115	1.059	4.028	-	4.028	3.742	3.544	3.569	3.602	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Long Range Radar (AN/TPS-59) - The AN/TPS-59A(V)3 is a transportable, three dimensional, tactical radar system that provides the Marine Air Ground Task Force (MAGTF) with long-range surveillance. It is the MAGTF's only ground based long range sensor that provides the capability to detect and report Air Breathing Targets (ABT) and track Theater Ballistic Missiles (TBM). The AN/TPS-59A(V)3 Radar System is connected to the Common Aviation Command and Control Systems (CAC2S). It provides the air defense controllers data and may be used autonomously to conduct Ground Control Intercept, tactical en-route Air Traffic Control (ATC), or TBM alert operations via the Joint Integrated Air Missile Defense (IAMD) encrypted Link-16. AN/TPS-59 funding zeroed beginning FY 2021 due to Marine Corps decision to modernize in accordance with the National Defense Strategy (NDS)/Defense Planning Guidance (DPG).

Virtual Warfare Center (VWC) Support - The project team conducts fully interactive simulated war games at the Virtual Warfare Center (VWC) in St. Louis, MO, in order to quantify family of systems performance and how it impacts effectiveness in the Integrated Air and Missile Defense (IAMD) mission area. The VWC provides a venue for the exploration of advanced engagement concepts focused on persistent forward naval engagements in support of the MAGTF and the development of associated Joint and Service specific tactics, techniques, and procedures (TTPs). VWC support encompasses a set of integrated fire control (IFC) activities that also includes concept/CONOPS development, family of systems architecture development, and systems engineering/integration efforts.

Prior to FY 2024, the VWC program was also funded in Program Element 0604504N Air Control Project 0718. In FY 2024 and out, the entirety of VWC funding is consolidated under PE 0206313M Project 3099.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: VWC: Support	0.857	0.782	3.510	0.000	3.510
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue the simulation of war games at the VWC in St. Louis, MO, in order to quantify family of systems performance and how it impacts effectiveness in the Integrated Air and Missile Defense (IAMD) mission area.					
FY 2024 Base Plans: - Continue the simulation of war games at the VWC in St. Louis, MO, in order to quantify family of systems performance and how it impacts effectiveness in the Integrated Air and Missile Defense (IAMD) mission area.					
FY 2024 OCO Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 3099 / *Radar System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Overall increase from FY 2023 to FY 2024 reflects consolidation of funding from PE 0604504N Prj 0718 ($2.000M) and increased simulation efforts ($0.728M) required to determine system performance in the Integrated Air and Missile Defense (IAMD) mission area.					
Title: VWC: Test and Evaluation	0.258	0.277	0.518	0.000	0.518
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue the simulation of war games at the VWC in St. Louis, MO, in order to quantify family of systems performance and how it impacts effectiveness in the Integrated Air and Missile Defense (IAMD) mission area. ***FY 2024 Base Plans:*** - Continue the simulation of war games at the VWC in St. Louis, MO, in order to quantify family of systems performance and how it impacts effectiveness in the Integrated Air and Missile Defense (IAMD) mission area. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY 2023 to FY 2024 increase is due to increased simulation efforts required to determine system performance in the IAMD mission area.					
Accomplishments/Planned Programs Subtotals	1.115	1.059	4.028	0.000	4.028

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Virtual Warfare Center (VWC) Support - The project team conducts fully interactive simulated war games at the VWC in St. Louis, MO, in order to quantify family of systems performance and how it impacts effectiveness in the Integrated Air and Missile Defense mission area. VWC support encompasses a set of integrated fire control activities that also includes concept and concept of operations development, family of systems architecture development, and systems engineering/integration efforts. The Office of Naval Research is the lead for all VWC contracting actions.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206313M / *Marine Corps Comms Systems*	Project (Number/Name) 3099 / *Radar System*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
AN/TPS-59 - DREX EDM Development	SS/CPFF	LMC : Syracuse, NY	11.536	0.000		0.000		0.000		-		0.000	0.000	11.536	-
AN/TPS-59 - DREX EDM Development Program Management	SS/CPFF	LMC : Syracuse, NY	6.927	0.000		0.000		0.000		-		0.000	0.000	6.927	-
Prior Year Cumulative Funding	Various	Various : Various	90.234	0.000		0.000		0.000		-		0.000	0.000	90.234	-
		Subtotal	108.697	0.000		0.000		0.000		-		0.000	0.000	108.697	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
AN/TPS-59 - Engineering Support	C/FFP	MCSC : Quantico, VA	4.189	0.000		0.000		0.000		-		0.000	0.000	4.189	-
VWC	C/CPFF	ONR : St. Louis, MO	26.995	0.857	Feb 2022	0.782	Feb 2023	3.510	Feb 2024	-		3.510	Continuing	Continuing	Continuing
Prior Year Cumulative Funding	Various	Various : Various	52.687	0.000		0.000		0.000		-		0.000	0.000	52.687	-
		Subtotal	83.871	0.857		0.782		3.510		-		3.510	Continuing	Continuing	N/A

Remarks

FY 2023 to FY 2024 increase reflects consolidation of funding from PE 0604504N Prj 0718 and increased simulation efforts required to determine system performance in the IAMD mission area.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	C/CPFF	NSWC, Corona : Corona, CA	0.692	0.000		0.000		0.000		-		0.000	0.000	0.692	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 3099 / *Radar System*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	C/CPFF	LMC : Syracuse, NY	0.817	0.000		0.000		0.000		-		0.000	0.000	0.817	-
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	MIPR	AIMS Prog Office : Warner Robbins AFB, GA	0.029	0.000		0.000		0.000		-		0.000	0.000	0.029	-
Developmental Test & Evaluation (DT&E)	C/CPFF	ONR : St. Louis, MO	2.392	0.258	May 2022	0.277	May 2023	0.518	May 2024	-		0.518	0.000	3.445	-
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	Various	Various : Various	4.683	0.000		0.000		0.000		-		0.000	0.000	4.683	-
		Subtotal	8.613	0.258		0.277		0.518		-		0.518	0.000	9.666	N/A

Remarks

FY 2023 to FY 2024 increase is due to increased simulation efforts required to determine system performance in the IAMD mission area.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
AN/TPS-59 Engineering Support	MIPR	MITRE : Bedford, MA	1.900	0.000		0.000		0.000		-		0.000	0.000	1.900	-
Prior Year Cumulative Funding	Various	Various : Various	25.981	0.000		0.000		0.000		-		0.000	0.000	25.981	-
		Subtotal	27.881	0.000		0.000		0.000		-		0.000	0.000	27.881	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	229.062	1.115		1.059		4.028		-		4.028	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206313M / *Marine Corps Comms Systems*	Project (Number/Name) 3099 / *Radar System*	

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

FY 2023 to FY 2024 increase reflects consolidation of funding from PE 0604504N Prj 0718 and increased simulation efforts required to determine system performance in the IAMD mission area.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 3099 / *Radar System*

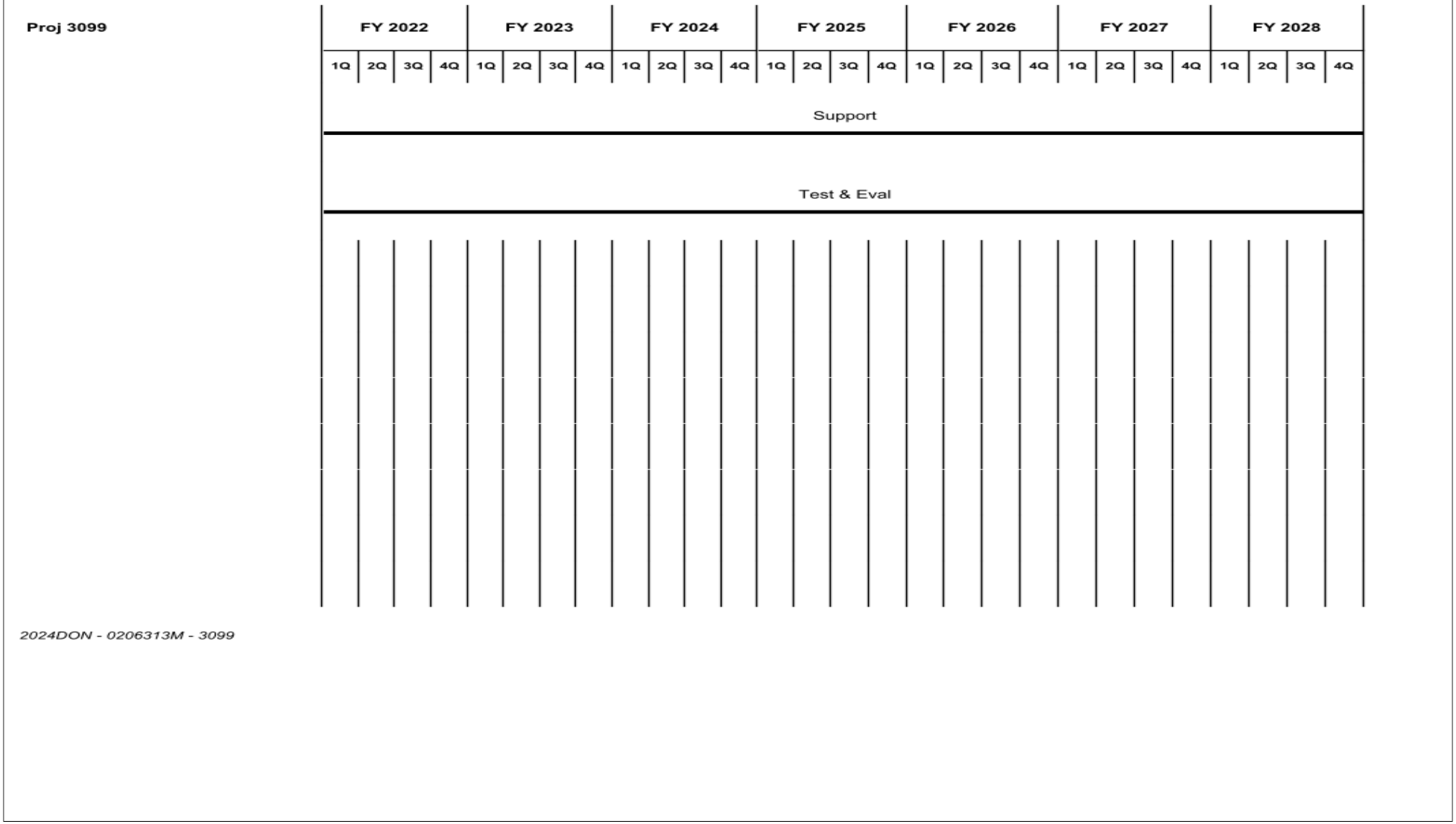


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 3099 / *Radar System*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3099				
VWC Support	1	2022	4	2028
VWC Test and Evaluation	1	2022	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
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COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
3772: *Information Related Capabilities (IRC)*	11.710	3.971	5.510	17.672	-	17.672	18.453	18.570	18.683	18.817	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Signature Management (SIGMAN) - This is a CMC Force Design program. SIGMAN will be utilized by the Marine Corps Information Operations Center (MCIOC) SIGMAN platoon to provide commanders with the ability to understand their own forces' electromagnetic signatures and the ability to disrupt adversary units. SIGMAN supports the goals of the 38th Commandant's Planning Guidance and Force Design (FD) Initial Operational Capability (IOC) by providing tools enabling the FMF to conduct distributed operations (DO) and mass effects while minimizing electromagnetic signatures that put forces at risk for detection and targeting. Fluctuations within the funding profile due to different components being procured each year. SIGMAN Increment I is the SIGMAN Visualization and Planning Tool (SVPT) that provides commanders a display of their own forces electromagnetic signatures and the ability to implement measures to limit those signatures when possible. SIGMAN Increment II is the Radio Frequency (RF) Generator-Light and SIGMAN Increment III is the RF Generator- Heavy. The SIGMAN Increment II and Increment III systems will provide commanders the ability to develop and project electromagnetic signature countermeasures to mask their own blue-force signature. Cognitive Radio Frequency Inference Technology (CRIT) provides the ability to conduct blue force signature assessment, blue force signature planning, and advanced delivery. SIGMAN will procure production articles through the Lead Systems Integrator and the Army C5ISR program office. This program includes funding in support of YETI in which details are held at a higher classification level.

Digital Media Systems (DMS) (formerly Public Affairs Systems (PAS)) is the result of the Combat Camera and Public Affairs Occupational Fields (OccField) transitioning into the COMMSTRAT OccField in 2018. DMS provides the Marine Corps and the Joint Force with deployable systems to support Operations in the Information Environment (OIE), non-lethal fires, and the battle of narrative efforts. DMS supports the Fleet Marine Force (FMF) to be more lethal, survivable, and sustainable when conducting emerging maritime and warfighting concepts against competitor threats. The program maintains an evolutionary approach to acquisitions and leverages commercial industry-standard non-developmental items to provide the best value to the Marine Corps, while keeping Communication, Strategy and Operations (COMMSTRAT) Marines appropriately equipped to understand and affect the information environment. This effort supports research, testing, and evaluation of the Tactical Imagery Production System Next Generation (TIPS NG) to provide the FMF with the means to acquire, process, edit, develop, disseminate, transmit in near-real time, archive visual information (VI) products, and provide reprographics print speeds in support of Marine Corps missions across the competition continuum.

Military Information Support Operations (MISO) - Consists of the Fly Away Broadcast System (FABS) Marine Corps Variant (MCV) Family of Systems (FoS). In collaboration with Special Operations Command (SOCOM), the FABS MCV FOS provides the Marine Air Ground Task Force (MAGTF) Commander with a transportable, modular system capable of conveying and delivering messages via select bands within the radio frequency portion of the electromagnetic spectrum to influence select foreign groups and promote themes to change those groups' attitudes and behaviors. MISO capabilities are critical to the success of the MAGTF mission, enabling commanders to shape the information environment, counter enemy propaganda, misinformation, disinformation, and adversarial narratives. The FABS MCV FoS contains three variants: FABS Heavy (FABS-H), FABS Medium (FABS-M), and FABS Light (FABS-L). The FABS-H variant will provide greater power, range,

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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persistence, and capacity used at a Forward Operating Base (FOB). The FABS-M variant provides the MAGTF Commander with a tactical and portable system. The FABS-L variant provides the Marines a battery powered man-packable system.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Signature Management (SIGMAN): Product Development	1.081	3.309	13.815	0.000	13.815
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue the research and development of blue-force signature assessment, blue-force signature planning, and advanced delivery capability through Office of Naval Research (ONR) Cognitive Radio Frequency Inference Technology (CRIT) efforts. ***FY 2024 Base Plans:*** - Continue the research and development of blue-force signature assessment, blue-force signature planning, and advanced delivery capability through Office of Naval Research (ONR) Cognitive Radio Frequency Inference Technology (CRIT) efforts. - Initiate YETI effort - details are held at a higher classification. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY 2023 to FY2024 reflects funding for product and follow on development for YETI. Details are held at a higher classification level.					
Title: Signature Management (SIGMAN): Test and Evaluation	1.855	1.004	2.721	0.000	2.721
Articles:	-	-	-	-	-
FY 2023 Plans: - Conduct test and evaluation for Signature Management (SIGMAN) related to Increment III electromagnetic signature emitter devices to include MIL-STD-810G testing and capability testing. ***FY 2024 Base Plans:*** - Conduct developmental test and evaluation of CRIT software on SIGMAN Increment III hardware baseline. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:***					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Increase from FY 2023 to FY 2024 reflects costs associated with CRIT software evaluation on SIGMAN Increment III hardware baseline.					
Title: Digital Media Systems (DMS) (Formerly Public Affairs System (PAS)): Test and Evaluation	0.908	0.336	0.308	0.000	0.308
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue product development/integration activities and conduct test and evaluation activities related to the Tactical Imagery Production System Next Generation (TIPS NG) providing production verification and user evaluation in support of upgrades for the COMMSTRAT Occfield.					
FY 2024 Base Plans: - Continue product development/integration activities and conduct test and evaluation activities related to the Tactical Imagery Production System Next Generation (TIPS NG) providing production verification and user evaluation in support of upgrades for the COMMSTRAT Occfield. - Initiate configuration management changes to Tactical Imagery Production System Next Generation (TIPS NG) first article. - Initiate Public Affairs Live Media Engagement System (PALMES) tech refresh leveraging preexisting SATCOM program of record in order to reduce research and development costs.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: Decrease from FY 2023 to FY 2024 reflects decrease in efforts for test and evaluation activities for Tactical Imagery Production System Next Generation (TIPS NG).					
Title: Military Information Support Operations (MISO): Support	0.000	0.552	0.828	0.000	0.828
Articles:	-	-	-	-	-
FY 2023 Plans: - Initiate Software Integration Support to compile and deploy software on the systems, create user accounts, system calibration and other activities as required. - Initiate technical assistance and support for Developmental and Integration Testing in proving out use cases for security component, mission planning and capability deployment.					
FY 2024 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Initiate engineering change proposal (ECP) support for the development of software and cyber upgrades for ongoing technology modernizations. - Continue Software Integration Support to compile and deploy software on the systems, create user accounts, system calibration and other activities as required. - Continue technical assistance and support for Developmental and Integration Testing in proving out use cases for security component, mission planning and capability deployment. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY 2023 to FY 2024 reflects initiation of engineering change proposal (ECP) support required for the development of software and cyber upgrades for ongoing technology modernizations.					
Title: Military Information Support Operations (MISO): Test and Evaluation	0.127	0.309	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue production verification and user evaluation testing of the Fly-Away Broadcast System (FABS) Light and Medium variants. - Continue engineering change proposal (ECP) to support for the development of software and cyber upgrades for ongoing technology modernizations. - Initiate FABS Medium tactical and portable capability testing. ***FY 2024 Base Plans:*** N/A ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease from FY 2023 to FY 2024 reflects completion of integration efforts related to the FABS Light and Medium variants.					
Accomplishments/Planned Programs Subtotals	3.971	5.510	17.672	0.000	17.672

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 3772 / *Information Related Capabilities (IRC)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• PMC/4620AA: *MARCIMS*	0.000	0.307	0.000	-	0.000	0.313	0.319	0.325	0.332	Continuing	Continuing
• PMC/4620BB: *DMS (Formerly PAS)*	0.693	2.653	2.274	-	2.274	3.474	3.534	3.600	3.672	Continuing	Continuing
• PMC/4620CC: *MISO*	4.021	3.838	4.249	-	4.249	4.227	4.312	4.398	4.486	Continuing	Continuing
• PMC/4620DD: *SIGMAN*	5.716	4.393	21.856	-	21.856	42.053	42.129	23.585	23.684	Continuing	Continuing

Remarks

D. Acquisition Strategy

SIGMAN FoS is a new capability using common hardware and software systems. SIGMAN FoS will expand upon capabilities and introduce new signature assessment and management capabilities as technology updates mature with increased modularity, flexibility, and mobility. SIGMAN will conduct RDT&E efforts in conjunction with the Lead System Integrator (LSI) to facilitate the integration of advanced capabilities. SIGMAN will procure production articles through the LSI and the Army C5ISR program office. This program includes funding in support of YETI in which details are held at a higher classification level.

Digital Media Systems will leverage existing Marine Corps Programs of Record and maximize the utilization of commercial-off-the-shelf devices and software to provide best overall cost, schedule and performance solutions to the warfighter with minimal developmental cost and schedule investments.

The MISO Family of Systems (FoS), which Consists of the Fly Away Broadcast System (FABS) Marine Corps Variant (MCV) Family of Systems (FoS). The FABS MCV acquisition strategy relies on procuring the latest mature and supported GOTS and COTS/Non-Developmental Item (NDI) technology. FABS MCV leverages existing technology and systems used by USSOCOM.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SIGMAN	C/CPFF	ONR : Arlington, VA	0.000	1.087	Mar 2022	3.309	Mar 2023	1.815	Mar 2024	-		1.815	Continuing	Continuing	Continuing
SIGMAN YETI	TBD	TBD : TBD	0.000	0.000		0.000		12.000	Dec 2023	-		12.000	Continuing	Continuing	Continuing
MISO	WR	NIWC LANT : Charleston, SC	0.869	0.000		0.000		0.000		-		0.000	0.000	0.869	-
Cumulative Prior Year	Various	Not Specified : Not Specified	4.031	0.000		0.000		0.000		-		0.000	0.000	4.031	-
		Subtotal	4.900	1.087		3.309		13.815		-		13.815	Continuing	Continuing	N/A

Remarks

Product Development overall increase from FY 2023 to FY 2024 is attributed to the initiation of YETI efforts. Details are held at a higher classification level.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MISO	MIPR	NIWC LANT : Charleston, SC	0.000	0.000		0.552	May 2023	0.828	Dec 2023	-		0.828	0.000	1.380	-
		Subtotal	0.000	0.000		0.552		0.828		-		0.828	0.000	1.380	N/A

Remarks

Support overall increase from FY 2023 to FY 2024 reflects initiation of engineering change proposal (ECP) support required for the development of software and cyber upgrades for ongoing technology modernizations.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	MIPR	NIWC : Charleston, SC	1.979	1.855	Feb 2022	1.004	Feb 2023	2.721	Feb 2024	-		2.721	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	MIPR	NIWC ATLANTIC : Charleston, SC	0.225	0.906	Mar 2022	0.336	Mar 2023	0.308	Feb 2024	-		0.308	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	NAVSEA : Laurel, MD	4.606	0.000		0.000		0.000		-		0.000	0.000	4.606	-
Developmental Test & Evaluation (DT&E)	MIPR	NIWC LANT : Charleston, SC	0.000	0.123	Nov 2021	0.309	Nov 2022	0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	6.810	2.884		1.649		3.029		-		3.029	Continuing	Continuing	N/A

Remarks

Test and Evaluation overall increase from FY 2023 to FY 2024 reflects costs associated with CRIT software evaluation on SIGMAN Increment III hardware baseline.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	11.710	3.971		5.510		17.672		-		17.672	Continuing	Continuing	N/A

Remarks

Overall increase from FY 2023 to FY 2024 is largely attributed to initiation of YETI efforts. Details are held at a higher classification level.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
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MISO/FABS

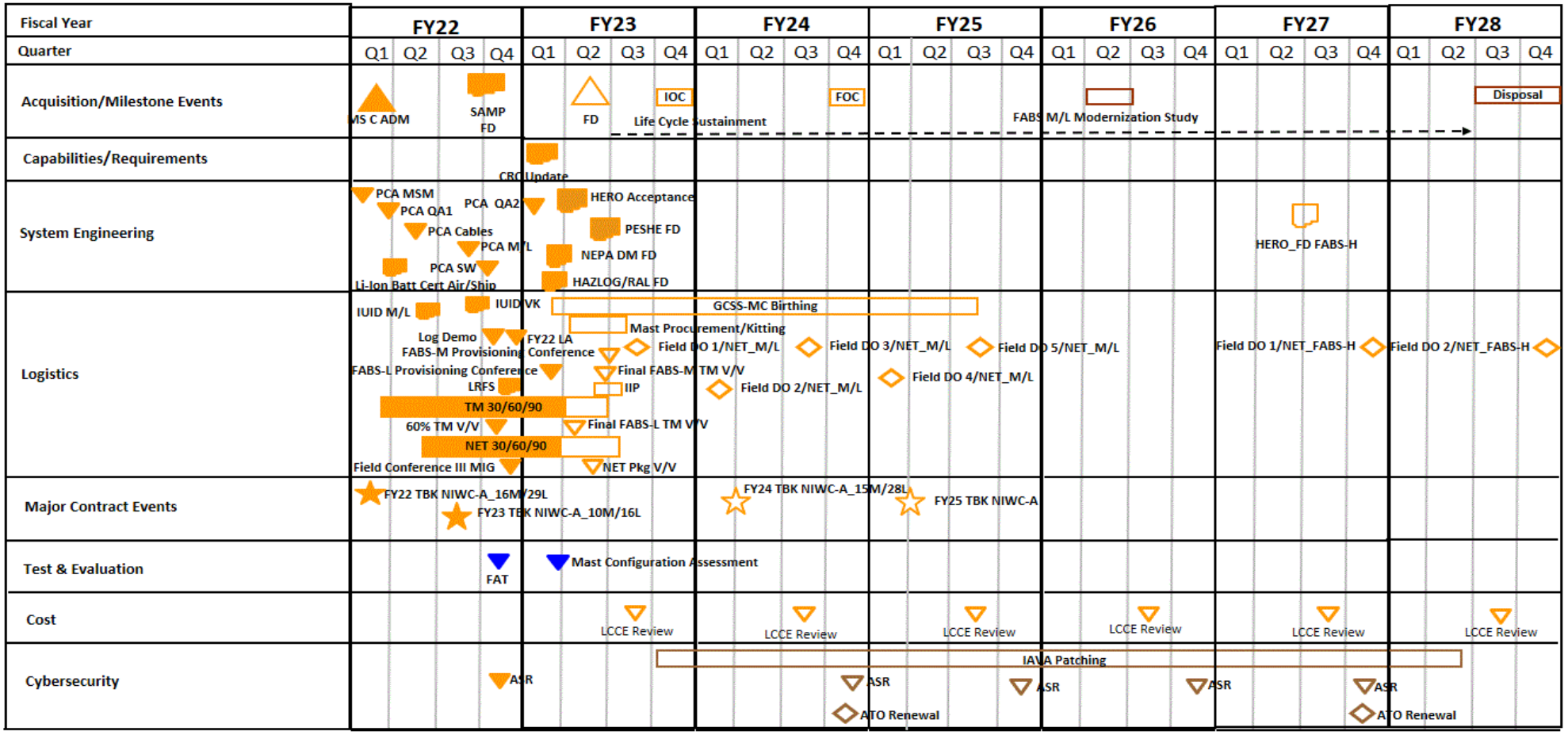

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
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SIGMAN

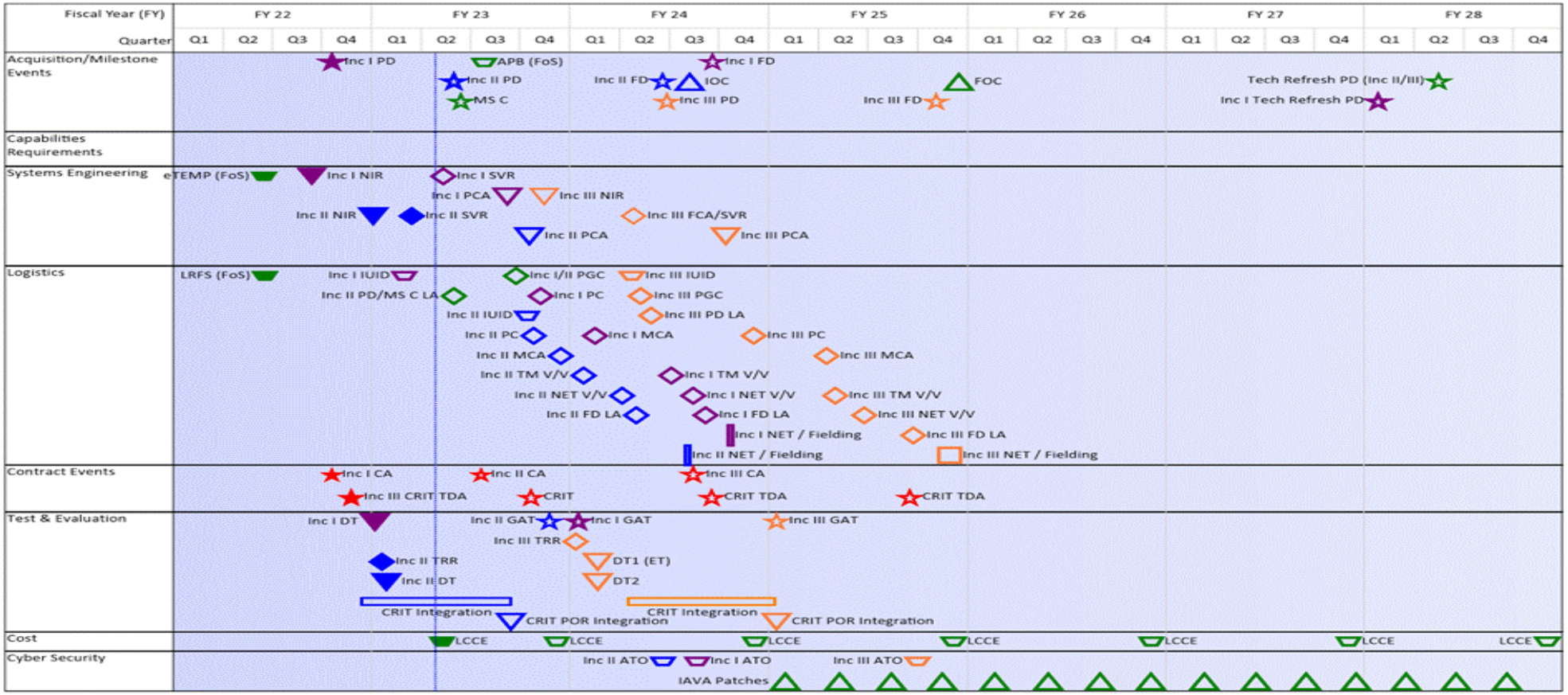

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 3772 / *Information Related Capabilities (IRC)*

Didgital Media Systems - DMS

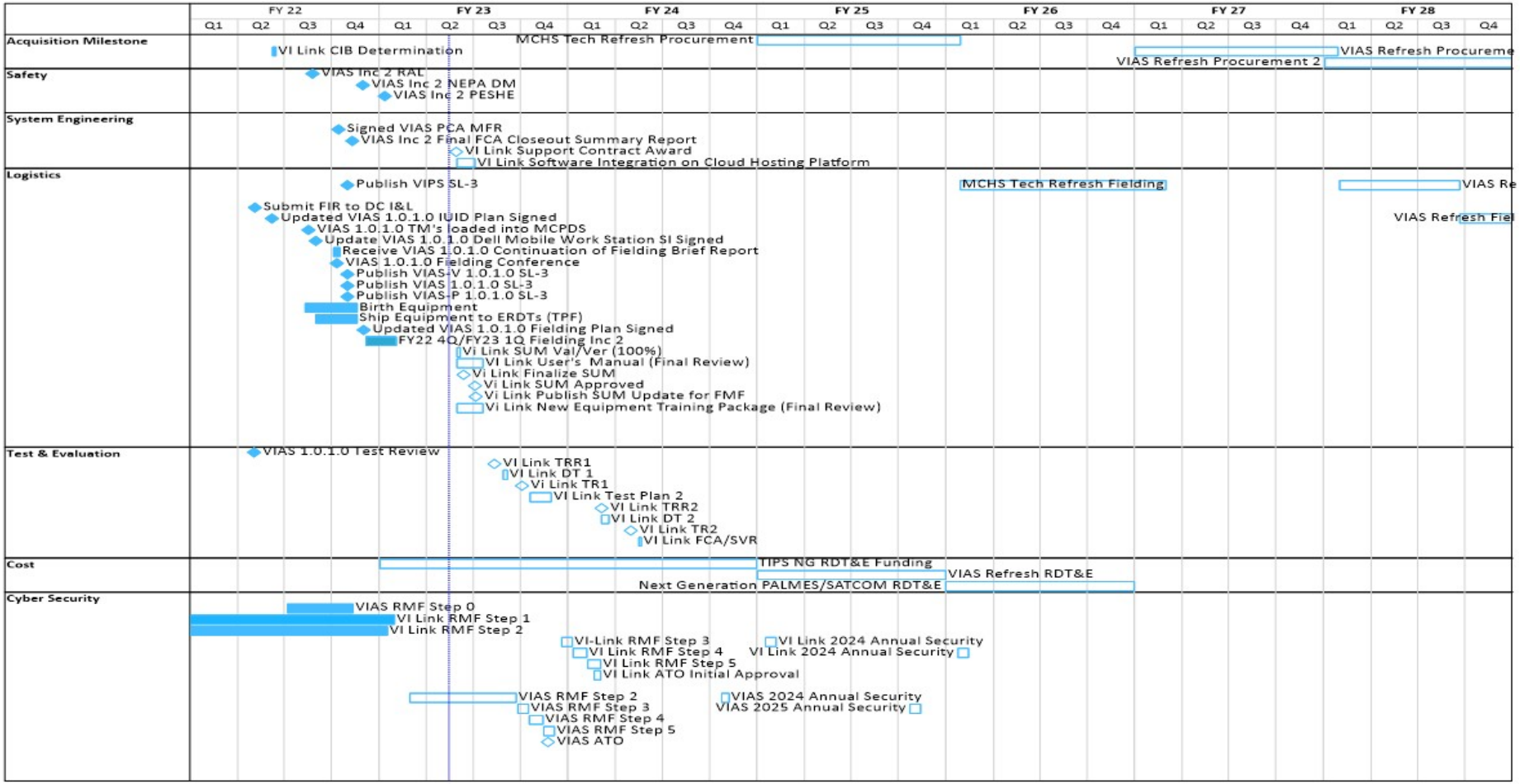

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 3772 / *Information Related Capabilities (IRC)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
SIGMAN				
MS C	2	2023	2	2023
Inc 1 Production Decision	4	2022	4	2022
Inc 2 Production Decision	1	2023	1	2023
Inc 3 Production Decision	2	2024	2	2024
Inc 1 Fielding Decision	3	2024	3	2024
Inc 2 Fielding Decision	2	2024	2	2024
Inc 3 Fielding Decision	4	2025	4	2025
FOC	4	2025	4	2025
IOC	3	2024	3	2024
Inc 3 DT 1 with CRIT	1	2024	1	2024
Inc 3 DT 2 with CRIT	1	2024	1	2024
DMS (Formerly PAS)				
VI LIink TRR	1	2023	1	2023
VI Link DT	1	2023	1	2023
VI Link TR 2	2	2024	2	2024
VI Link FCA/SVR	2	2024	2	2024
MISO				
INT FABS Medium Development	3	2022	4	2022
INT FABS Medium Testing	1	2023	3	2023
Field FABS-L and FABS-M I	3	2023	3	2023
FABS IOC	4	2023	4	2023

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
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	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Field FABS-L and FABS-M II	3	2024	3	2024
FABS FOC	4	2024	4	2024

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
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COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
3773: *Fire Coordination and Sensors*	23.197	8.092	7.974	8.970	-	8.970	9.008	8.969	9.121	9.303	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project 3773 Fire Coordination and Sensors funds the development of critical United States Marine Corps (USMC) fire support coordination, targeting, and digital interoperability systems required for the employment of air and ground fires. Fire Coordination and Sensors provides the systems needed to develop and integrate a digital networked sensor to shooter mission thread supporting the Marine Air Ground Task Force (MAGTF). Key systems included are:

Family of Target Acquisition Systems (FTAS) - The FTAS provides the MAGTF the capability to locate, identify and attack enemy indirect fire weapons systems, and observe and direct friendly artillery fire. The FTAS consists of the AN/TPQ-46B Firefinder radar, the AN/TPQ-54(V)1 Lightweight Counter Mortar Radar Mobile (LCMR), the AN/TPQ-49(A) Lightweight Counter Mortar Radar - Technical Refresh (LCMR-TR), and the Ground Counter Fire Sensor-Replacement (GCFS-R) Scalable Passive Acoustic Reporting and Targeting Node (SPARTN). The FTAS is critical in the execution of counterfire and the integration of target acquisition information enabling attack by MAGTF assets. The FTAS also provides artillery firing units the ability to conduct artillery registration and other friendly fire missions. The FTAS encompasses the equipment required to support target acquisition within the target acquisition platoon and is resident in the headquarters battery of each artillery regiment. The program will initiate development of replacement sensor systems and continue to address system issues that arise due to Diminishing Manufacturing Sources and Material Shortages (DMSMS) items with the FTAS.

Advanced Field Artillery Tactical Data System (AFATDS) Family of Systems (FoS) - The AFATDS FoS consists of two programs: AFATDS, and Mobile Shelters consisting of the Mobile Tactical Shelter (MTS), Target Processing Set (TPS), and the Mobile Command Vehicle (MCV) Shelter. AFATDS integrates all supporting arms assets within the MAGTF, such as mortars, cannon artillery, rockets and missiles, close air support, and naval surface fires support systems. AFATDS automates fire planning, tactical and technical fire direction, and fire support coordination. AFATDS facilitates the employment of USMC and Joint fires capabilities for operations ashore, sea control, sea denial, and other USMC/Joint fires requirements. In FY 2021 the decision was made to transition from the High Mobility Multipurpose Wheeled Vehicle mounted MTS and TPS to the JLTV mounted MCV Shelter for the increased AAO due to Force Design 2030. The MCV Shelter is primarily dedicated to housing the AFATDS and other fire support systems. MCV Shelters enhance the capabilities and survivability of USMC fire support units by enabling rapid emplacements, displacements, and by supporting command, control, and communications on the move.

Target Hand-Off System (THS) - The THS addressed a Marine Corps operational requirement for a lightweight, handheld, and accurate target acquisition engagement coordination system. THS provides MAGTF Commanders with the only man-portable target location and video downlink capability that allows Air Officers and Fire Support Coordinators to prosecute identified targets. The THS' advance interoperability capability provides the MAGTF Commander with the only portable target acquisition system able to interoperate with all target prosecution platforms available on the battlefield. The THS is designed for the Forward Air Controllers (FACs), Forward Observers (FOs), Fire Support Teams (FSTs), Firepower Control Teams (FCTs), Tactical Air Control Parties (TACPs) and Reconnaissance Teams to quickly

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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acquire targets in day, night and near-all-weather visibility conditions, in order to conduct precise, rapid indirect surface fire support, Naval Surface Fire Support (NSFS) and Close Air Support (CAS).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: FTAS	1.911	1.716	1.749	0.000	1.749
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue Correlation / Fusion Technology Transition Agreement (TTA) Transition. - Conduct test and evaluation of software patches for the suite of FTAS equipment. - Initiate the development of the LCMR replacement. - Initiate the development of Engineering Change Proposal (ECP) to address Diminishing Manufacturing Sources and Material Shortages (DMSMS) issues.					
FY 2024 Base Plans: - Continue Correlation/Fusion Technology Transition Agreement (TTA) Transition - Continue conducting test and evaluation of software patches for the suite of FTAS equipment - Continue the development of the LCMR replacement - Continue the development of Engineering Change Proposals (ECPs) to address DMSMS issues.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: Increase of $0.033M from FY 2023 to FY 2024 is a result of expected increased ECP development needs to address DMSMS for the suite of FTAS equipment.					
Title: AFATDS	5.776	5.831	6.786	0.000	6.786
Articles:	-	-	-	-	-
FY 2023 Plans: - Fielding of AFATDS software version 6.8.1.2 patch 4 - Complete test and evaluation support for AFATDS software version 6.8.1.3. - Continue development of AFATDS version 6.8.1.4 software development to support Marine Corps-specific GBASM requirements. - Continue AFATDS 7.0 series software development. - Develop training material and conduct new equipment training (NET).					
FY 2024 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 3773 / *Fire Coordination and Sensors*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Field AFATDS software version 6.8.1.3 - Continue AFATDS version 6.8.1.4 software development. - Conduct test and evaluation support for AFATDS software version 6.8.1.4. - Continue AFATDS 7.0 series software development. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The increase of $0.955M from FY 2023 to FY 2024 reflects increased AFATDS software development to satisfy unique Marine Corps requirements.					
Title: THS	0.405	0.427	0.435	0.000	0.435
Articles:	-	-	-	-	-
FY 2023 Plans: - Initiate the implementation of the Variable Message Format (VMF) Standard 6017E within the THSv2 software. ***FY 2024 Base Plans:*** - Continue the implementation and testing of the Variable Message Format (VMF) Standard 6017E within the THSv2 software. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The increase $0.008M from FY 2023 to FY 2024 is due to inflation and funds the continued testing support required for the Variable Message Format (VMF) Standard 6017E within the THSv2 software.					
Accomplishments/Planned Programs Subtotals	8.092	7.974	8.970	0.000	8.970

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• PMC/4733: *Fire Support System*	38.424	44.822	58.483	-	58.483	185.607	279.256	168.252	267.098	0.000	1,478.878

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 3773 / *Fire Coordination and Sensors*

D. Acquisition Strategy

Family of Target Acquisition Systems (FTAS): FTAS consists of 3 major components: AN/TPQ-46 Firefinder Radar AN/TPQ-49 Lightweight Counter Mortar Radar (LCMR), the AN/TPQ-49(A) Lightweight Counter Mortar Radar - Technical Refresh (LCMR-TR), and the Ground Counter Fire Sensor-Replacement (GCFS-R) Scalable Passive Acoustic Reporting and Targeting Node (SPARTN). The replacement of the AN/TPQ-46 by the Ground/Air Task Oriented Radar (G/ATOR) began in 2018. AN/TPQ-46 activities since 2020 limited to maintaining the authority to operate (ATO) accreditation and supporting remaining systems.

Advance Field Artillery Tactical Data System (AFATDS): AFATD software is managed through the Army Futures Command, Fire Support Command and Control, Aberdeen Proving Ground MD. R&D efforts for the next AFATDS v7.0.X.X, will be a combined effort between the software developer, the Army PM, and the USMC for software through the Defense Information Systems Agency (DISA). Current software enhancements are performed by the U.S. Army, Fort Sill, OK for v6.8.X.X. MCV was designated as an ACAT IV (M) program in September 2020. MCV competitively awarded Other Transactions Authority agreements for prototyping and development and will transition to a FAR contract for production. MCSC will administer both OTA and FAR contracting actions.

THS: The acquisition of components (software/hardware) for the THS initiative will maximize the use of existing Commercial-Off-The-Shelf (COTS), Government-Off-The-Shelf (GOTS), Non-Developmental Item (NDI), and Government Furnished Equipment (GFE). Software must maintain compatibility with seven Programs of Record (POR) and seven Operational Flight Programs (OFP). Equipment is purchased from multiple vendors with Space and Missile Defense Command (SMDC) acting as the lead integrator for the USMC.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 3773 / *Fire Coordination and Sensors*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
FTAS: Correlation/Fusion Development	MIPR	SMDC : Huntsville, AL	2.193	0.751	Mar 2022	0.494	Dec 2022	0.495	Dec 2023	-		0.495	0.000	3.933	-
FTAS: ECP Kit Development	MIPR	TYAD : Tobyhanna, PA	0.508	0.098	Mar 2022	0.167	Dec 2022	0.184	Dec 2023	-		0.184	0.000	0.957	-
THS	MIPR	NAWC : China Lake	0.000	0.405	Nov 2021	0.427	Nov 2022	0.000		-		0.000	0.000	0.832	-
AFATDS v7.0 and 6.8.1.4 SW Dev	C/FFP	CECOM/MITRE : Aberdeen, MD	5.495	0.820	Apr 2022	0.712	Dec 2022	0.000		-		0.000	0.000	7.027	-
AFATDS v7.0 and 6.8.1.4 SW Dev	C/CPFF	DISA/DITCO : Aberdeen, MD	0.851	0.693	Nov 2021	2.264	Nov 2022	0.000		-		0.000	0.000	3.808	-
AFATDS v7.0 and 6.8.1.4 SW Dev	MIPR	NIWC/LANT : Charleston, SC	0.000	0.000		1.081	Jan 2023	0.000		-		0.000	0.000	1.081	-
AFATDS v7.0 and 6.8.1.4 SW Dev	C/FFP	CECOM/MITRE : Aberdeen, MD	0.000	0.000		0.000		0.953	Mar 2024	-		0.953	Continuing	Continuing	Continuing
AFATDS v7.0 and 6.8.1.4 SW Dev	C/CPFF	DISA/DITCO : Aberdeen, MD	0.000	0.000		0.000		3.895	Mar 2024	-		3.895	Continuing	Continuing	Continuing
AFATDS IV&V	MIPR	GSA : Philadelphia, PA	0.000	0.385	Jun 2022	0.000		0.000		-		0.000	0.000	0.385	-
AFATDS Human Factors Engineering	MIPR	NSWC : Dahlgren, VA	0.000	0.103	Apr 2022	0.000		0.000		-		0.000	0.000	0.103	-
AFATDS MCV Development	C/BA	Oshkosh : Oshkosh, WI	2.075	1.004	Feb 2022	0.000		0.000		-		0.000	0.000	3.079	-
AFATDS MCV Development	MIPR	NIWC : Charleston, SD	0.000	2.147	Feb 2022	0.000		0.000		-		0.000	0.000	2.147	-
All Prior Year Cumulative Funds	Various	Various : Various	9.768	0.000		0.000		0.000		-		0.000	0.000	9.768	-
		Subtotal	20.890	6.406		5.145		5.527		-		5.527	Continuing	Continuing	N/A

Remarks

AFATDS - The increase from FY 2023 to FY 2024 is a result of additional AFATDS v6.8.1.4 SW development to support Marine Corps-specific GBASM requirements as well as 7.0 series SW development.
FTAS - The increase from FY 2023 to FY 2024 is a result of expected increased ECP development needs to address DMSMS for the suite of FTAS equipment.
THS - Funds realigned in FY 2024 from Product Development to Test and Evaluation to correctly align the effort.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 3773 / *Fire Coordination and Sensors*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
FTAS: Engineering Support	WR	NSWCDD : Dahlgren, VA	1.067	0.497	Jan 2022	0.403	Nov 2022	0.484	Nov 2023	-		0.484	0.000	2.451	-
FTAS: Test and Evaluation Support	C/FFP	MCTSSA : Camp Pendleton, CA	0.000	0.165	Mar 2022	0.270	Apr 2023	0.276	Mar 2024	-		0.276	0.000	0.711	-
		Subtotal	1.067	0.662		0.673		0.760		-		0.760	0.000	3.162	N/A

Remarks

FTAS - The increase from FY 2023 to FY 2024 supports additional planned engineering support for ECP development needs to address DMSMS for the suite of FTAS equipment.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	C/FFP	various : various	0.424	0.624	Jan 2022	1.774	Apr 2023	1.938	Mar 2024	-		1.938	0.000	4.760	-
Operational Test & Evaluation (OT&E)	MIPR	Various (THS) : Various	0.000	0.000		0.000		0.435	Jan 2024	-		0.435	0.000	0.435	-
		Subtotal	0.424	0.624		1.774		2.373		-		2.373	0.000	5.195	N/A

Remarks

AFATDS Developmental Test - The increase from FY 2023 to FY 2024 is due to an increase in AFATDS software testing requirements to ensure Marine Corps specific requirements have been validated during testing. FY24 developmental testing includes efforts at ARDEC and USMC locations.
THS Operational Test - The increase reflects funds realigned from FY 2023 to FY 2024 from Product Development to Test and Evaluation to correctly align the effort.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
FTAS	C/CPFF	CECOM/MITRE : Ft. Monmouth, NJ	0.816	0.400	Dec 2021	0.382	Nov 2022	0.310	Dec 2023	-		0.310	0.000	1.908	-
		Subtotal	0.816	0.400		0.382		0.310		-		0.310	0.000	1.908	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206313M / *Marine Corps Comms Systems*	Project (Number/Name) 3773 / *Fire Coordination and Sensors*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

FTAS - The decrease from FY 2023 to FY 2024 is a result of the reduced overall required engineering support for the suite of FTAS equipment.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	23.197	8.092		7.974		8.970		-		8.970	Continuing	Continuing	N/A

Remarks

The overall increase is primarily attributed to increased ECP development needs to address DMSMS for the suite of FTAS equipment, and additional Marine Corps requirements for AFATDS SW development.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 3773 / *Fire Coordination and Sensors*

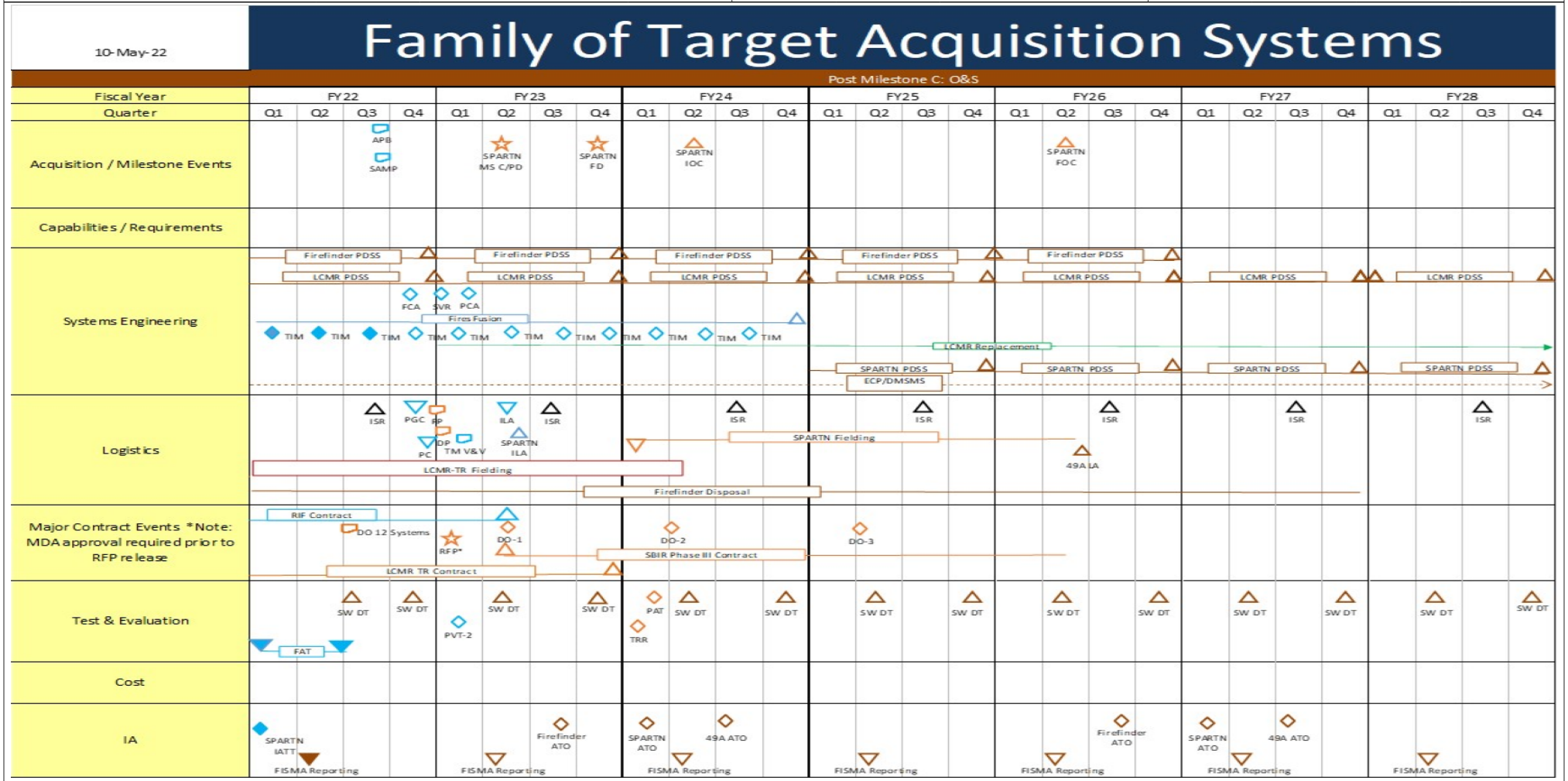

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 3773 / *Fire Coordination and Sensors*

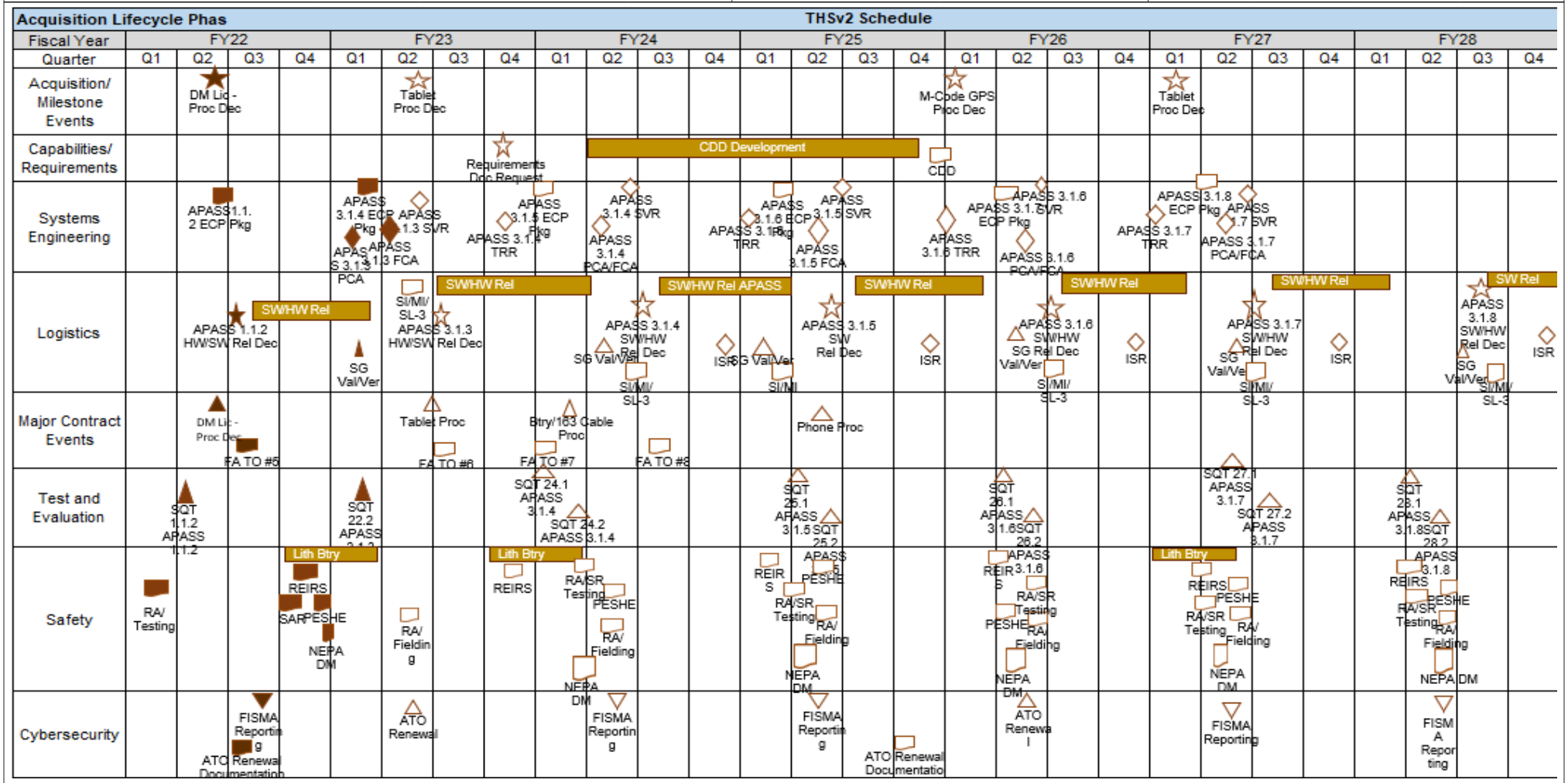

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 3773 / *Fire Coordination and Sensors*

AFATDS Schedule

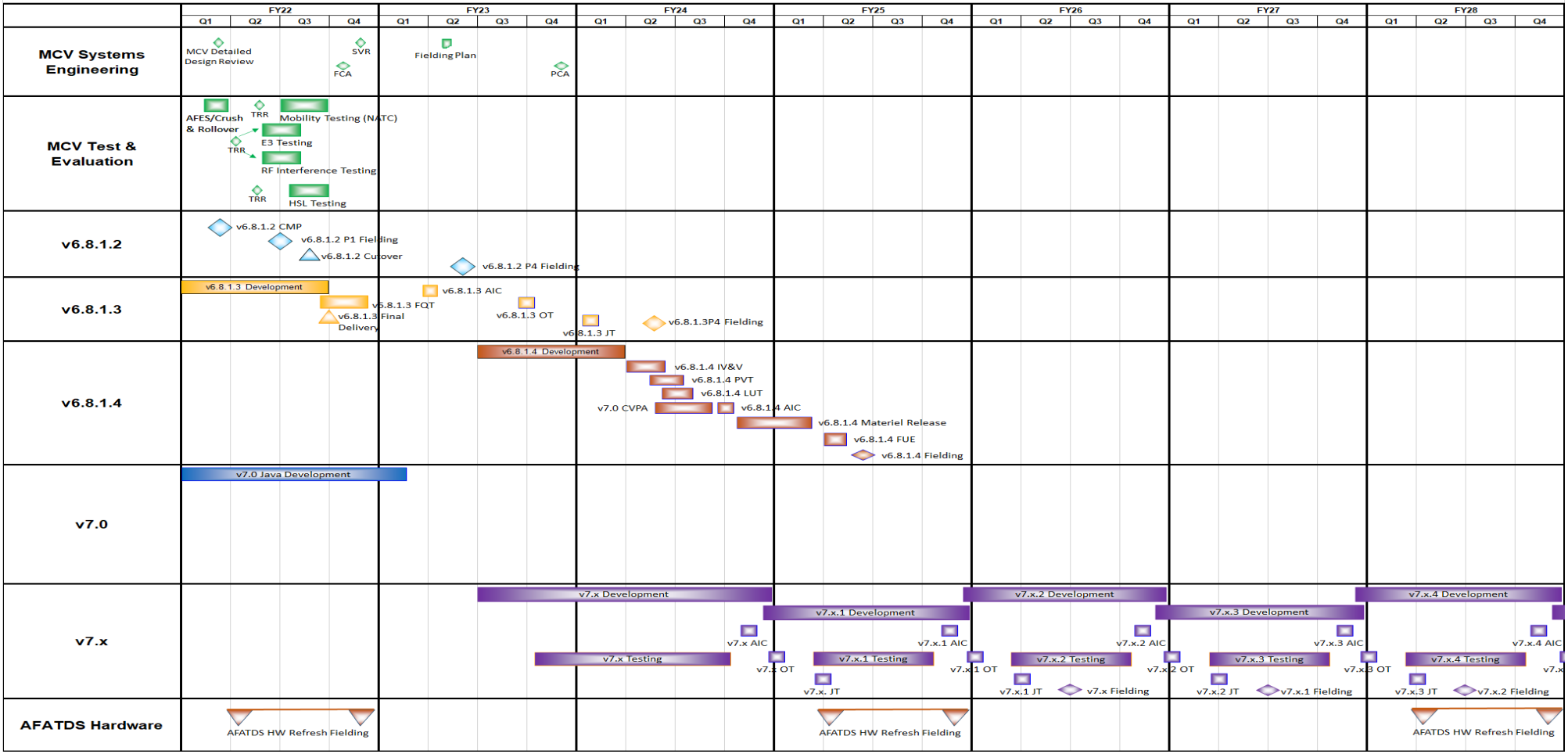

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 3773 / *Fire Coordination and Sensors*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3773				
AFATDS 6.8.1.4	3	2023	1	2024
AFATDS 7.0 Software Development	1	2022	1	2023
AFATDS 7.X Software Development	3	2023	4	2028
FTAS: Correlation/Fusion Engine Development	1	2022	4	2024
FTAS: ECP Kit Development	1	2022	4	2028
FTAS: Software Patch Evaluation	1	2023	1	2028
THS: Software Test Support	1	2022	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206313M / *Marine Corps Comms Systems*	Project (Number/Name) 9999 / *Congressional Adds*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
9999: *Congressional Adds*	0.000	19.307	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	19.307
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Marine Electromagnetic Warfare Ground Family of Systems (MEGFoS): MEGFoS is the future of USMC ground electromagnetic warfare being developed to replace the current capability provided by the Multi-Function Electronic Warfare (MFEW) family of systems which provides counter IED and counter UAS capabilities. The MEGFoS family of systems (FoS) will provide Marine Corps Forces the ability to maneuver effectively in the electromagnetic spectrum (EMS) in a peer-to-peer environment. MEGFoS will employ artificial intelligence (AI) to identify signals of interest (SOI) and provides a networked EW capability equipped with low probability of intercept (LPI) and low probability of detection (LPD) antennas enabling the ability to sense and make sense of the (EMS) throughout the area of operations. MEGFoS provides electronic warfare operators the ability to conduct electronic fires on site, remotely attack targets identified via systems employed by incidental operators, conduct coordinated techniques across multiple systems, or pass target data to other systems to attack with kinetic fires. MEGFoS provides state of the art electronic attack (EA), electronic support (ES), and electronic protection capabilities throughout the EMS. MEGFoS enables an exquisite ability to deny, disrupt, and degrade adversary communications, navigation, RADAR, and other systems operating in the EMS. The ability for instantaneous sensing, identification, exploitation, and disruption of enemy capabilities using non-traditional attack vectors and techniques to defeat sources of intentional and unintentional radiated electromagnetic energy ensures a technological edge to the Marine Corps in a peer-to-peer environment. The MEGFoS detects and protects friendly spectrum access; senses and identifies spectrum usage; and disrupts the adversary's decision cycle. The future operations solution is fulfilled by MEGFoS, a critical Force Design program enabling the Expeditionary Advanced Base Operations (EABO) construct, facilitating ground-based EW in support of Force Design 2030.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023
Congressional Add: Multi-function electronic warfare	19.307	0.000
FY 2022 Accomplishments: -Will initiate the purchase of prototypes for the MEGFoS team portable, dismounted and mounted variants to support the integration of common open hardware backplane based off the C4ISR Modular Open Suites of Standards (CMOSS), and a Sensor Open Systems Architecture (SOSA). -Will initiate the purchase of Military Communication equipment to support the development of a networking capability for dismounted and team portable systems to provide a high level of situational awareness to commanders and Marines at the company level and fully realize advanced EA/ES capabilities for MEGFoS. -Will initiate the purchase of prototype hardware components for the MEGFoS team portable, dismounted and mounted variants.		
FY 2023 Plans: N/A		
Congressional Adds Subtotals	19.307	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 9999 / *Congressional Adds*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• 6520: *MEGFoS*	72.071	160.248	217.270	-	217.270	236.591	85.827	87.328	0.000	0.000	859.335
• 4367A: *MEGFoS*	0.000	0.000	177.270	-	177.270	191.591	85.827	87.328	89.074	Continuing	Continuing

Remarks

MEGFoS funding transfers from BLI 6520 to BLI 4367 beginning FY 2024.

D. Acquisition Strategy

MEGFoS is being developed using the C5ISR/EW Modular Open Suite of Standards (CMOSS) and Sensor Open Systems Architecture (SOSA) standards (in coordination with the Army, Navy, and Air Force) that will provide an open architecture HW & SW non-proprietary platform to host "best of breed" capabilities from across industry. This construct will eliminate multiple proprietary "green boxes" carried by Marines lowering the weight and power requirements in operations, reduce training burdens, lower procurement costs, and reduce sustainment costs. MEGFoS will be employed throughout the FMF, the largest number of systems will be employed by the ground combat element and in Littoral Combat Regiments (LCR). MEGFoS provides coordinated EW in support of Fires and Maneuver, Force Protection, Spectrum Management, and Battlespace Awareness.

This funding line specifically funds the porting of the current highly effective counter IED and counter UAS capabilities from the proprietary Multi-Function Electronic Warfare (MFEW) family of systems into a 3U Virtual Path Cross-Connect (VPX) Field Programmable Gate Array (FPGA) single board computer. This ported capability will reduce a 42 pound backpackable MFEW system into a card based CMOSS compliant SDR allowing for MFEW to be one capability set in the MEGFoS chassis.

In addition, the Congressional Add will support the advancement of Marine Corps Electromagnetic Warfare capabilities from existing proprietary legacy systems to open architecture standards based capabilities for an advanced multi-function electromagnetic warfare mission focused on supporting Electromagnetic Spectrum Operations (EMSO). This advanced multi-function electromagnetic warfare mission is the requirement for MEGFoS, a Force Design critical capability.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 9999 / *Congressional Adds*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MEGFoS	MIPR	Sierra Nevada Corporation : Folsom, CA	0.000	9.024	Apr 2023	0.000		0.000		-		0.000	0.000	9.024	-
MEGFoS	MIPR	MilTech : Bozeman, MT	0.000	3.000	Apr 2023	0.000		0.000		-		0.000	0.000	3.000	-
MEGFoS	MIPR	Schriever Air Force Base : Colorado Springs, CO	0.000	2.556	May 2023	0.000		0.000		-		0.000	0.000	2.556	-
		Subtotal	0.000	14.580		0.000		0.000		-		0.000	0.000	14.580	N/A

Remarks

The Congressional add in FY 2022 supports the advancement of Marine Corps Electromagnetic Warfare capabilities from existing proprietary legacy systems to open architecture SOSA/C4ISR Modular Open Suite of Standards (CMOSS) standards based capabilities for an advanced multi-function electromagnetic warfare mission focused on supporting Electromagnetic Spectrum Operations (EMSO). This funding line specifically funds the porting of the current highly effective counter IED and counter UAS capabilities from the proprietary Multi-Function Electronic Warfare (MFEW) family of systems into a 3U Virtual Path Cross-Connect (VPX) Field Programmable Gate Array (FPGA) single board computer. This ported capability will reduce a 42 pound backpackable MFEW system into a card based CMOSS compliant SDR allowing for MFEW to be one capability set in the MEGFoS chassis.

It will procure a US Space Force developed Range Closed Loop Environment (RCLE). The RCLE provides a complete spectrum testing and training capability that otherwise cannot be done without going out to expensive EW ranges.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	MIPR	NSWC Crane : Crane, IN	0.000	2.428	Apr 2023	0.000		0.000		-		0.000	0.000	2.428	-
		Subtotal	0.000	2.428		0.000		0.000		-		0.000	0.000	2.428	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206313M / *Marine Corps Comms Systems*	Project (Number/Name) 9999 / *Congressional Adds*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MEGFoS	MIPR	MilTech : Bozeman, MT	0.000	2.299	Apr 2023	0.000		0.000		-		0.000	0.000	2.299	-
		Subtotal	0.000	2.299		0.000		0.000		-		0.000	0.000	2.299	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	19.307		0.000		0.000		-		0.000	0.000	19.307	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 9999 / *Congressional Adds*

EWS Congressional Add Funding Schedule

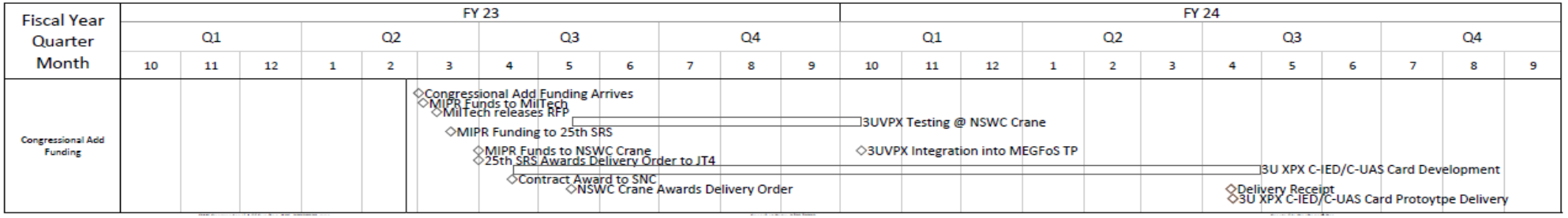

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206313M / *Marine Corps Comms Systems*	**Project (Number/Name)** 9999 / *Congressional Adds*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 9999				
3 UPVX Integration into MEGFOS TP	1	2024	1	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy												Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0206335M *I Common Aviation Command and Control Sys (CAC2S)*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	61.678	12.503	14.865	12.565	-	12.565	7.418	8.594	8.327	4.449	Continuing	Continuing
3373: *Common Aviation Command and Control System (CAC2S)*	61.678	9.081	14.865	12.565	-	12.565	7.418	8.594	8.327	4.449	Continuing	Continuing
9999: *Congressional Adds*	0.000	3.422	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	3.422
Program MDAP/MAIS Code: **Project MDAP/MAIS Code(s):** MN36												

A. Mission Description and Budget Item Justification

Common Aviation Command and Control System (CAC2S) is a Commandant of the Marine Corps Force Design program which provides the Aviation Combat Element with the necessary hardware, software, equipment, and facilities to effectively command, control, and coordinate aviation operations. CAC2S accomplishes the missions with a family of systems to support the Marine Air Ground Task Force (MAGTF), Naval forces, Joint Services, and Coalition Forces. CAC2S integrates the functions of aviation command and control (C2) into an interoperable system that supports the core competencies of all Marine Corps warfighting concepts. CAC2S, in conjunction with the Marine Air Command and Control System organic sensors, AN/TPS-80 Ground/Air Task Oriented Radar, and the weapon system Composite Tracking Network (CTN) provides: enhanced air control, improved situational awareness, sensor integration, full Tactical Data Link integration, airspace and battle planning and command functionality, and sensor netting integration (CTN). CAC2S, with these organic MACCS programs, support the tenets of Expeditionary Maneuver Warfare and foster joint interoperability. CAC2S Increment I replaced legacy aviation command and control systems in the following Marine aviation agencies: Direct Air Support Center, Tactical Air Command Center, Tactical Air Operations Center, and Marine Air Traffic Control. In line with Force Design, CAC2S is to begin the development and prototyping of the Small Form Factor (SFF) variant in FY 2022. The SFF is a CAC2S variant required to meet the needs of Expeditionary Advance Base Operations and Force Design. The SFF variant will possess the same Tactical System, Data Link, and interface capabilities as the CAC2S Increment 1 system with the added benefits of being rapidly deployable, emitting at a lower signature, and reduced size and weight. The SFF's versatility will be a key enabling capability to support the task organization of the Marine Littoral Regiments as it meets the needs of Marine Corps Expeditionary Advance Base Operations.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0206335M *I Common Aviation Command and Control Sys (CAC2S)*

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	12.869	14.865	9.950	-	9.950
Current President's Budget	12.503	14.865	12.565	-	12.565
Total Adjustments	-0.366	0.000	2.615	-	2.615
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.366	0.000			
• Program Adjustments	0.000	0.000	-1.768	-	-1.768
• Rate/Misc Adjustments	0.000	0.000	4.383	-	4.383

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2022	FY 2023
Project: 9999: *Congressional Adds*		
Congressional Add: *Common Aviation Command & Control System Naval Integrated Fire Control*	3.422	0.000
Congressional Add Subtotals for Project: 9999	3.422	0.000
Congressional Add Totals for all Projects	3.422	0.000

Change Summary Explanation

The funding decrease of $2.300M from FY 2023 to FY 2024 is due to completion of development and testing of the SFF variant in FY 2024 as CAC2S transitions to SFF production and fielding, and reduction in the scope required for continued development and analysis to investigate new capabilities associated with the CAC2S FD technology enhancement efforts.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0206335M / *Common Aviation Command and Control Sys (CAC2S)*				Project (Number/Name) 3373 / *Common Aviation Command and Control System (CAC2S)*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
3373: *Common Aviation Command and Control System (CAC2S)*	61.678	9.081	14.865	12.565	-	12.565	7.418	8.594	8.327	4.449	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: MN36

A. Mission Description and Budget Item Justification

Common Aviation Command and Control System (CAC2S) is a Commandant of the Marine Corps (CMC) Force Design (FD) program, which provides the Aviation Combat Element (ACE) with the necessary hardware, software, equipment, and facilities to effectively command, control, and coordinate aviation operations. CAC2S accomplishes the missions with a family of systems to support the Marine Air Ground Task Force (MAGTF), Naval forces, Joint Services, and Coalition Forces. CAC2S integrates the functions of aviation command and control (C2) into an interoperable system that supports the core competencies of all Marine Corps warfighting concepts. CAC2S, in conjunction with the Marine Air Command and Control System (MACCS) organic sensors, AN/TPS-80 Ground/Air Task Oriented Radar (G/ATOR), and the weapon system Composite Tracking Network (CTN) provides enhanced air control, improved situational awareness, sensor integration, full Tactical Data Link integration, airspace and battle planning and command functionality, as well as sensor netting integration (CTN). CAC2S, with these organic MACCS programs, support the tenets of Expeditionary Maneuver Warfare and foster joint interoperability. CAC2S Increment I replaced legacy aviation command and control systems in the following Marine aviation agencies: Direct Air Support Center (DASC), Tactical Air Command Center (TACC), Tactical Air Operations Center (TAOC), and Marine Air Traffic Control (MATC). CAC2S is the C2 system that enables the distribution of G/ATOR sensors and is critical to developing Naval and Marine integrated fire control methods. CAC2S sensor date correlation and distribution via the Composite Tracking Network (CTN) enables Marine Air Ground Task Force sensor data to be shared with Naval forces to inform the Joint targeting and decision-making process. In line with Force Design, CAC2S has begun the development and prototyping of an AN/TSQ-197 AC2S Small Form Factor (SFF) variant. The SFF is a CAC2S variant required to meet the needs of Expeditionary Advance Base Operations and Force Design. The SFF variant will possess the same Tactical System, Data Link, and interface capabilities as the CAC2S Increment 1 system with the added benefits of being rapidly deployable, emitting at a lower signature, and reduced size and weight. In addition, the SFF's versatility will be a key enabling capability to support the task organization of the Marine Littoral Regiments (MLRs) as it meets the needs of US Marine Corps Expeditionary Advance Base Operations (EABO).

The $2.300M decrease from FY 2023 to FY 2024 is due to a reduction in the scope of support required to continue the development and testing of the SFF variant in FY 2024 as CAC2S transitions to SFF production and fielding, and reduction in the scope required for continued development and analysis to investigate new capabilities associated with the CAC2S FD technology enhancement efforts.

In FY 2024:

CAC2S will continue the development and testing of a small form factor (SFF) variant prototype of the AN/TSQ-297 Air Command & Control System. This is an approved FD initiative from the Capabilities Development Directorate (CDD) which is to take into account lessons learned from the Marine Corps Warfighting Laboratory (MCWL)

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206335M / *Common Aviation Command and Control Sys (CAC2S)*	**Project (Number/Name)** 3373 / *Common Aviation Command and Control System (CAC2S)*

Rapid Capabilities Office (RCO) initiatives with 15th Marine Expeditionary Unit (MEU) and war gaming exercises per CMC guidance, in support the USMC Expeditionary Advanced Base Operations (EABO) concept, which is an amphibious forward operating unit that will secure, sustain, and maintain warfighters and their weapons systems on a more amorphous and difficult-to-target forward-basing infrastructure. This system variant is to be developed and produced to meet the critical shortfalls of forward deployed small, scalable, survivable aviation C2 nodes capable of performing control of aircraft and missiles necessary for integration and defeat of dynamic targets performed by MAGTF, naval, joint, and national technical enabling capabilities like the current fielded AN/TSQ-297. The SFF variant will be fielded to the Marine Littoral Regiments (MLRs).

CAC2S will continue to develop and integrate Naval Integrated Fire Control (NIFC). This initiative allows CAC2S to be a key enabler in the Joint Fight in executing the Kill Web across the MAGTF and Joint Services, linking sensors and weapons in providing fire control solutions from information from multiple sensors. IFC capabilities complement and support sea-based sensor and weapon system extend the Sea Shield's engagement capabilities to provide early warning and engagement of airborne threats to the MAGTF and Naval Forces.

CAC2S will continue to develop and integrate the Automatic Dependent Surveillance - Broadcast (ADS-B) system, ADS-B receiver, and related peripheral equipment and data into CAC2S's AN/TSQ-197 AC2S. CAC2S will be able to leverage information provided by the ADS-B to produce a complete air picture to support commanders in the decision making process. ADS-B ground stations are small and adaptable and will allow CAC2S to reach farther than conventional radar to gather information needed to maintain situational awareness on the battlefield. With the Marine Corps transitioning to Expeditionary Advanced Base Operations (EABO) the ability to utilize ADS-B will also help enhance system survivability by utilizing a passive capability, vice active radar, to provide vital aircraft information and quickly conduct combat identification.

CAC2S will begin to develop and test engineering changes for the integration of its AN/TSQ-297 and AN/MRQ-13 Communications Subsystem onto the M1279 Joint Light Tactical Vehicle (JLTV) and the M1289 trailer. CAC2S will begin the replacement of it current aging prime mover, the legacy HMMWV (Humvee), in FY 2025.

Lastly, CAC2S will continue to investigate Force Design Technology Enhancements. It will research new capabilities derived from Force Design and EABO, and conduct analysis on the technical approaches needed to align efforts and prepare for future initiatives. All efforts directly support CAC2S's anticipated roles within EABO and Littoral Operations in a Contested Environment concept of operations, and provide the ability to conduct sea control and sea denial operations both from sea and from key maritime terrain. Analysis is necessary to inform priorities and FD initiatives.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Product Development	4.800	9.419	6.496	0.000	6.496
Articles:	-	-	-	-	-
FY 2023 Plans: - To begin the development and integration Naval Integrated Fire Control (NIFC). - To begin research of new capabilities derived from Force Design and the Expeditionary Advance Base Operations (EABO) concept, and conduct analysis on the technical approaches needed.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206335M / *Common Aviation Command and Control Sys (CAC2S)*	**Project (Number/Name)** 3373 / *Common Aviation Command and Control System (CAC2S)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- To continue the development and testing of the AN/TSQ-297 Air Command & Control (AC2S) Small Form Factor (SFF) variant. ***FY 2024 Base Plans:*** - To begin the integration development of the AN/TSQ-297 and AN/MRQ-13 CS onto the M1279 Joint Light Tactical Vehicle (JLTV) and the M1289 trailer - To continue the development and integration of Naval Integrated Fire Control (NIFC). - To continue research of new capabilities derived from Force Design and the EABO concept, and conduct analysis on the technical approaches needed. - To continue the development and testing of the AN/TSQ-297 Air Command & Control (AC2S) Small Form Factor (SFF) variant. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The funding decrease from FY 2023 to FY 2024 is due to the completion of AC2S SFF development and decrease in scope required for CAC2S system research for Force Design technology enhancements.					
Title: Support	1.536	1.932	2.186	0.000	2.186
Articles:	-	-	-	-	-
FY 2023 Plans: - To continue yearly Cyber Compliance Tests required with each of the CAC2S quarterly software releases and conduct the Annual Security Review testing to support the maintenance of the CAC2S ATO/ATC. - To complete interface testing for new military-grade COTS IT hardware and software for the technology refresh of the AN/TSQ-297 Air Command & Control Systems. - To continue the development required to integrate Multifunctional Information Distribution System Joint Tactical Radio Systems (MIDS JTRS) for the AN/TSQ-297 AC2S Link-16 modernization. This is a Deputy SECDEF mandated system upgrade which enhances operational effectiveness without consuming more space, weight or power. ***FY 2024 Base Plans:*** - To continue yearly Cyber Compliance Tests required with each of the CAC2S quarterly software releases and conduct the Annual Security Review testing to support the maintenance of the CAC2S ATO/ATC.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206335M / *Common Aviation Command and Control Sys (CAC2S)*	**Project (Number/Name)** 3373 / *Common Aviation Command and Control System (CAC2S)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- To continue the development required to integrate MIDS JTRS for the AN/TSQ-297 AC2S Link-16 modernization. - To begin the engineering support for the integration of the Automatic Dependent Surveillance - Broadcast (ADS-B) system capability. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The funding increase from FY 2023 to FY 2024 is due to a increase in support for MIDS-JTRS interface development support.					
Title: Management Services ***Articles:*** ***FY 2023 Plans:*** - To fund continued support from vendor MITRE to monitor CAC2S integration efforts with the MACS sensors, G/ATOR, CTN/CEC, and GBAD development. MITRE continue its development of prototype radar and track data injection tools to facilitate contractor integration and Government laboratory testing of CAC2S. ***FY 2024 Base Plans:*** - To fund continued support from vendor MITRE to monitor CAC2S integration efforts with the MACS sensors, G/ATOR, CTN/CEC, and GBAD development. MITRE continue its development of prototype radar and track data injection tools to facilitate contractor integration and Government laboratory testing of CAC2S. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The funding increase from FY 2023 to FY 2024 is due to the increase in support from MITRE for development tools to support government laboratory testing.	0.682 -	0.700 -	1.200 -	0.000 -	1.200 -
Title: Test and Evaluation ***Articles:*** ***FY 2023 Plans:*** - To continue required integration and interface testing of upgraded hardware components and software enhancements.	2.063 -	2.814 -	2.683 -	0.000 -	2.683 -

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206335M / *Common Aviation Command and Control Sys (CAC2S)*	**Project (Number/Name)** 3373 / *Common Aviation Command and Control System (CAC2S)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- To continue testing to support system software capability enhancements for capability improvement and to maintain system ATO and ATC. - To complete interface testing for new military-grade COTS IT hardware and software for the technology refresh of the AN/TSQ-297 Air Command & Control Systems. - To begin the development testing for the Automatic Dependent Surveillance - Broadcast (ADS-B) system capability. ***FY 2024 Base Plans:*** - To continue required integration and interface testing of upgraded hardware components and software enhancements. - To continue testing to support system software capability enhancements for capability improvement and to maintain system ATO and ATC. - To continue the development testing for the Automatic Dependent Surveillance - Broadcast (ADS-B) system capability. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The funding decrease from FY 2023 to FY 2024 is due to the reduction of scope required for the developmental testing for ADS-B system integration.					
Accomplishments/Planned Programs Subtotals	9.081	14.865	12.565	0.000	12.565

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• PMC/4644: *Common Aviation Command And Control System (CAC2S)*	18.247	30.292	75.382	-	75.382	77.304	69.807	12.965	11.970	0.000	524.089

Remarks

RDT&E prior to FY 2015 was in PE 0206313M Marine Corps Comms Systems, Project 2273 Air Operations Command & Control (C2) Systems.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206335M / *Common Aviation Command and Control Sys (CAC2S)*	**Project (Number/Name)** 3373 / *Common Aviation Command and Control System (CAC2S)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost

PMC funding for FY 2015 and beyond was in BLI 4644 Common Aviation Command and Control System (CAC2S). Prior to FY 2015 PMC funding is listed in BLI 4640 Air Operations C2 Systems, Common Aviation Command and Control Systems (CAC2S).

D. Acquisition Strategy

CAC2S employs an evolutionary acquisition strategy utilizing an incremental and phased approach for development and fielding of the CAC2S. The Capability Production Document (CPD) identifies two increments to achieve the full requirements of CAC2S. The current acquisition strategy addresses Increment I of the CAC2S development process and focuses on the requirements that will modernize the assault and air support, air defense and control, and Aviation Combat Element (ACE) battle management capabilities of the Marine Air Command and Control System (MACCS). Increment I of the CAC2S has been accomplished through a two phased approach. Phase 1 addressed the requirements to establish the baseline CAC2S capabilities for the MACCS and improved Air Command and Control (AC2) performance and effectiveness. Phase 2 addresses the requirements for remaining ACE Battle Management Command & Control (BMC2) requirements. Nine (9) Phase 2 Limited Deployment Unit systems were procured in FY 2015 and FY 2016 and fielded in FY 2017. The Full Deployment Unit (FDU) production contract was awarded 24 August 2017 and a total of forty one (41) systems were procured and fielded over three years (FY 2018-FY 2020).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206335M / *Common Aviation Command and Control Sys (CAC2S)*	Project (Number/Name) 3373 / *Common Aviation Command and Control System (CAC2S)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
AC2S SFF Development	C/BA	NSWC Crane : Crane, IN	0.000	4.800	Nov 2021	3.140	Nov 2022	0.238	Nov 2023	-		0.238	0.000	8.178	-
NIFC Development	C/BA	NSWC Crane : Crane, IN	0.000	0.000		2.229	Nov 2022	0.648	Nov 2023	-		0.648	0.000	2.877	-
Force Design Technology Enhancements	C/BA	NSWC Crane : Crane, IN	0.000	0.000		4.050	Feb 2023	1.100	Feb 2024	-		1.100	0.000	5.150	-
NIFC Development	C/FFP	Raytheon Solipsys : Fulton, MD	0.000	0.000		0.000		0.485	May 2024	-		0.485	0.000	0.485	-
Prime Mover Integration Development	C/BA	NSWC Crane : Not Specified	0.000	0.000		0.000		4.025	Mar 2024	-		4.025	0.000	4.025	-
		Subtotal	0.000	4.800		9.419		6.496		-		6.496	0.000	20.715	N/A

Remarks

The funding decrease from FY 2023 to FY 2024 is due to the completion of AC2S SFF development and decrease in scope required for CAC2S system research for Force Design Technology Enhancements.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	Various	Travel : TBD	0.409	0.075	Oct 2021	0.095	Oct 2022	0.096	Oct 2023	-		0.096	Continuing	Continuing	Continuing
Engineering Support	WR	NSWC DD : Dahlgren, VA	2.761	0.000		0.000		0.253	Nov 2023	-		0.253	0.000	3.014	-
Acquisition Support	WR	NSWC CD : Crane, IN	1.663	0.796	Nov 2021	1.238	Nov 2022	0.820	Nov 2023	-		0.820	0.000	4.517	-
Software Support	C/FFP	Raytheon Solipsys : Fulton, MD	1.081	0.249	May 2022	0.249	May 2023	0.250	May 2024	-		0.250	0.000	1.829	-
Software Support	C/FFP	Ternion : Huntsville, AL	0.344	0.198	May 2022	0.000		0.000		-		0.000	0.000	0.542	-
Software Support	C/FFP	Ultra : San Diego, CA	0.298	0.218	Jun 2022	0.350	Jun 2023	0.767	Jun 2024	-		0.767	0.000	1.633	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206335M / *Common Aviation Command and Control Sys (CAC2S)*	**Project (Number/Name)** 3373 / *Common Aviation Command and Control System (CAC2S)*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Years Cumulative Funding	Various	Various : Various	4.121	0.000		0.000		0.000		-		0.000	0.000	4.121	-
		Subtotal	10.677	1.536		1.932		2.186		-		2.186	Continuing	Continuing	N/A

Remarks

The funding increase from FY 2023 to FY 2024 is due to a increase in support for MIDS-JTRS interface development support.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation (OT&E)	WR	NSWC CD : Crane, IN	12.537	1.477	Nov 2021	1.626	Nov 2022	1.010	Nov 2023	-		1.010	7.445	24.095	-
Operational Test & Evaluation (OT&E)	WR	NSWC DD : Dahlgren, VA	5.691	0.000		0.000		0.000		-		0.000	0.000	5.691	-
Developmental Test & Evaluation (DT&E)	WR	NSWC Corona : Corona, CA	1.418	0.381	Nov 2021	1.113	Nov 2022	1.648	Nov 2023	-		1.648	0.000	4.560	-
Operational Test & Evaluation (OT&E)	C/BA	JITC : Ft. Huachuca, NM	0.166	0.205	Jan 2022	0.075	Jan 2023	0.025	Jan 2024	-		0.025	0.000	0.471	-
Developmental Test & Evaluation (DT&E)	Various	Various : Various	22.795	0.000		0.000		0.000		-		0.000	0.000	22.795	-
		Subtotal	42.607	2.063		2.814		2.683		-		2.683	7.445	57.612	N/A

Remarks

The funding decrease from FY 2023 to FY 2024 is due to the reduction of scope required for the developmental testing for the Automatic Dependent Surveillance - Broadcast (ADS-B) system.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206335M / *Common Aviation Command and Control Sys (CAC2S)*	**Project (Number/Name)** 3373 / *Common Aviation Command and Control System (CAC2S)*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
T&E Mgmt Support	C/FFP	GID : Fredericksburg, VA	0.266	0.000		0.000		0.000		-		0.000	0.000	0.266	-
Sensor Management	C/FFP	MITRE : Bedford, MA	5.396	0.682	Sep 2022	0.700	Sep 2023	1.200	Sep 2024	-		1.200	2.958	10.936	-
Prior Years Cumulative Funding	Various	Various : Various	2.732	0.000		0.000		0.000		-		0.000	0.000	2.732	19,096.227
		Subtotal	8.394	0.682		0.700		1.200		-		1.200	2.958	13.934	N/A

Remarks

The funding increase from FY 2023 to FY 2024 is due to the increase in support from MITRE for development tools to support government laboratory testing.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	61.678	9.081		14.865		12.565		-		12.565	Continuing	Continuing	N/A

Remarks

The funding decrease from FY 2023 to FY 2024 is due to completion of development and testing of the SFF variant in FY 2024 as CAC2S transitions to SFF production and fielding, and reduction in the scope required for continued development and analysis to investigate new capabilities associated with the CAC2S FD technology enhancement efforts.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206335M / *Common Aviation Command and Control Sys (CAC2S)*	**Project (Number/Name)** 3373 / *Common Aviation Command and Control System (CAC2S)*

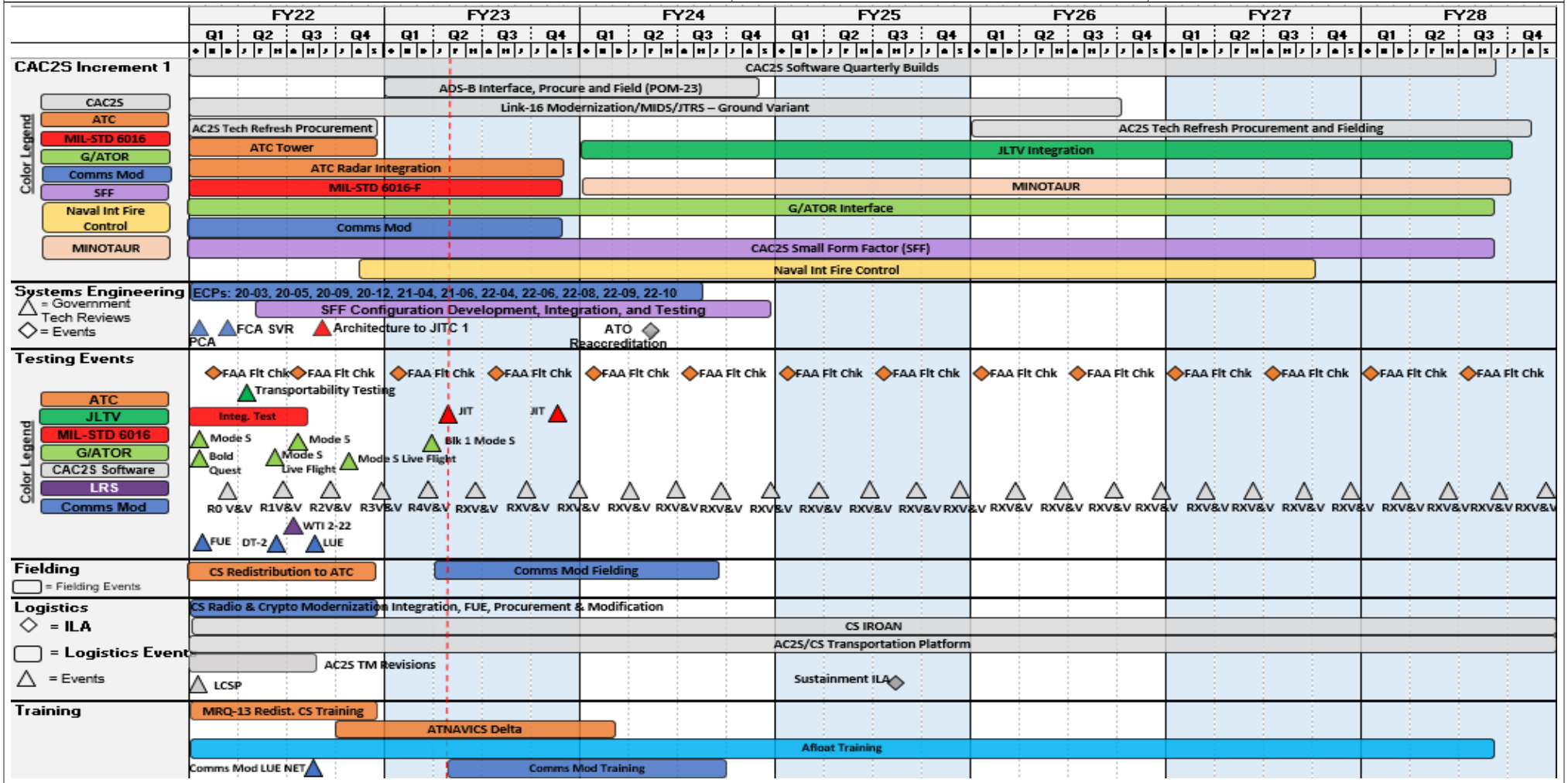


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206335M / *Common Aviation Command and Control Sys (CAC2S)*	**Project (Number/Name)** 3373 / *Common Aviation Command and Control System (CAC2S)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3373				
Milestones: AN/TSQ-297 AC2S FRP/FDU FOC Threshold	2	2022	2	2022
Milestones: ATC IOC	3	2022	3	2022
Milestones: Comms Mod Fielding Decision	4	2022	4	2022
Milestones: Comms Mod IOC	3	2023	3	2023
CAC2S Increment 1: Quarterly SW Releases	1	2022	4	2028
CAC2S Increment 1: Air Traffic Control (ATC) Integration	1	2022	4	2022
CAC2S Increment 1: Comms Mod	1	2022	2	2023
CAC2S Increment 1: CAC2S Small Form Factor	1	2022	4	2028
CAC2S Increment 1: G/ATOR Interface	1	2022	4	2028
CAC2S Increment 1: MIL-STD 6016-F	1	2022	4	2023
CAC2S Increment 1: Link-16 Modernization (MID-JTRS)	1	2022	4	2026
CAC2S Increment 1: AC2S Tech Refresh procurement	1	2022	4	2023
CAC2S Increment 1: AC2S Tech Refresh procurement and fielding	1	2026	1	2028
CAC2S Increment 1: ADS-B Interface	1	2023	4	2026
CAC2S Increment 1: JLTV Integration	1	2024	4	2028
CAC2S Increment 1: MINOTAUR development and integration	1	2024	4	2028
Systems Engineering: Small Form Factor Development, Integration, and Testing	2	2022	1	2025
Systems Engineering: Comms Mod ECPs	1	2022	3	2024
Testing Events: Air Traffic Control (ATC) FAA Flight Checks	1	2022	1	2028
Testing Events: AN/MRQ-13 CS FUE	1	2022	1	2022
Testing Events: MIL-STD 6016-F Integration Test	1	2022	3	2022

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206335M / *Common Aviation Command and Control Sys (CAC2S)*	**Project (Number/Name)** 3373 / *Common Aviation Command and Control System (CAC2S)*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Testing Events: G/ATOR Interface Mode S Testing	2	2022	4	2022
Testing Events: Link-16 Modernization V&Vs	1	2022	4	2028
Logistics: AN/MRQ-13 CS IROAN	1	2022	4	2028
Logistics: AC2S/CS Transportation Platform	1	2022	4	2028
Logistics: AC2S Tech Manual Revisions	1	2022	3	2022
Fielding: Comms Mod Fielding	2	2023	3	2024
Fielding: CS Redistribution to ATC	1	2022	4	2022

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206335M / *Common Aviation Command and Control Sys (CAC2S)*	Project (Number/Name) 9999 / *Congressional Adds*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
9999: *Congressional Adds*	0.000	3.422	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	3.422
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Common Aviation Command and Control System (CAC2S) is a Commandant of the Marine Corps (CMC) Force Design (FD) program, which provides the Aviation Combat Element (ACE) with the necessary hardware, software, equipment, and facilities to effectively command, control, and coordinate aviation operations. CAC2S accomplishes the missions with a family of systems to support the Marine Air Ground Task Force (MAGTF), Naval forces, Joint Services, and Coalition Forces. CAC2S integrates the functions of aviation command and control (C2) into an interoperable system that supports the core competencies of all Marine Corps warfighting concepts. CAC2S, in conjunction with the Marine Air Command and Control System (MACCS) organic sensors, AN/TPS-80 Ground/Air Task Oriented Radar (G/ATOR), and the weapon system Composite Tracking Network (CTN) provides enhanced air control, improved situational awareness, sensor integration, full Tactical Data Link integration, airspace and battle planning and command functionality, as well as sensor netting integration (CTN). CAC2S, with these organic MACCS programs, support the tenets of Expeditionary Maneuver Warfare and foster joint interoperability. CAC2S Increment I replaced legacy aviation command and control systems in the following Marine aviation agencies: Direct Air Support Center (DASC), Tactical Air Command Center (TACC), Tactical Air Operations Center (TAOC), and Marine Air Traffic Control (MATC). CAC2S is the C2 system that enables the distribution of G/ATOR sensors and is critical to developing Naval and Marine integrated fire control methods. CAC2S sensor date correlation and distribution via the Composite Tracking Network (CTN) enables Marine Air Ground Task Force sensor data to be shared with Naval forces to inform the Joint targeting and decision-making process. In line with Force Design, CAC2S is to begin the development and prototyping of the Small Form Factor (SFF) variant in FY 2022. The SFF is a CAC2S variant required to meet the needs of Expeditionary Advance Base Operations and Force Design. The SFF variant will possess the same Tactical System, Data Link, and interface capabilities as the CAC2S Increment 1 system with the added benefits of being rapidly deployable, emitting at a lower signature, and reduced size and weight. In addition, the SFF's versatility will be a key enabling capability to support the task organization of the Marine Littoral Regiments (MLRs) as it meets the needs of US Marine Corps Expeditionary Advance Base Operations (EABO).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023
Congressional Add: Common Aviation Command & Control System Naval Integrated Fire Control	3.422	0.000
FY 2022 Accomplishments: - To begin the development and integration of Naval Integrated Fire Control (NIFC).		
FY 2023 Plans: N/A		
Congressional Adds Subtotals	3.422	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206335M / *Common Aviation Command and Control Sys (CAC2S)*	**Project (Number/Name)** 9999 / *Congressional Adds*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• PMC/4644: *Common Aviation Command And Control System (CAC2S)*	18.247	30.292	34.739	-	34.739	11.391	5.998	6.064	6.185	0.000	341.038

Remarks

PMC funding for FY 2015 and beyond was in BLI 4644 Common Aviation Command and Control System (CAC2S). Prior to FY 2015 PMC funding is listed in BLI 4640 Air Operations C2 Systems, Common Aviation Command and Control Systems (CAC2S).

D. Acquisition Strategy

CAC2S employs an evolutionary acquisition strategy utilizing an incremental and phased approach for development and fielding of the CAC2S. The Capability Production Document (CPD) identifies two increments to achieve the full requirements of CAC2S. The current acquisition strategy addresses Increment I of the CAC2S development process and focuses on the requirements that will modernize the assault and air support, air defense and control, and Aviation Combat Element (ACE) battle management capabilities of the Marine Air Command and Control System (MACCS). Increment I of the CAC2S has been accomplished through a two phased approach. Phase 1 addressed the requirements to establish the baseline CAC2S capabilities for the MACCS and improved Air Command and Control (AC2) performance and effectiveness. Phase 2 addresses the requirements for remaining ACE Battle Management Command & Control (BMC2) requirements. Nine (9) Phase 2 Limited Deployment Unit systems were procured in FY 2015 and FY 2016 and fielded in FY 2017. The Full Deployment Unit (FDU) production contract was awarded 24 August 2017 and a total of forty one (41) systems were procured and fielded over three years (FY 2018-FY 2020).

CAC2S completed the procurement and integration of upgraded components for the technology refresh of its AN/MRQ-13 Communications Subsystem (CS) for Radio and Crypto Modernization. The CS upgrade replaces 2006-era, obsolete voice/data communications components with modernized equipment that is more reliable, readily supportable and cyber-secure, enabling integration with CAC2S networks and interoperability with joint forces.

In FY 2022, CAC2S received a Congressional Add to begin the development and integration of Naval Integrated Fire Control (NIFC). This initiative will allow CAC2S to be a key enabler in the Joint Fight in executing the Kill Web across the MAGTF and Joint Services linking sensors and weapons in providing fire control solutions from information from multiple sensors. IFC capabilities complement and support sea-based sensor and weapon system extend the Sea Shield's engagement capabilities to provide early warning and engagement of airborne threats to the MAGTF and Naval Forces.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206335M / *Common Aviation Command and Control Sys (CAC2S)*	**Project (Number/Name)** 9999 / *Congressional Adds*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NIFC Development	C/FFP	Raytheon Solipsys : Fulton, MD	0.000	1.745	Jul 2022	0.000		0.000		-		0.000	0.000	1.745	-
NIFC Development	C/BA	NSWC Crane : Crane, IN	0.000	1.677	Jun 2022	0.000		0.000		-		0.000	0.000	1.677	-
		Subtotal	0.000	3.422		0.000		0.000		-		0.000	0.000	3.422	N/A

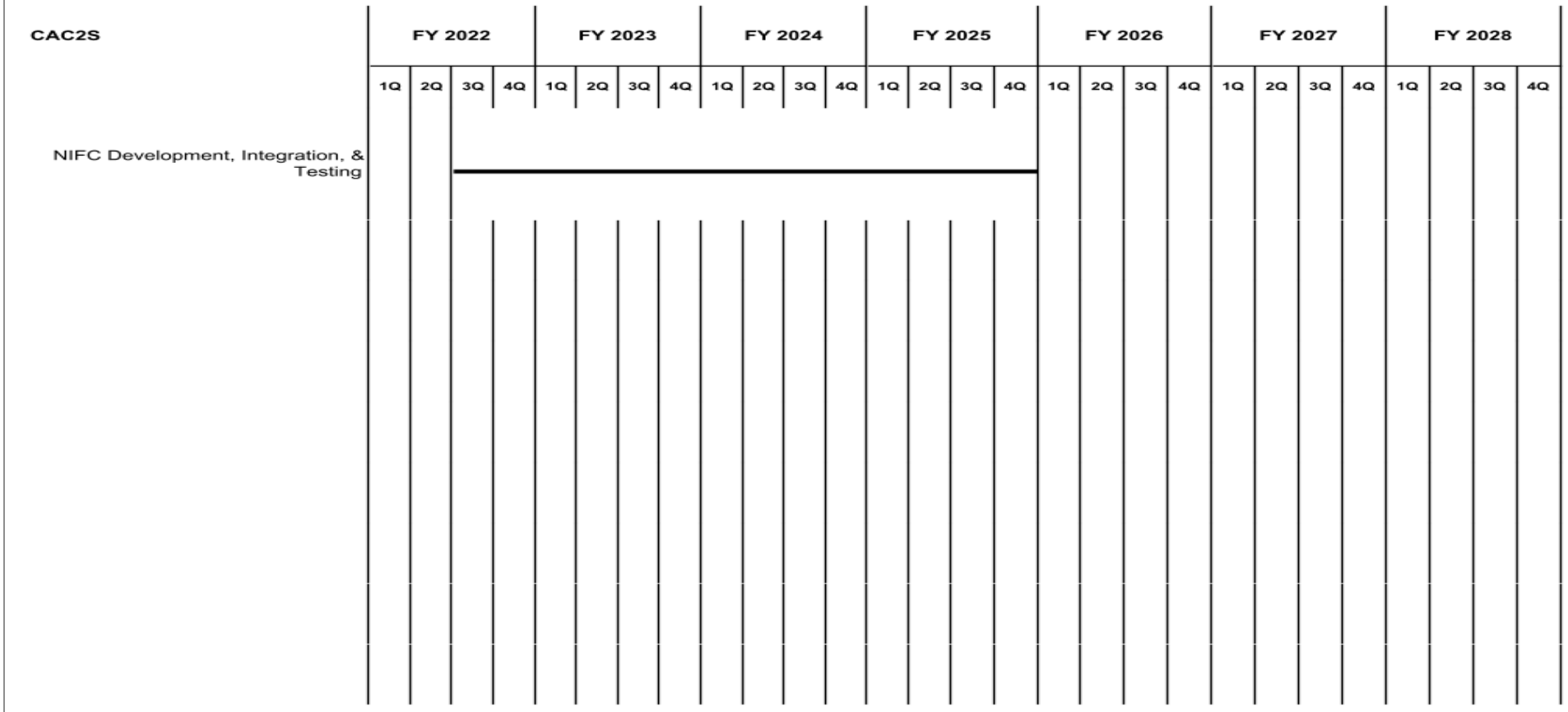
Remarks

The net decrease of $3.545M from FY 2022 to FY 2023 is due to Congressional add funding provided to support the development and integration of Naval Integrated Fire Control (NIFC) in FY22.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	3.422		0.000		0.000		-		0.000	0.000	3.422	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206335M / *Common Aviation Command and Control Sys (CAC2S)*	**Project (Number/Name)** 9999 / *Congressional Adds*



2024DON - 0206335M - 9999

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206335M / *Common Aviation Command and Control Sys (CAC2S)*	**Project (Number/Name)** 9999 / *Congressional Adds*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
CAC2S				
NIFC Development, Integration, & Testing: CAC2S Naval Integrated Fire Control Development, Integration, & Testing	3	2022	4	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0206623M *I MC Ground Cmbt Spt Arms Sys*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	839.255	84.344	106.036	83.900	-	83.900	99.478	98.365	90.635	90.600	Continuing	Continuing
1555: *Lt Armored Vehicle Prog*	140.689	0.727	1.125	1.880	-	1.880	3.574	3.433	3.498	3.568	Continuing	Continuing
1901: *MC Grnd Wpnry Prod Improvement*	69.854	7.215	8.435	10.543	-	10.543	6.764	6.385	6.479	6.610	Continuing	Continuing
2086: *Soldier/Marine Enhancement*	41.987	0.957	1.483	2.357	-	2.357	2.293	2.171	2.209	2.253	Continuing	Continuing
2112: *Lightweight 155mm Howitzer*	6.703	1.967	0.015	0.015	-	0.015	0.013	0.013	0.012	0.012	Continuing	Continuing
2237: *Amphibious Vehicle Test*	20.366	2.795	2.733	3.246	-	3.246	3.103	3.084	3.136	3.199	Continuing	Continuing
2315: *Training Devices/ Simulators*	192.826	35.090	36.833	27.494	-	27.494	35.222	30.701	28.442	28.935	Continuing	Continuing
2503: *Initial Issue*	68.130	4.213	13.294	5.850	-	5.850	13.961	14.904	11.114	11.379	Continuing	Continuing
2513: *Body Armor*	52.897	4.518	5.468	5.269	-	5.269	4.814	4.899	4.980	5.080	Continuing	Continuing
2530: *Unmanned Expeditionary Systems*	0.000	0.000	0.000	16.039	-	16.039	11.339	10.949	10.282	8.673	Continuing	Continuing
2928: *Exp Indirect Fire Gen Supt Wpn Sys*	49.497	0.494	0.512	0.521	-	0.521	0.527	0.536	0.545	0.556	Continuing	Continuing
3098: *Fire Support System*	173.619	2.761	2.241	3.335	-	3.335	11.055	15.362	15.433	15.741	Continuing	Continuing
3774: *Marine Corps Ammo*	4.001	10.084	10.724	5.100	-	5.100	4.947	4.220	2.763	2.818	Continuing	Continuing
3775: *Family of Internally Transportable Vehicles (FITV)*	5.266	0.871	0.000	0.383	-	0.383	0.340	0.252	0.257	0.262	Continuing	Continuing
4002: *Family of Raid Reconnaissance*	13.420	12.652	17.673	1.868	-	1.868	1.526	1.456	1.485	1.514	Continuing	Continuing
9999: *Congressional Adds*	0.000	0.000	5.500	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	5.500

A. Mission Description and Budget Item Justification

This Program Element (PE) provides modification to Marine Corps Expeditionary Ground Force Weapon Systems to increase lethality, range, survivability and operational effectiveness. In addition, the PE provides for product improvements to the family of LAVs. The Amphibious Vehicle Test Branch (AVTB) provides facilities

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0206623M *I MC Ground Cmbt Spt Arms Sys*

and personnel which perform a broad range of testing, repair and technical services to amphibious vehicles. This program is funded under Operational Systems Development PE because it encompasses engineering and manufacturing and manufacturing development for upgrades of existing systems.

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	103.810	100.536	110.311	-	110.311
Current President's Budget	84.344	106.036	83.900	-	83.900
Total Adjustments	-19.466	5.500	-26.411	-	-26.411
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	5.500			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-17.194	0.000			
• SBIR/STTR Transfer	-2.273	0.000			
• Program Adjustments	0.000	0.000	-23.092	-	-23.092
• Rate/Misc Adjustments	0.001	0.000	-3.319	-	-3.319

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2022	FY 2023
Project: 9999: *Congressional Adds*		
Congressional Add: *Integrated helmet system*	0.000	5.500
Congressional Add Subtotals for Project: 9999	0.000	5.500
Congressional Add Totals for all Projects	0.000	5.500

Change Summary Explanation

The decrease of $22.136M from FY 2023 to FY 2024 is primarily due to the following program adjustments within the PE:

1) Decrease attributed to completion of ISMT ballistic testing and data capture, FET SVET design, and RTAM Ballistic Concrete testing.

2) Decrease due to the realignment of funds to PE 0603635M RDTEN to support the advanced prototyping development conducted by the Office of Naval Research for the Low Profile Distribution System and reduced product development of NexGen MCCUU/Close Combat Uniform.

3) Decrease due to the reduction of ammunition packaging efforts in FY 2024.

The FY 2024 funding request was adjusted by $7.019M to account for the availability of prior year execution balances.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	Project (Number/Name) 1555 / *Lt Armored Vehicle Prog*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
1555: *Lt Armored Vehicle Prog*	140.689	0.727	1.125	1.880	-	1.880	3.574	3.433	3.498	3.568	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Family of Light Armored Vehicles (FOLAV) consists of six fielded Light Armored Vehicle (LAV) configurations and one communications/intelligence-configured asset on an LAV chassis. The FOLAV provides a logistically self-contained, highly mobile, and lethal combined arms combat system to the Marine Air Ground Task Force (MAGTF). The LAV Product Improvement Program (PIP) funds modification and sustainment activities and the development and testing of modifications. These programs will ensure that the FOLAV is capable of conducting its assigned missions by enhancing lethality, survivability, reliability, availability, and maintainability in addition to reducing operations and support costs.

FY 2024 funds continued support to the fielded LAV fleet and future Engineering Change Proposals. RDTE allows for resolution of obsolescence, safety and any other unplanned issues that arise from the field.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: LAV MODIFICATIONS	0.727	1.125	1.880	0.000	1.880
Articles:	-	-	-	-	-
FY 2023 Plans: -Continue ongoing LAV MOD product development and Integrated Logistics Support (ILS) data development.					
FY 2024 Base Plans: -Continue ongoing LAV MOD product development and Integrated Logistics Support (ILS) data development.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: FY 2023 to FY 2024 increase of $0.755M required to continue to support the fielded LAV fleet, future Engineering Change Proposals, and projected increase of obsolescence issues. RDTE allows for resolution of obsolescence, safety and any other unplanned issues that arise from the field.					
Accomplishments/Planned Programs Subtotals	0.727	1.125	1.880	0.000	1.880

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 1555 / *Lt Armored Vehicle Prog*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• PMC/2038: *LAV PIP*	22.116	52.355	42.052	-	42.052	0.727	0.760	0.775	0.790	0.000	2,041.480

Remarks

D. Acquisition Strategy

The Light Armored Vehicle (LAV) Modification and Sustainment line is critical to keeping the 1983 built family of LAVs (FOLAV) operationally ready and effective through the projected sunset date of FY 2035. LAV Modification and Sustainment actions include maintenance of authority to operate (ATO), authority to connect (ATC), platform and C4ISR obsolescence management, safety modifications, support equipment/tool sustainment, end-item product data management, and technical and engineering data management. The LAV Modification and Sustainment resources a wide range of necessary vehicle/communications/weapon modifications essential to fleet life-cycle management and sustainment.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	Project (Number/Name) 1555 / *Lt Armored Vehicle Prog*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development (MOD)	MIPR	Various : Warren, MI	1.550	0.362	Dec 2021	0.708	Jan 2023	0.956	Jan 2024	-		0.956	Continuing	Continuing	Continuing
ILS Data Development (MOD)	MIPR	Various : Warren, MI	0.357	0.100	Dec 2021	0.142	Jan 2023	0.639	Jan 2024	-		0.639	Continuing	Continuing	Continuing
Proj 1555: Prior Years Cumulative Funding	Various	Various : Various	101.963	0.000		0.000		0.000		-		0.000	0.000	101.963	-
		Subtotal	103.870	0.462		0.850		1.595		-		1.595	Continuing	Continuing	N/A

Remarks

FY 2023 to FY 2024 increase required to continue to support the fielded LAV fleet and future Engineering Change Proposals. RDTE allows for resolution of obsolescence, safety and any other unplanned issues that arise from the field.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Mgmt (MOD)	MIPR	TACOM : Warren, MI	0.542	0.265	Dec 2021	0.275	Dec 2022	0.285	Dec 2023	-		0.285	Continuing	Continuing	Continuing
Proj 1555: Prior Years Cumulative Funding	Various	Various : Various	25.854	0.000		0.000		0.000		-		0.000	0.000	25.854	-
		Subtotal	26.396	0.265		0.275		0.285		-		0.285	Continuing	Continuing	N/A

Remarks

Increase from FY2023 to Fy2024 is due to inflation.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	MIPR	RTC : AL	9.252	0.000		0.000		0.000		-		0.000	0.000	9.252	-
		Subtotal	9.252	0.000		0.000		0.000		-		0.000	0.000	9.252	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	Project (Number/Name) 1555 / *Lt Armored Vehicle Prog*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Scheduler (Reset)	C/FFP	FEDITC, LLC : Rockville, MD	0.091	0.000		0.000		0.000		-		0.000	0.000	0.091	-
Proj 1555: Prior Years Cumulative Funding	Various	Various : Various	1.080	0.000		0.000		0.000		-		0.000	0.000	1.080	-
		Subtotal	1.171	0.000		0.000		0.000		-		0.000	0.000	1.171	N/A

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	140.689	0.727		1.125		1.880		-		1.880	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 1555 / *Lt Armored Vehicle Prog*

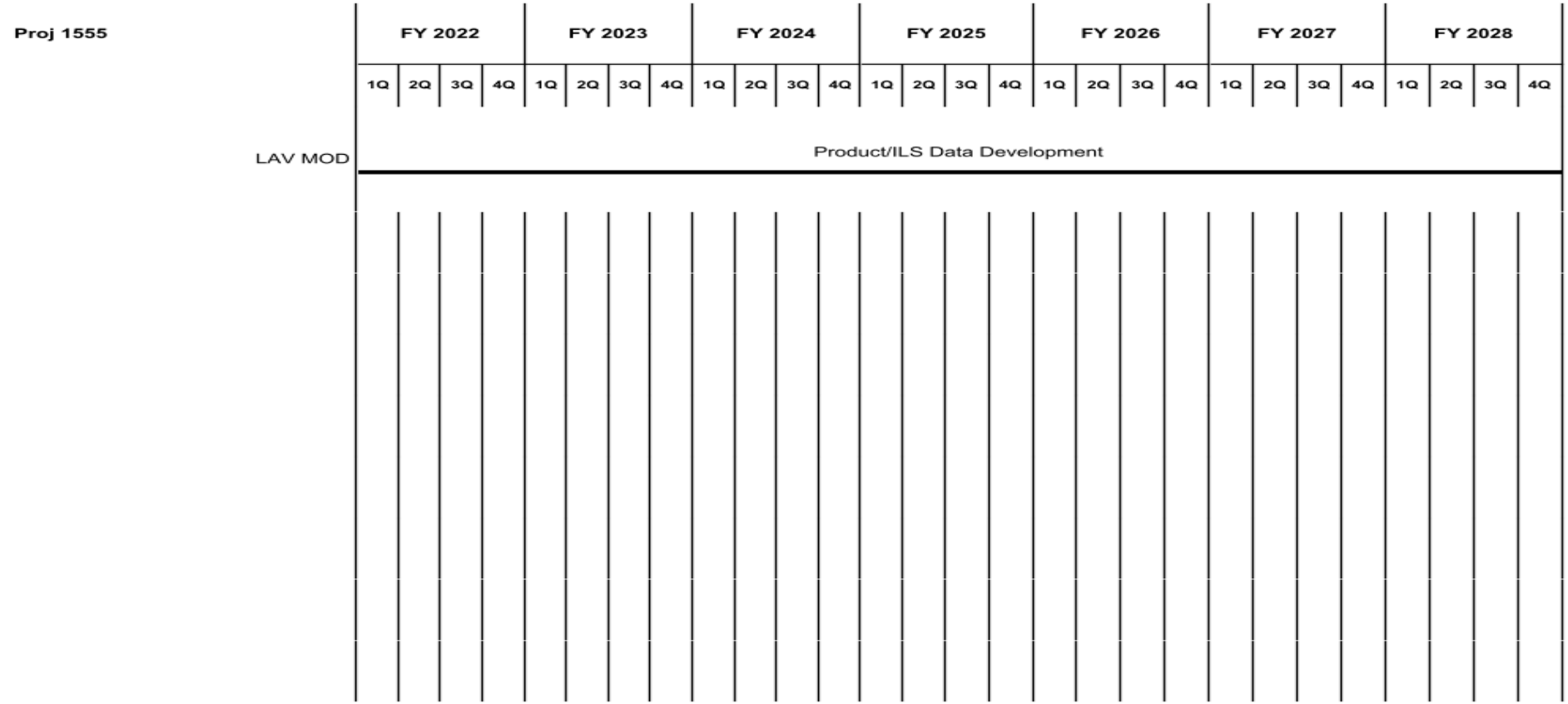

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 1555 / *Lt Armored Vehicle Prog*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 1555				
LAV MOD: LAV MOD Product/ILS Data Development	1	2022	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	Project (Number/Name) 1901 / *MC Grnd Wpnry Prod Improvement*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
1901: *MC Grnd Wpnry Prod Improvement*	69.854	7.215	8.435	10.543	-	10.543	6.764	6.385	6.479	6.610	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project develops joint and Marine Corps unique improvements to infantry weapons technology, non-lethal systems technology, improvements for Night Vision Equipment, Rifle Combat Optics, Family of Individual Optics, and monitors national and international weapons developments.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Company and Battalion Mortars (CBM)	0.000	0.200	0.200	0.000	0.200
Articles:	-	-	-	-	-
Description: Company and Battalion Mortars is a program that provides for continuous monitoring, research and development, integration and qualification testing, certification and accreditation, assessment, and implementation of multi-service and USMC unique system modifications and improvements for mortar and mortar fire control systems. Efforts include advance capability extended range mortar systems and mortar fire control systems using Android operating systems capable of digital communications, mapping, and geo-location. This includes software updates and Authority to Operate (ATO) documentation and certification. ***FY 2023 Plans:*** - Initiate development, prototypes, and testing of a new technology sight for the Mortars systems. - Initiate the integration of Lightweight Hand-held Mortar Ballistic Computer (LHMBC) sight into a Command and Control (C2) architecture. ***FY 2024 Base Plans:*** - Initiate research to extend the range of the 81mm Mortars. - Continue development, prototypes, and testing of a new technology sight for the Mortars systems. - Continue the integration of Lightweight Hand-held Mortar Ballistic Computer (LHMBC) sight into a Command and Control (C2) architecture. ***FY 2024 OCO Plans:*** N/A					
Title: Combat Optics	3.394	3.749	3.836	0.000	3.836

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 1901 / *MC Grnd Wpnry Prod Improvement*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Articles:	-	-	-	-	-

Description: Combat Optics is a program that provides for research and development, as well as, ammunition to support testing and assessment of optical systems and implementation of modifications for these systems, as well as, life-cycle management efforts. The research and development of future capabilities include, but are not limited to variable power day optics and fused/multi-spectral (e.g., combined image intensifier, thermal imaging, and short wave infrared) optical and laser systems. The Squad Aiming Laser (SAL) will provide a complimentary aiming solution with the Squad Binocular Night Vision Goggle to increase the engagement ranges and probability of first round hits out to 300m and beyond. Combat Optics is also assessing systems and technologies applicable to Long Range Thermal systems to support sensor development for handheld and weapon mounted optics.

FY 2023 Plans:
- Continue modernization of the Electro Optical Support Facility (EOSF) to support source selection evaluations, characterization of emerging optical technologies, and life cycle management efforts to include specialized equipment to accurately and properly characterize/assess Squad Aiming Laser.
- Continue system test, surveillance troubleshooting, maintenance and maintenance management, and supply chain management at the EOSF.
- Research capabilities and requirements for future Night Vision Goggles (NVG).

FY 2024 Base Plans:
- Continue modernization of the Electro Optical Support Facility (EOSF) to support source selection evaluations, characterization of emerging optical technologies, and life cycle management efforts to include specialized equipment to accurately and properly characterize/assess commercial solutions for Squad Aiming Laser and thermal imaging technology.
- Continue system test, surveillance troubleshooting, maintenance and maintenance management, and supply chain management at the EOSF.
- Initiate research of Long Range Thermal systems to support sensor development.
- Assess systems and technologies applicable to Squad Aiming Laser.

FY 2024 OCO Plans:
N/A

FY 2023 to FY 2024 Increase/Decrease Statement:

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 1901 / *MC Grnd Wpnry Prod Improvement*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Increase from FY 2023 to FY 2024 is due to assessing systems and technologies applicable to a Squad Aiming Laser.					
Title: Family of Infantry Weapons Systems (FIWS)	3.821	4.486	6.507	0.000	6.507
Articles:	-	-	-	-	-
Description: Family of Infantry Weapons Systems (FIWS) is a program that provides for continuous monitoring, research and development, assessment of and implementation of Joint Service and USMC unique system modifications, as well as new acquisition efforts. Efforts such as: sustain weapon capability, and improve the performance, maintainability, supportability, service life, ergonomics, and safety enhancements of Infantry Weapons Systems.					
FY 2023 Plans: - Continue product development for improvement of small arms weapon systems, to include suppressors, sniper and special purpose systems, and their ancillary support equipment meet emerging requirements. - Continue small arms engineering and testing. - Continue Product Improvement Program (PIP) testing and evaluation for multiple requirements as required. - Continue the procurement of various types of ammunition for performance evaluation currently under development. - Initiate NGSW testing to evaluate unique Marine Corps requirements.					
FY 2024 Base Plans: - Continue product development for improvement of small arms weapon systems, to include suppressors, sniper and special purpose systems, and their ancillary support equipment meet emerging requirements. - Continue small arms engineering and testing. - Continue Product Improvement Program (PIP) testing and evaluation for multiple requirements as required. - Continue the procurement of various types of ammunition for performance evaluation currently under development. - Continue NGSW testing to evaluate unique Marine Corps requirements. - Initiate Lightweight Medium Machinegun testing and evaluation.					
FY 2024 OCO Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 1901 / *MC Grnd Wpnry Prod Improvement*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** An increase from FY 2023 to FY 2024 is due to the initiation of Lightweight Medium Machinegun development, testing and evaluation.					
Accomplishments/Planned Programs Subtotals	7.215	8.435	10.543	0.000	10.543

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• PMC/2220-01: *Family of Infantry Weapons Systems*	13.984	5.517	10.605	-	10.605	38.367	41.929	51.967	53.007	Continuing	Continuing
• PMC/2220-02: *Company and Battalion Mortars*	3.528	3.210	3.278	-	3.278	3.348	3.418	3.490	3.560	Continuing	Continuing
• PMC/2220-03: *Gunners Protection Kit*	15.301	0.946	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	33.001
• PMC/4620-01: *Combat Optics*	93.103	80.573	92.943	-	92.943	192.240	186.181	137.382	140.130	Continuing	Continuing

Remarks

D. Acquisition Strategy

These programs range from off-the-shelf modifications to developmental items for safety, reliability, and technology upgrades to meet Marine Corps requirements.

Family of Infantry Weapons Systems (FIWS):
FIWS encompasses over 60 programs, efforts for improved weapon capability, operation, maintainability, supportability, service life, ergonomics, and safety enhancements by continuous monitoring, assessment, and implementation of joint service and United States Marine Corps (USMC)-unique weapon system modifications. The FIWS portfolio also includes support for various program/acquisition support activities, such as the procurement of ammunition related to those production verification activities.

Combat Optics:
Combat Optics acquisition, management, and contracting strategies support the research, development, modification, and improvement of optics, night vision, and laser systems such as magnified day optics, thermal imagers, image intensifying (I2) systems, lasers, and illuminators.

Company and Battalion Mortars:

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 1901 / *MC Grnd Wpnry Prod Improvement*

Acquisition, management, and contracting strategies support multiservice and USMC unique system modifications and improvements for the lightweight company and battalion mortars and mortar fire control systems to provide immediate indirect fires in support of mounted and dismounted forces to the company and battalion level.

Gunners Protection Kit (GPK):
Acquisition, management, and contracting strategies to support a USMC unique system requirement for the Reducible Height Gunners Protection Kit (RHGPK) in support of loading and unloading vehicles aboard amphibious carriers. The RHGPK enables Joint Light Tactical Vehicles (JLTV), Medium/Heavy Tactical Vehicle Replacement (MTVR), and Logistics Vehicle System Replacement (LVSR) to be transported in the lower vehicle stowage areas of Landing Platform/Dock (LPD 17) and Landing Helicopter Dock class ships.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 1901 / *MC Grnd Wpnry Prod Improvement*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Company and Battalion Mortars: Mortar Sight	TBD	TBD : TBD	0.000	0.000		0.100	Jan 2023	0.100	Jan 2024	-		0.100	0.000	0.200	-
Combat Optics: ICATS	C/CPFF	MCSC : Quantico, VA	4.066	2.540	Dec 2021	0.000		0.000		-		0.000	0.000	6.606	-
Combat Optics: Squad Aiming Laser	MIPR	Various : Various	0.000	0.000		0.035	Jan 2024	2.356	Jun 2024	-		2.356	0.000	2.391	-
Family of Infantry Weapons Systems	MIPR	NSWC, Crane : Crane, IN	0.717	0.107	Jan 2022	0.000		0.550	Jan 2024	-		0.550	0.000	1.374	-
Family of Infantry Weapons Systems	Various	MCSC : Quantico, VA	0.000	0.013	May 2022	0.000		0.479	Jan 2024	-		0.479	0.000	0.492	-
Family of Infantry Weapons Systems	MIPR	NSWC, Corona : Fallbrook, CA	0.000	0.125	Jul 2022	0.000		0.000		-		0.000	0.000	0.125	-
Family of Infantry Weapons Systems	MIPR	NSWC, Carderock : Bethesda, MD	0.000	0.127	Aug 2022	0.000		0.000		-		0.000	0.000	0.127	-
Proj 1901: Prior Years Cum Funding (Product Dev)	Various	Various : Various	19.266	0.000		0.000		0.000		-		0.000	0.000	19.266	-
		Subtotal	24.049	2.912		0.135		3.485		-		3.485	0.000	30.581	N/A

Remarks

An increase from FY 2023 to FY 2024 is primarily attributed to the development of the Squad Aiming Laser (SAL).

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Combat Optics: Technical Engineering	WR	NSWC, Dahlgren : Dahlgren, VA	0.445	0.240	Jan 2022	0.250	Jan 2023	0.265	Jan 2024	-		0.265	0.000	1.200	-
Combat Optics: Technical Engineering	WR	NSWC, Crane : Crane, IN	2.212	0.000	Jan 2022	0.250	Jan 2023	0.000		-		0.000	Continuing	Continuing	Continuing
Combat Optics: Technical Engineering Support	WR	SMDC : Huntsville, AL	0.000	0.000		0.565	Nov 2023	0.565	Nov 2023	-		0.565	0.000	1.130	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	Project (Number/Name) 1901 / *MC Grnd Wpnry Prod Improvement*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Combat Optics: Travel	Various	Travel/GCPC/Ct : Quantico, VA	0.000	0.001	Jan 2022	0.080	Jan 2023	0.050	Jan 2024	-		0.050	0.000	0.131	-
Family of Infantry Weapons Systems	Various	Travel/GCPC/Ct : Quantico, VA	1.119	0.034	Jan 2022	0.215	Jan 2023	0.217	Jan 2024	-		0.217	Continuing	Continuing	Continuing
Family of Infantry Weapons Systems	WR	NSWC, Crane : Crane, IN	0.000	0.000		0.130	Jan 2023	0.135	Jan 2024	-		0.135	0.000	0.265	-
Proj 1901: Prior Years Cum Funding (Support)	Various	Various : Various	14.246	0.000		0.000		0.000		-		0.000	0.000	14.246	-
		Subtotal	18.022	0.275		1.490		1.232		-		1.232	Continuing	Continuing	N/A

Remarks

No significant change.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	TBD	TBD-CBM : TBD	0.000	0.000		0.100	Jan 2023	0.100	Jan 2024	-		0.100	0.000	0.200	-
Developmental Test & Evaluation (DT&E)	MIPR	DLA-EOSF CO : Philadelphia, PA	1.078	0.199	Jan 2022	0.841	Apr 2023	0.200	Jan 2024	-		0.200	0.000	2.318	-
Developmental Test & Evaluation (DT&E)	MIPR	DLA-TA CO : Philadelphia, PA	0.000	0.203	May 2022	1.345	Mar 2023	0.000		-		0.000	0.000	1.548	-
Developmental Test & Evaluation (DT&E)	WR	NSWC Carderock-ST CO : Bethesda, MD	0.000	0.211	Jun 2022	0.000		0.000		-		0.000	0.000	0.211	-
Developmental Test & Evaluation (DT&E)	MIPR	ARDEC-FIWS : Picatinny, NJ	0.715	0.519	Jan 2022	2.375	Jan 2023	2.391	Jan 2024	-		2.391	0.000	6.000	-
Developmental Test & Evaluation (DT&E)	WR	NSWC Crane-FIWS : Crane, IN	4.114	1.495	Dec 2021	0.620	Nov 2022	1.280	Dec 2023	-		1.280	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	MIPR	DLA-FIWS : Philadelphia, PA	0.563	0.237	Mar 2022	0.100	Mar 2023	0.200	Mar 2024	-		0.200	0.000	1.100	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 1901 / *MC Grnd Wpnry Prod Improvement*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	C/FFP	MCSC-FIWS : Quantico, VA	0.357	0.603	Jan 2022	0.600	Jun 2023	0.606	Jun 2024	-		0.606	0.000	2.166	-
Developmental Test & Evaluation (DT&E)	C/FFP	DTIC-FIWS : Ft. Belvoir, VA	0.320	0.062	Apr 2022	0.100	Apr 2023	0.300	Apr 2024	-		0.300	0.000	0.782	-
Developmental Test & Evaluation (DT&E)	WR	NSWC Indian Head-FIWS : Indian Head, MD	0.308	0.339	Feb 2022	0.346	Feb 2023	0.349	Feb 2024	-		0.349	0.000	1.342	-
Developmental Test & Evaluation (DT&E)	Various	NHR - SAL CO : Naval Health Research	0.000	0.000		0.000		0.400	Jan 2024	-		0.400	0.000	0.400	-
Developmental Test & Evaluation (DT&E)	MIPR	NSWC - CO : Dahlgren, VA	0.000	0.000		0.383	Mar 2023	0.000		-		0.000	0.000	0.383	-
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	Various	Various : Various	17.137	0.000		0.000		0.000		-		0.000	0.000	17.137	-
		Subtotal	24.592	3.868		6.810		5.826		-		5.826	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Family of Infantry Weapons Systems	C/FFP	MCSC : Quantico, VA	1.383	0.160	Mar 2022	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Proj 1901: Prior Years Cum Funding (Mgmt Services)	Various	Various : Various	1.808	0.000		0.000		0.000		-		0.000	0.000	1.808	-
		Subtotal	3.191	0.160		0.000		0.000		-		0.000	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	69.854	7.215		8.435		10.543		-		10.543	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	Project (Number/Name) 1901 / *MC Grnd Wpnry Prod Improvement*	

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

An increase from FY 2023 to FY 2024 is primarily attributed to the initiation of Lightweight Medium Machine gun development, testing and evaluation, and assessment of technologies applicable to a squad aiming laser.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 1901 / *MC Grnd Wpnry Prod Improvement*

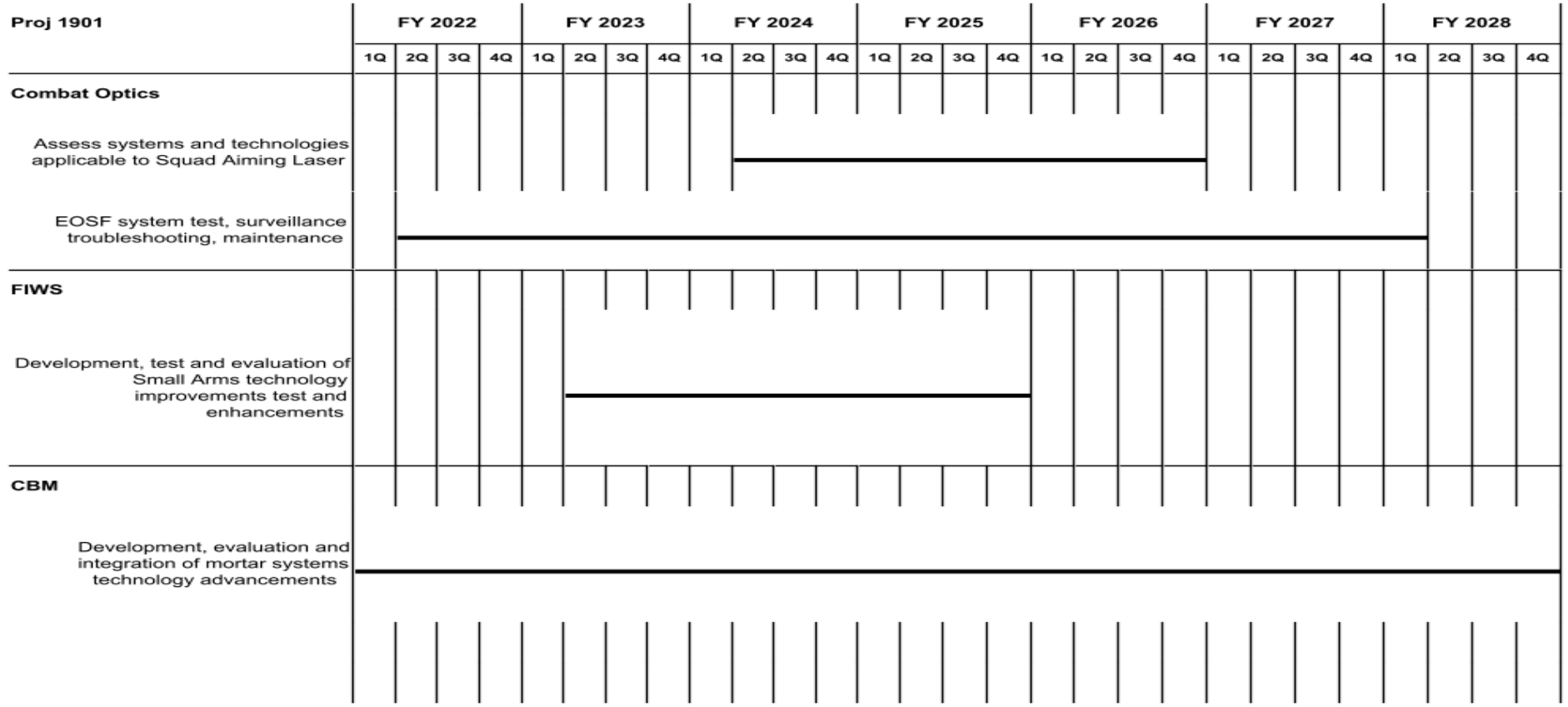

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 1901 / *MC Grnd Wpnry Prod Improvement*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 1901				
Combat Optics: Assess systems and technologies applicable to Squad Aiming Laser: Schedule Detail	2	2024	4	2026
Combat Optics: EOSF system test, surveillance troubleshooting, maintenance: Schedule Detail	2	2022	1	2028
FIWS: Development, test and evaluation of Small Arms technology improvements test and enhancements: Schedule Detail	2	2023	4	2025
CBM: Development, evaluation and integration of mortar systems technology advancements: Schedule Detail	1	2022	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	Project (Number/Name) 2086 / *Soldier/Marine Enhancement*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2086: *Soldier/Marine Enhancement*	41.987	0.957	1.483	2.357	-	2.357	2.293	2.171	2.209	2.253	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Marine Expeditionary Rifle Squad (MERS) mission is to manage the infantry squad, "squad as a system", by conducting human systems integration, systems engineering, human factors, and modernization efforts across all the products that are worn, carried, and consumed by the rifle squad and integration of the squad in mobility platforms. The Marine Corps's Force Design reorganizes personnel and equipment across all infantry battalions injecting new capabilities in order to combat a near peer competitor and includes experimentation with Fleet Marine Force units. Experimentation will require an increased level of effort to influence integration and synergy of capabilities. Physical integration, capability analysis, modeling and simulation, ergonomics, and usability assessments are facilitated by this program in working with the various program managers and project officers in the development of their unique items that contribute to the squads overall capabilities. MERS operates and manages the Gruntworks Squad Integration Facility in order to meet mission requirements to support integration and assessments of equipment. MERS is engaging industry and academia in search of innovative technologies that can meet Force Design infantry capabilities via a Partnership Intermediary Agreement. Weight, volume, and power management are fundamental considerations in the insertion or modernization of any squad equipment. MERS works with Joint and North Atlantic Treaty Organization (NATO) soldier modernization programs to harvest new technologies to increase the capability of the rifle squad. The program also ensures the integration of the rifle squad into the various mobility platforms currently in service and being developed to ensure a Marine and his equipment can operate effectively. This program is essential to ensure the combined synergistic equipment effects enhance the war-fighting functions of the Marine rifle squad towards the strategic Marine Corps warfighting vision for the future.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Marine Expeditionary Rifle Squad (MERS)	0.957	1.483	2.357	0.000	2.357
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue to coordinate with Marine Corps Warfighting Lab and other stakeholders on execution of Force Design Infantry Battalion as experimentation continues to evolve. - Continue to support all the Marine Corps Systems Command program offices that provide equipment to the Marine rifle squad or provide mobility platforms that support the squad. - Continue to conduct operational integration using designated Marines in order to assess near term and Force Design equipment integration in operational environments.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2086 / *Soldier/Marine Enhancement*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Continue to utilize the Gruntworks Squad Integration Facility as an asset to execute innovation and technology searches, R&D integration projects, prototyping, human performance trials, rapid assessment of technologies, and usability trials. - Continue to conduct human performance trials utilizing Marine Corps Load Effects Assessment Program (MC-LEAP) and other data collection methodologies in order to develop mobility metrics to support Force Design. - Continue to conduct usability trials, requirements generation workshops, and limited user evaluations for digital interoperability, handheld devices and applications at the infantry platoon and squad level. - Continue to support integration of body armor, load bearing systems, and Integrated Helmet System with human factors and operational expertise. - Continue to conduct R&D on squad systems in conjunction with Army, Special Operations Command (SOCOM), and Close Combat Lethality Task Force in order to leverage new technologies and capabilities to the rifle squad to include Integrated Visual Augmentation System and Enhanced Night Vision Goggle Binocular. - Continue to conduct surveys with post deploying infantry battalions on usability and integration of equipment utilized during deployment. - Continue to conduct human performance testing of Marines utilizing current and prototype configurations of infantry rifle squad equipment. - Continue to seek weight and volume reduction replacements for current infantry equipment that support integration of components. Identify and analyze power solutions to support increased power demands of new capabilities within the rifle squad. - Continue to implement capability requirements from Force Design experimentation. - Continue the anthropometry survey of the Marine Corps.					
FY 2024 Base Plans: - Continue to coordinate with Marine Corps Warfighting Lab and other stakeholders on execution of Force Design Infantry Battalion as experimentation continues to evolve. - Continue to support all the Marine Corps Systems Command program offices that provide equipment to the Marine rifle squad or provide mobility platforms that support the squad. - Continue to conduct operational integration using designated Marines in order to assess near term and Force Design equipment integration in operational environments. - Continue to utilize the Gruntworks Squad Integration Facility as an asset to execute innovation and technology searches, R&D integration projects, prototyping, human performance trials, rapid assessment of technologies, and usability trials.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2086 / *Soldier/Marine Enhancement*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Continue to conduct human performance trials utilizing Marine Corps Load Effects Assessment Program (MC-LEAP) and other data collection methodologies in order to develop mobility metrics to support Force Design. - Continue to conduct usability trials, requirements generation workshops, and limited user evaluations for digital interoperability, handheld devices, and applications at the infantry platoon and squad level. - Continue to support integration of body armor, load bearing systems, and Integrated Helmet System with human factors and operational expertise. - Continue to conduct R&D on squad systems in conjunction with Army, Special Operations Command (SOCOM), and Close Combat Lethality Task Force in order to leverage new technologies and capabilities to the rifle squad to include Integrated Visual Augmentation System and Enhanced Night Vision Goggle Binocular. - Continue to conduct surveys with post deploying infantry battalions on usability and integration of equipment utilized during deployment. - Continue to conduct human performance testing of Marines utilizing current and prototype configurations of infantry rifle squad equipment. - Continue to seek weight and volume reduction replacements for current infantry equipment that support integration of components. Identify and analyze power solutions to support increased power demands of new capabilities within the rifle squad. - Continue to implement capability requirements from Force Design experimentation. - Continue the anthropometry survey of the Marine Corps. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Marine Enhancement increase from FY 2023 to FY 2024 is to enable the completion of the anthropometry study and support the increased work associated with Force Design.					
Accomplishments/Planned Programs Subtotals	0.957	1.483	2.357	0.000	2.357

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2086 / *Soldier/Marine Enhancement*

D. Acquisition Strategy

Non Developmental Item/Commercial off the Shelf (NDI/COTS).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	Project (Number/Name) 2086 / *Soldier/Marine Enhancement*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Years Cumulative Funding	Various	Marine Corps Systems Command : Quantico, VA	12.792	0.000		0.000		0.000		-		0.000	0.000	12.792	-
		Subtotal	12.792	0.000		0.000		0.000		-		0.000	0.000	12.792	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MERS Support	Various	Marine Corps Systems Command : Quanico, VA	1.518	0.000	Nov 2021	0.000		0.000		-		0.000	0.000	1.518	-
MERS Technical Support	C/IDIQ	Various : Various	0.932	0.000	Nov 2021	0.000		0.043	May 2024	-		0.043	Continuing	Continuing	Continuing
MERS Technical Support - PIA	C/CPFF	MCSC : Quantico, VA	5.487	0.867	Jun 2022	0.275	Dec 2022	0.315	Jan 2024	-		0.315	0.000	6.944	Continuing
MERS Technical Support	C/CPFF	MCSC : Quantico, VA	0.867	0.000		0.000		0.000		-		0.000	0.000	0.867	-
Prior Years Cumulative Funding	Various	Various : Various	7.142	0.000		0.000		0.000		-		0.000	0.000	7.142	-
		Subtotal	15.946	0.867		0.275		0.358		-		0.358	Continuing	Continuing	N/A

Remarks

Overall increase is primarily attributed to increased requirements due to Force Design and the continued anthropometry study.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	Various	MCSC : Quantico, VA	0.666	0.090	Nov 2021	1.208	Mar 2023	1.999	Mar 2024	-		1.999	0.000	3.963	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	Project (Number/Name) 2086 / *Soldier/Marine Enhancement*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	Various	Various : Various	12.583	0.000		0.000		0.000		-		0.000	0.000	12.583	-
		Subtotal	13.249	0.090		1.208		1.999		-		1.999	0.000	16.546	N/A

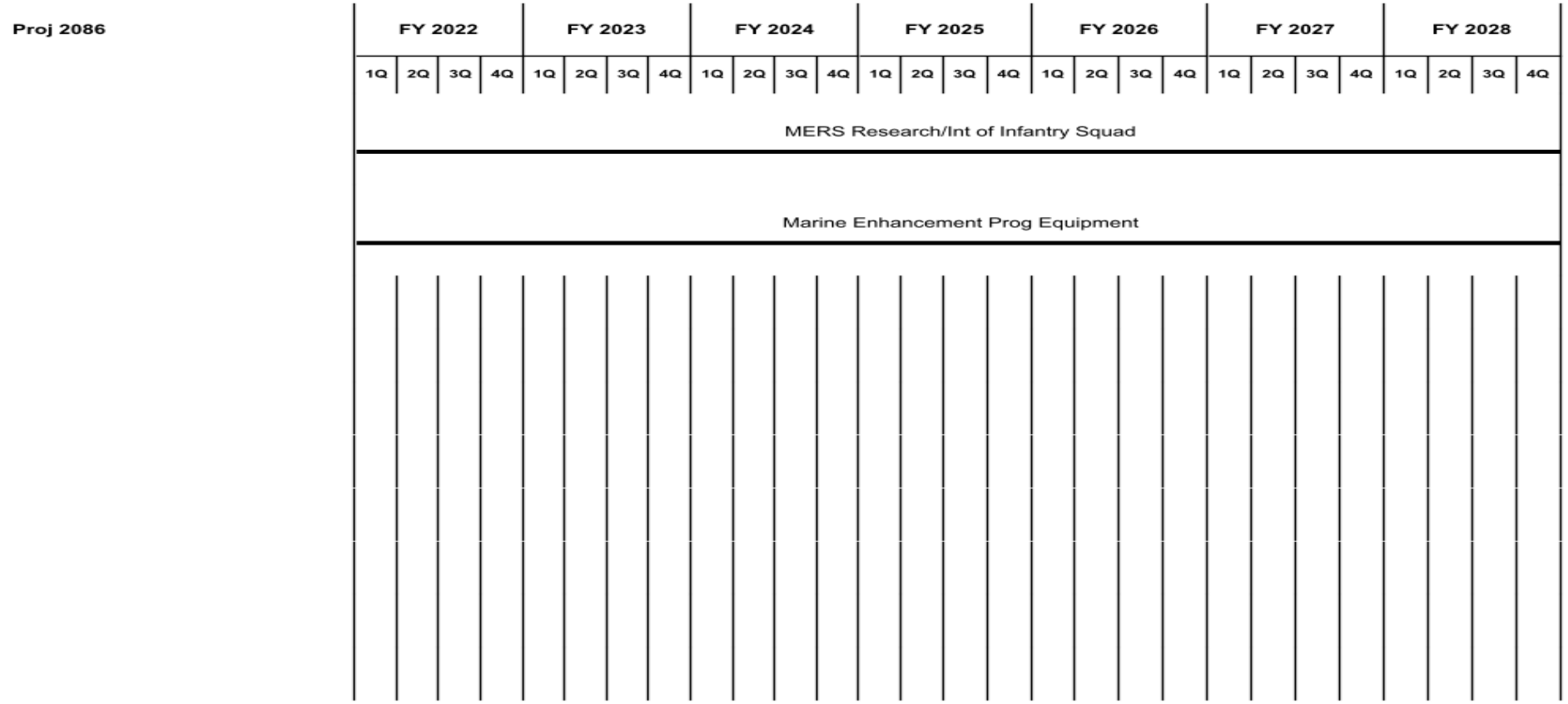
Remarks

Overall increase from FY 2023 to FY 2024 is primarily attributed to the anthropometry study.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	41.987	0.957		1.483		2.357		-		2.357	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2086 / *Soldier/Marine Enhancement*



2024DON - 0206623M - 2086

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2086 / *Soldier/Marine Enhancement*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2086				
MERS research/integration of Infantry Squad - No major milestones	1	2022	4	2028
Marine Enhancement Program Equipment - No major milestones	1	2022	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0206623M / *MC Ground Cmbt Spt Arms Sys*				Project (Number/Name) 2112 / *Lightweight 155mm Howitzer*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
2112: *Lightweight 155mm Howitzer*	6.703	1.967	0.015	0.015	-	0.015	0.013	0.013	0.012	0.012	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

LW155 (also known as the M777A2 howitzer) provides all weather, day/night direct, reinforcing, and general support fires to maneuver forces as well as direct support artillery. It is a joint program between the Marine Corps and Army, which is additionally supporting various foreign military purchases of the weapon system. The M777A2 howitzer was first fielded by the Marine Corps in April 2005 and completed fielding in April 2013. The M777A2 howitzer is used significantly in support of Operation Inherent Resolve. This budget item supports system updates to maintain and increase performance and lethality. The M777A2 howitzer is the prominent weapon of the Marine indirect fires triad and currently the only cannon in the Service.

In FY 2024, the program will continue to focus on improving the Digital Fire Control System (DFCS) of the M777A2 while allowing for operation in a Global Positioning System (GPS) denied/ challenged environment. Continued operation in a GPS denied/ challenged environment is critical to the M777A2 ability to fire Precision Guided Munitions (PGM). The M777A2 will leverage the US Army's Assured Positioning, Navigation, and Timing (APNT) initiatives, such as Mounted APNT System (MAPS), as well as DFCS efforts by other US Army weapon system platforms, to help evaluate future modernization efforts for the M777A2.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**
Title: Lightweight 155mm Howitzer Product Improvements	1.967	0.015	0.015	0.000	0.015
Articles:	-	-	-	-	-
FY 2023 Plans: -Program will continue to perform engineering studies to integrate the latest technologies for continued operation against peer threats.					
FY 2024 Base Plans: -Program will continue to perform engineering studies to integrate the latest technologies for continued operation against peer threats.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: No change.					
Accomplishments/Planned Programs Subtotals	1.967	0.015	0.015	0.000	0.015

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2112 / *Lightweight 155mm Howitzer*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• PMC/2185: *155MM Ltwt Towed Howitzer*	37.510	1.782	0.489	-	0.489	1.823	0.511	1.893	1.931	0.000	1,458.746

Remarks

D. Acquisition Strategy

RDTE efforts in FY 2024 will leverage existing technologies to integrate and evaluate to inform future modernization efforts in terms of hardware and software upgrades for M777A2 howitzer. Future upgrades will be evaluated based on cost and impact to operation.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2112 / *Lightweight 155mm Howitzer*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
LW155 Product Improvements	MIPR	CCDC-AC : Picatinny Arsenal, NJ	6.700	1.967	Oct 2021	0.015	Oct 2022	0.015	Oct 2023	-		0.015	Continuing	Continuing	Continuing
		Subtotal	6.700	1.967		0.015		0.015		-		0.015	Continuing	Continuing	N/A

Remarks

Program will continue to perform engineering studies to integrate the latest technologies for continued operation against peer threats.

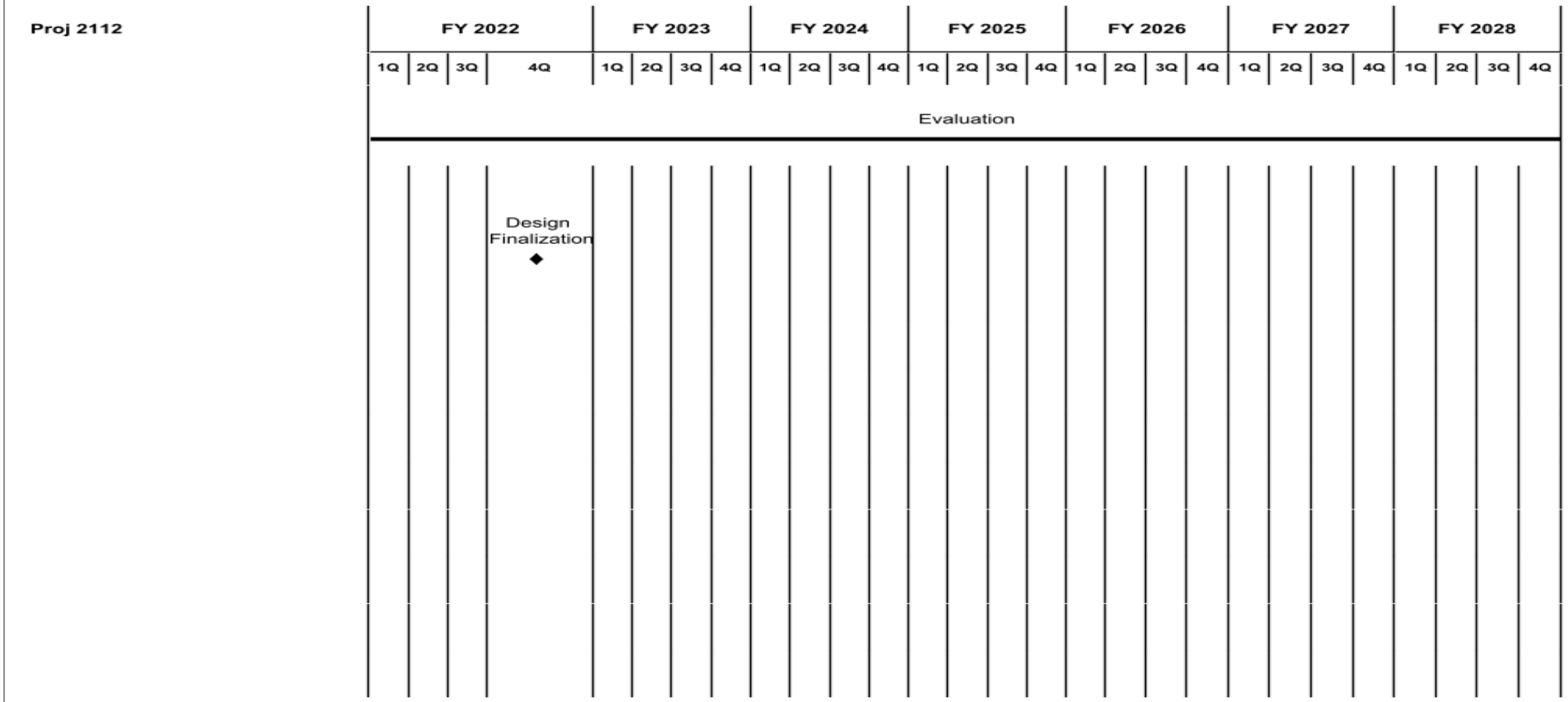
Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	MIPR	Yuma Proving Ground : Yuma, AZ	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	N/A

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	6.703	1.967		0.015		0.015		-		0.015	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2112 / *Lightweight 155mm Howitzer*



2024DON - 0206623M - 2112

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2112 / *Lightweight 155mm Howitzer*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2112				
LW155 Modernization Research	1	2022	4	2028
CLE Redesign Completion	4	2022	4	2022

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	Project (Number/Name) 2237 / *Amphibious Vehicle Test*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2237: *Amphibious Vehicle Test*	20.366	2.795	2.733	3.246	-	3.246	3.103	3.084	3.136	3.199	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Amphibious Vehicle Test Branch (AVTB) is a division of Marine Corps Tactical Systems Support Activity (MCTSSA) and is responsible for the operation and management of a vehicle test facility, which includes the Department of Defense's premier amphibious vehicle test competency, as well as maintains the ability to test the department's capabilities that operate in the littorals. The AVTB supports experimentation; develops test plans; executes test and evaluation; and provides analysis and reporting of developmental and integrated test and evaluation events. They support the development and performance validation of amphibious, expeditionary ground combat vehicles, and other capabilities that operate in the littoral. The AVTB conducts and supports testing for MCSC; Navy and other service PEOs and Program Management Offices; the Office of Naval Research; and HQMC PP&O and CD&I. The mission of the AVTB is to conduct test and evaluation of amphibious, expeditionary combat vehicle systems and capabilities that operate in the littoral in order to enable informed acquisition decisions.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Contracts and Test and Evaluation Support Assets	2.795	2.733	3.246	0.000	3.246
Articles:	-	-	-	-	-
FY 2023 Plans: Amphibious Combat Vehicle (ACV) Family of Vehicles (FoV): - Continuation of ACV-P follow on testing as required - System upgrades and platform modifications. - Continuation of ACV-C follow on testing as required - System upgrades and platform modifications. - ACV-30 testing for the Engineering and Manufacturing Development (EMD) phase. Plan and conduct Reliability Growth Testing (RGT). Assault Amphibious Vehicle (AAV) Family of Vehicles (FoV): - Continuation of AAVP7/C7/R & ECP follow on testing as required - System upgrades and platform modification. Advanced Reconnaissance Vehicle (ARV): - ARV testing for the Engineering and Manufacturing Development (EMD) phase - developmental and reliability testing of competitive vendors.					
FY 2024 Base Plans: Amphibious Combat Vehicle (ACV) Family of Vehicles (FoV): - Continuation of ACV-P follow on testing as required - System upgrades and platform modifications.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2237 / *Amphibious Vehicle Test*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Continuation of ACV-C follow on testing as required - System upgrades and platform modifications. - ACV-30 testing for the Engineering and Manufacturing Development (EMD) phase. Plan and conduct Reliability Growth Testing (RGT). - Continue testing for the ACV-R EMD phase. Plan and conduct RGT. Assault Amphibious Vehicle (AAV) Family of Vehicles (FoV): - Continuation of AAVP7/C7/R & ECP follow on testing as required - System upgrades and platform modification. Advanced Reconnaissance Vehicle (ARV): - Continuation of ARV testing for the Engineering and Manufacturing Development (EMD) phase - developmental and reliability testing of competitive vendors. Light Armor Reconnaissance Vehicle (LAV) Family of Vehicles (FoV): -Continuation of LAV FoV ECP follow-on testing as required - system upgrades and platform modifications. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The increase from FY 2023 to FY 2024 of $0.513M reflects an inflation factor and increased cost of operation support.					
Accomplishments/Planned Programs Subtotals	2.795	2.733	3.246	0.000	3.246

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The Amphibious Vehicle Test Branch supports the Department of Defense's amphibious and expeditionary combat vehicle systems developmental testing and evaluation through all stages of the acquisition life cycle. It is agile enough to conduct testing ranging from science and technology / research and development demonstrations (in order to determine program requirements and technological maturity) through verification and validation of post fielding engineering change proposals. AVTB sustainment and test support is conducted through a mix of military subject matter experts, federal civil service, support contracts, and local and supported service military personnel and equipment support requests.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	Project (Number/Name) 2237 / *Amphibious Vehicle Test*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Years Cumulative Funding	Various	Various : Various	2.430	0.000		0.000		0.000		-		0.000	0.000	2.430	-
		Subtotal	2.430	0.000		0.000		0.000		-		0.000	0.000	2.430	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Facility/Test Infrastucture	C/FFP	NAVFAC, SW : Camp Pendleton, CA	1.159	0.216	Oct 2021	0.150	Oct 2022	0.173	Oct 2023	-		0.173	Continuing	Continuing	Continuing
Test Assets//Operator Spprt	C/FFP	MCTSSA Camp Pend : Camp Pendleton, CA	4.606	1.410	Apr 2022	1.232	Jan 2023	1.486	Jan 2024	-		1.486	0.000	8.734	-
Vehicle Support	WR	RCO Camp Pendleton : Camp Pendleton, CA	0.511	0.060	Oct 2021	0.060	Oct 2022	0.126	Oct 2023	-		0.126	Continuing	Continuing	Continuing
Hazmat POL PPE	Various	MCTSSA Camp Pendleton : Camp Pendleton, CA	0.506	0.025	Oct 2021	0.020	Oct 2022	0.042	Oct 2023	-		0.042	0.000	0.593	-
Crane Test Support	C/IDIQ	MCTSSA Camp Pendleton : Camp Pendleton, CA	0.270	0.000	Oct 2021	0.000		0.000		-		0.000	0.000	0.270	-
Test article fuel (J8)	Various	AVTB : Camp Pendleton, CA	1.034	0.062	Oct 2021	0.065	Oct 2022	0.164	Oct 2023	-		0.164	0.000	1.325	-
Test support Fuel (Diesel)	Various	AVTB : Camp Pendleton, CA	0.901	0.080	Oct 2021	0.020	Oct 2022	0.082	Oct 2023	-		0.082	0.000	1.083	-
Prior Years Cumulative Funding	Various	Various : Various	0.452	0.000		0.000		0.000		-		0.000	0.000	0.452	-
		Subtotal	9.439	1.853		1.547		2.073		-		2.073	Continuing	Continuing	N/A

Remarks

The increase from FY 2023 to FY 2024 is primarily attributed to increased cost of operation support.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2237 / *Amphibious Vehicle Test*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	Various	AVTB : Camp Pendelton, CA	1.929	0.120	Oct 2021	0.194	Feb 2023	0.130	Oct 2023	-		0.130	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	AVTB : MCTSSA Camp Pendleton	0.711	0.150	Oct 2021	0.200	Feb 2023	0.211	Oct 2023	-		0.211	0.000	1.272	-
		Subtotal	2.640	0.270		0.394		0.341		-		0.341	Continuing	Continuing	N/A

Remarks

The decrease from FY 2023 to FY 2024 is primarily attributed to decreased requirement for test articles.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Data Mgmt & T&E Service Supt	C/FFP	MCTSSA Camp Pendleton : Camp Pendleton	3.048	0.310	Nov 2021	0.339	Nov 2022	0.621	Nov 2023	-		0.621	Continuing	Continuing	Continuing
Lab and Tech Writer Supt.	C/FFP	MCTSSA Camp Pendleton : Camp Pendleton	2.809	0.362	Nov 2021	0.453	Nov 2022	0.211	Nov 2023	-		0.211	0.000	3.835	-
		Subtotal	5.857	0.672		0.792		0.832		-		0.832	Continuing	Continuing	N/A

Remarks

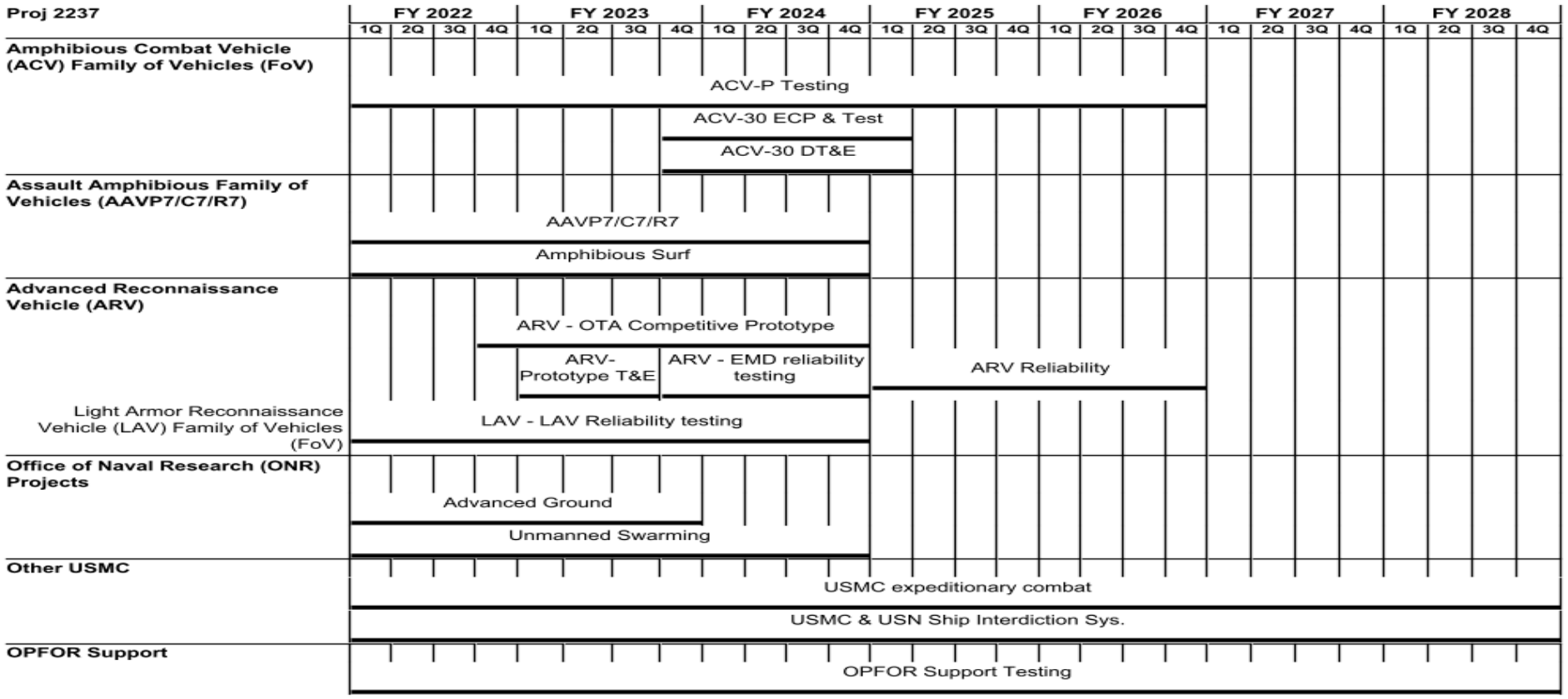
The increase from FY 2023 to FY 2024 reflects an increased cost of operation support.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	20.366	2.795		2.733		3.246		-		3.246	Continuing	Continuing	N/A

Remarks

Overall increase from FY 2023 to FY 2024 reflects an inflation factor and increased cost of operation support.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2237 / *Amphibious Vehicle Test*



2024DON - 0206623M - 2237

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2237 / *Amphibious Vehicle Test*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2237				
Amphibious Combat Vehicle (ACV) Family of Vehicles (FoV): ACV-P Reliability and follow on testing as required - System upgrades and platform modification.	1	2022	4	2026
Amphibious Combat Vehicle (ACV) Family of Vehicles (FoV): ACV-30 Prototype Water Mobility Assessment	4	2023	1	2025
Amphibious Combat Vehicle (ACV) Family of Vehicles (FoV): ACV-30 Testing - Water Mobility, Land Mobility, Reliability, follow on testing as required	4	2023	1	2025
Amphibious Combat Vehicle (ACV) Family of Vehicles (FoV): ACV-30 Reliability Growth Testing	4	2023	1	2025
Amphibious Combat Vehicle (ACV) Family of Vehicles (FoV): ACV- R Engineering Proposal Test	3	2024	2	2026
Assault Amphibious Family of Vehicles (AAVP7/C7/R7): AAVP7/C7/R & ECP testing as required - System upgrades and platform modification.	1	2022	4	2024
Assault Amphibious Family of Vehicles (AAVP7/C7/R7): Amphibious Surf Capability Vehicle - Water Mobility and Reliability Qualification Testing	1	2022	4	2024
Advanced Reconnaissance Vehicle (ARV): Other Transaction Authority or Competitive Prototyping Phase	4	2022	4	2024
Advanced Reconnaissance Vehicle (ARV): ARV Prototype testing and evaluation	1	2023	3	2023
Advanced Reconnaissance Vehicle (ARV): ARV testing for the Engineering and Manufacturing Development (EMD) reliability testing	4	2023	4	2024
Advanced Reconnaissance Vehicle (ARV): ARV Reliability and follow on testing as required - system upgrades and platform modifications.	1	2025	4	2026
Advanced Reconnaissance Vehicle (ARV): Light Armor Reconnaissance Vehicle (LAV) Family of Vehicles (FoV): Reliability and follow on testing as required - System upgrades and platform modification.	1	2022	4	2024

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2237 / *Amphibious Vehicle Test*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Office of Naval Research (ONR) Projects: Advanced Ground and Amphibious Platform science and technology capabilities testing	1	2022	4	2023
Office of Naval Research (ONR) Projects: Unmanned Swarming Amphibious Assault Craft - Water Mobility.	1	2022	4	2024
Other USMC: Marine Corps expeditionary combat and tactical vehicles - System upgrades and platform modification.	1	2022	4	2028
Other USMC: Support to the Navy Marine Expeditionary Ship Interdiction System and Long Range Fires testing.	1	2022	4	2028
OPFOR Support: OPFOR Support Testing	1	2022	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	Project (Number/Name) 2315 / *Training Devices/Simulators*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2315: *Training Devices/ Simulators*	192.826	35.090	36.833	27.494	-	27.494	35.222	30.701	28.442	28.935	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The training devices and simulators in this project include: Combined Arms Command & Control Training Upgrade System (CACCTUS), Deployable Virtual Training Environment (DVTE), Force on Force Training Systems (FoFTS), Marine Air-Ground Task Force (MAGTF) Tactical Warfare Simulation (MTWS) Enhancements, Ranges and Training Area Management (RTAM) (Formerly Range Modernization/ Transformation), Supporting Arms Virtual Trainer (SAVT), Immersive Training Range Support (ITRS), Training Support and Training Simulation Support (TSS), Marine Corps Training Information Management System (MC-TIMS), Indoor Simulated Marksmanship Trainer (ISMT), and the Family of Egress Trainers (FET). These training systems provide tactical weapons and decision-making skill training for Marines entry level through MAGTF staff level. Systems will be interoperable and will allow for mission planning, mission rehearsal, and concept evaluation in a valid synthetic environment with objective and timely feedback. Through Live, Virtual, and Constructive Training Environment simulation (LVC-TE), the Marine Corps will have means to train jointly, educate, develop doctrine and tactics, formulate and assess operational plans, assess warfighting situations, and define operational requirements.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Combined Arms Command and Control Trainer Upgrade System (CACCTUS)	0.958	6.107	5.276	0.000	5.276
Articles:	-	-	-	-	-
Description: CACCTUS is a Combined Arms Command and Control (C2) Training System that enables comprehensive Marine Corps staff, unit, and team training both at home station Combined Arms Staff Training (CAST) facilities and through distributed training involving CAST facilities across the Marine Corps. CACCTUS is an upgrade to the USMC's CAST that provides fire support training for the Marine Air-Ground Task Force (MAGTF) elements up to and including the Marine Expeditionary Brigade (MEB) level. Using the system components and simulation capabilities, two dimensional (2D) and three dimensional (3D) visuals, interfaced Command, Control, Communications, Computers and Intelligence (C4I), synthetic terrain, and an After Action Review (AAR), the concept of operations for the CACCTUS system is to immerse the trainees in a realistic, scenario-driven environment to enable commands and their battle staffs to train or rehearse combined arms tactics, techniques, and procedures for decision-making processes. CACCTUS is a threshold requirement constituent system of Live Virtual Constructive-Training Environment (LVC-TE). CACCTUS will begin the initial steps of merging functional baselines and training capabilities with MTWS to achieve the goals of the Battle Staff Training System through MAGTF Warfare Simulation (MTWS) Modification to Re-engineer Key Improvements (MRKI), modification, and re-engineering of key infrastructure participation.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2315 / *Training Devices/Simulators*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
FY 2023 Plans: - Continue development to retain currency of training and readiness tasks and tactics, techniques, and procedures with combined arms effort. - Continue program office support of government and contactor labor and travel for related research, development, and test support for ground training systems - Continue interoperability activities with training systems that support the full range of military operations. - Continue development, test, integration & interoperability efforts to retain federate position within LVC-TE - Initiate test and integration efforts for Office of Naval Research transition programs and efforts with operational gear (C4I) - Initiate cyber related testing and system development to retain authority to operate/connected to new networks ***FY 2024 Base Plans:*** - Continue development to retain currency of training and readiness tasks and tactics, techniques, and procedures with combined arms effort. - Continue program office support of government and contactor labor and travel for related research, development, and test support for ground training systems - Continue interoperability activities with training systems that support the full range of military operations. - Continue development, test, integration & interoperability efforts to retain federate position within LVC-TE - Continue test and integration efforts for Office of Naval Research transition programs and efforts with operational gear (C4I) - Continue cyber related testing and system development to retain authority to operate/connected to new networks ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease due to reduced requirements for system development.					
Title: Deployable Virtual Training Environment (DVTE)	0.570	0.365	0.365	0.000	0.365
Articles:	-	-	-	-	-
Description: DVTE is a laptop Personal Computer (PC) based simulation system capable of emulating organic and supporting infantry battalion weapons systems and other scenarios that facilitate readiness based training. It is a portable configuration that allows Marines to train in areas where there are few options for training in					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2315 / *Training Devices/Simulators*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
garrison, for example: aboard ship, at remote reserve locations, or deployed. DVTE training includes language and culture training, platoon and squad level tactics, employment of supporting arms, and various Recognition of Combatants (ROC) packages. DVTE is part of a Commander's "training toolkit" contributing to the building block approach to standards based training that focuses on achieving an improved level of combat readiness. ***FY 2023 Plans:*** - Continue integration of technology products transitioned from the Office of Naval Research (ONR) - Continue program office support of government and contactor labor /travel for related research, development, and test support for ground training systems - Initiate interoperability activities with ground and air training systems - Initiate development, test, and integrate interoperability efforts to retain a federate within LVC-TE ***FY 2024 Base Plans:*** - Continue integration of technology products transitioned from the ONR - Continue program office support of government and contactor labor /travel for related research, development, and test support for ground training systems - Continue interoperability activities with ground and air training systems - Continue development, test, and integrate interoperability efforts to retain a federate within LVC-TE - Initiate procurement of Lab assets hardware and software and perform the necessary integration and testing requirements. Design validation, analyzing the design limits of the product to better understand how it's likely to perform in the real world and provide feedback on any areas of potential design optimization before the final revision of the design gets produced. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** No change.					
Title: Force on Force Training Systems (FoFTS)	0.602	3.351	3.305	0.000	3.305
Articles:	-	-	-	-	-
Description: Force on Force Training Systems (FoFTS) provides realistic, non-live fire capabilities to perform force on force training using personnel, combat vehicles, and weapons surrogate devices as part of a suite of tactical engagement capabilities that enhance training around the world and across the range of military operations. The program includes tactical training systems such as the Special Effects Small Arms Marking					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2315 / *Training Devices/Simulators*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
System (SESAMS) and advanced, instrumented, laser-based tactical engagement systems such as the FoFTS-Next that provide realistic weapons effects, position locating, and enhanced After Action Review (AAR) capability to support Live-Virtual-Constructive (LVC) events in the MAGTF Training Program curriculum. This program is critical to enabling Marines to train in a realistic, force on force environment in lieu of live-fire training and allows for training against a peer and near peer threat in a more authentic, multisensory environment. This capability improves training realism through Force on Force training capabilities, and is a line of effort in the Marine Corps Range Training Area Management Campaign Plan, which was developed to address the specific challenges articulated in the Commandants Planning Guidance. To that end, the program's production and fielding of the FoFTS-Next Marine Corps Tactical Instrumentation System - Personnel (MCTIS-P), comprises a complete replacement and increased capability of the in-service I-TESS II system. Additionally, through integration of combat vehicle (MCTIS-V) and weapons surrogates (MCTIS-WS) capabilities, the FoFTS-Next program will field an entirely new realistic and immersive Force on Force training capability. Funding supports procurement of FoFTS-Next MCTIS-P, MCTIS-V, MCTIS-WS, and enhanced networking capability to provide a more robust and comprehensive AAR. The program is on schedule to achieve initial operational capability (IOC) by FY 2024 and FOC by FY 2026.					
FY 2023 Plans: - Initiate MCTIS-V development for the integration of the LAV and ACV combat vehicles into the FoFTS-Next system and training environment. - Complete development of the Mountain Top Base stations to support FoFTS-Next networking and connectivity enhancements. - Initiate development of the Weapons Surrogates (MCTIS-WS) for integration into the FoFTS-Next system and training environment. - Initiate and complete fire hazard analysis of Battery Storage and Charging containers.					
FY 2024 Base Plans: - Continue development of the Weapons Surrogates (MCTIS-WS) for integration into the FoFTS-Next system and training environment.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Decrease is a result of completion of MCTIS-V prototyping in FY 2023.					
Title: Marine Air-Ground Task Force (MAGTF) Tactical Warfare Simulation (MTWS) Enhancements	9.240	3.995	4.262	0.000	4.262
Articles:	-	-	-	-	-
Description: The MAGTF Tactical Warfare Simulation (MTWS) is the Marine Corps's only constructive, aggregate-level simulation system used to support the training of Marine commanders and their battle staffs in MAGTF war-fighting principles, concepts, and associated command and control procedures. Using complex computer-simulated behavior models, MTWS provides an interactive, decision-based, real-time, war game representing the six war-fighting functional areas of fires, command and control, force protection, logistics, maneuver, and intelligence. Its modeling breadth and flexibility enables users to represent and exercise a wide variety of combat scenarios to prepare leaders to face the military challenges of today's world. MTWS is designed to support the training of commanders and their staffs in exercises involving live and simulated land, air, and naval forces at all operational command levels. The system supports all levels of command throughout the Marine Expeditionary Force (MEF) and Joint Task Force (JTF). MTWS can be used as a multi-sided war game, including red, blue, civilian, and non-aligned sides. The system can also be used to validate specific operational plans against a variety of enemy and environmental situations. Thus command personnel may examine alternative tactical solutions on a "what if" basis. MTWS is an objective requirement constituent system of LVC-TE and is undergoing a re-engineering effort via the MTWS Modification to Re-engineer Key Improvements (MRKI) program.					
FY 2023 Plans: - Continue JLVC Federation annual release. - Continue to develop new software capabilities to meet changing operational environment. - Continue to develop Joint Live, Virtual, and Constructive (JLVC) Federation capabilities. - Continue effort to re-engineer the MTWS software baseline. - Continue training system interoperability to include additional C4I devices. - Initiate program office support of government and contractor labor /travel for related research, development, and test support for ground training systems. - Initiate cyber related testing and system development to retain authority to operate/connected to current and new networks. - Continue development, testing, and integration efforts for system re- engineering effort (MRKI). - Initiate interoperability activities with training systems that support the full range of military operations. - Continue development, test, integration & interoperability efforts to retain a federate within LVC-TE and JLVC.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2315 / *Training Devices/Simulators*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Initiate LVC-TE constituents development, test, and integration support. ***FY 2024 Base Plans:*** - Continue JLVC Federation annual release. - Continue to develop new software capabilities to meet changing operational environment. - Continue to develop Joint Live, Virtual and Constructive (JLVC) Federation capabilities. - Continue effort to re-engineer the MTWS software baseline. - Continue training system interoperability to include additional C4I devices. - Continue program office support of government and contractor labor /travel for related research, development, and test support for ground training systems. - Continue cyber related testing and system development to retain authority to operate/connected to current and new networks. - Continue development, testing, and integration efforts for system re- engineering effort (MRKI). - Continue interoperability activities with training systems that support the full range of military operations. - Continue development, test, integration & interoperability efforts to retain a federate within LVC-TE and JLVC - Continue LVC-TE constituents development, test, and integration support. - Initiate Battle Staff Training System (BSTS) development, test, and integration support. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase supports Battle Staff Training System (BSTS) development/test and integration support, emerging requirements for system interoperability development/test and LVC-TE integration.					
Title: Marine Corps Training Information Management System (MCTIMS) ***Articles:*** ***Description:*** Marine Corps Training Information Management System (MCTIMS) is the enterprise training system for the Marine Corps. The unit training modules allows the Total Force to meet their requirement to record, track, and report training. MCTIMS maintains training and readiness manuals, curricula, MOS manuals/ road maps, course schedules, and seat allocations. In addition, MCTIMS is used to input and track student registrations, test scores, class standings, and course completions. The training resource module gives small unit leaders access to curriculum materials to support training. ***FY 2023 Plans:***	3.586 -	3.648 -	0.000 -	0.000 -	0.000 -

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Continue development of the MCTIMS modernization effort. This effort involves the design, development, and implementation of an optimal system, developed and hosted in the Cloud, and will focus on high priority and functional system requirements. ***FY 2024 Base Plans:*** N/A ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease is due to schedule change in support of operational sustainment.					
Title: Ranges and Training Area Management (RTAM)	3.316	4.828	3.747	0.000	3.747
Articles:	-	-	-	-	-
Description: Ranges and Training Area Management (RTAM) developments are associated with modernizing live training ranges at major USMC bases and stations. This development effort enhances After Action Review (AAR) with ground truth feedback, realistic representation of Opposing Forces (OPFOR), and will upgrade the range and exercise control capabilities. RTAM integrates Live, Virtual, and Constructive training technologies, thereby, enhancing fielded live-fire, force-on-target, and force-on-force training capabilities. ***FY 2023 Plans:*** - Initiate development of Targetry Range Automated Control and Recording II (TRACR II) software for Friend-and-Foe target control and scenario development, to include integration with Range Instrumentation System Controller (RISCon-T). - Continue Electronic Warfare Instrumented Ranges development with devices that can be activated to deny, degrade, and disrupt electromagnetic spectrum operations as the unit undergoing training operates within the area. - Continue developmental enhancements of Targetry Range Automated Control and Recording (TRACR) software for Friend-and-Foe target control and scenario development, to include integration with Range Instrumentation System Controller (RISCon-T). - Complete Ballistic Concrete testing and development for waste characterization, patch mix and field testing. - Travel to support evaluation and testing. ***FY 2024 Base Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Initiate evaluation and development of Known Distance Automated Scoring (KDAS) system. - Continue developmental enhancements of Targetry Range Automated Control and Recording (TRACR) software for Friend-and-Foe target control and scenario development, to include integration with Range Instrumentation System Controller (RISCon-T). - Continue development of Targetry Range Automated Control and Recording II (TRACR II) software for Friend-and-Foe target control and scenario development, to include integration with Range Instrumentation System Controller (RISCon-T). - Continue Electronic Warfare Ground Instrumented Ranges development with devices that can be activated to deny, degrade, and disrupt electromagnetic spectrum operations as the unit undergoing training operates within the area. - Initiate development of Live Fire Evaluation Tool (LFET) that increases shooters recognition, decision making and battlefield skill proficiency. - Travel to support evaluation and testing. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease is due to completion of the Ballistic Concrete testing and development.					
Title: Supporting Arms Virtual Trainer (SAVT)	2.911	1.580	0.740	0.000	0.740
Articles:	-	-	-	-	-
Description: Supporting Arms Virtual Trainer (SAVT) advances the training capability, operational readiness, and tactical proficiency of USMC Joint Terminal Attack Controllers (JTACS), Joint Fires Observers (JFOs), Forward Observers (FOs), and Forward Air Controllers (FACs). Personnel will use training scenarios that require the placement of simulated tactical ordnance on selected targets using Joint Close Air Support (JCAS) procedures and observed fire procedures for Naval Surface Fire Support (NSFS), artillery and mortar fire to perform destruction, neutralization, suppression, illumination/coordinated illumination, interdiction and harassment fire missions. ***FY 2023 Plans:*** - Initiate Server Virtualization for the FO, FAC, Instructor, IOS, JSAF, and IG Computer Hardware to reduce required Hardware footprint and optimize system performance while using Thin Clients.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Initiate cyber related testing and system development to retain authority to operate/connected to current and new networks - Initiate test and integration efforts with operational gear Command, Control, Communications, Computers, and Intelligence (C4I) - Initiate interoperability activities with ground and air training systems - Continue development, test, integration, and interoperability efforts to support a federate within LVC-TE - Initiate Analysis of Alternatives (AOA) and begin development and integration of SAVT increment 2 solution(s) to Supporting Arms Training System (SATS) - Continue to provide Engineering and Project Management support ***FY 2024 Base Plans:*** - Continue Server Virtualization for the FO, FAC, Instructor, IOS, JSAF, and IG Computer Hardware to reduce required Hardware footprint and optimize system performance while using Thin Clients. - Continue cyber related testing and system development to retain authority to operate/connected to current and new networks - Continue test and integration efforts with operational gear (C4I) - Continue interoperability activities with ground and air training systems - Continue development, test, integration, and interoperability efforts to support a federate within LVC-TE - Continue Analysis of Alternatives (AOA) and begin development and integration of SAVT increment 2 solution(s) to Supporting Arms Training System (SATS) - Continue to provide Engineering and Project Management support ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease is due to reduced level of effort related to development and integration of the SAVT solution to SATS.					
Title: Immersive Training Range Support (ITRS)	2.078	2.114	2.155	0.000	2.155
Articles:	-	-	-	-	-
Description: Provide and sustains innovative technologies and programs that enhance the effectiveness of training and education at home stations. Innovative technologies incorporate high-fidelity training environments with enhanced battlefield realism including exposure to operational complexities and mental and physical stressors that challenge tactical, moral, and ethical decision making. Develops small unit leader decision making					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
and hone small unit collective skills in realistic, replicative, and rapidly repeatable venues. Ensures Marines first encounter their tactical and ethical dilemmas in a simulated battlefield rather than actual combat. ***FY 2023 Plans:*** - Continue Computer-generated Forces (CGF) Other Transaction Authority (OTA) prototype for available enhanced instrumentation for immersive training capabilities that directly support the Infantry T&R. - Continue Mobile Immersive Training Environment (MITE) development to bring immersive training capabilities to units in support of peer-near-peer training. ***FY 2024 Base Plans:*** - Continue CGF OTA prototype for available enhanced instrumentation for immersive training capabilities that directly support the Infantry T&R. - Continue MITE development to bring immersive training capabilities to units in support of peer-near-peer training. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase is due to inflation.					
Title: Training Simulation Support (TSS) ***Articles:*** ***Description:*** Training Simulation Support (TSS) provides greater combat readiness and enhanced operational execution to support a training continuum that features planning, preparation, exercise, and assessment capabilities for the Marine Air Ground Task Force (MAGTF) commander in both Joint and Service venues. TSS replicates a Contemporary Operational Environment (COE) and allows units to interact as though they are physically located in the same Operational Environment (OE). It also enables interoperability between diverse training programs to meet warfighting requirements and supports standards-based training from small unit events to large unit exercises. TSS supports continued constituent integration efforts into the Live, Virtual, and Constructive Training Environment (LVC-TE). LVC-TE is the tool that provides a persistent/consistent common operational training environment by which units can work together as though they are physically located in the same operational space with legacy and emerging training systems. TSS supports the LVC-TE timeline to deliver minimum viable product between the 1st and 2nd Quarter of FY 2023. Additional minimum viable capability releases are scheduled for every 6 months thereafter. This software intensive product is using the new	11.829 -	8.939 -	7.644 -	0.000 -	7.644 -

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Software Acquisition Pathway (DODI 5000.87), a transformational process that champions agile methods and fleet involvement to deliver what is most important to the fleet first. ***FY 2023 Plans:*** - Continue development of Live, Virtual, Constructive functionality among constituents to include front end analysis for constituent and enterprise services. - Continue development of enterprise services to include Cross Domain Solution (CDS), Exercise Design Tool (EDT), and After Action Review (AAR) solution. - Continue transition of ONR products into the enterprise services - Continue development of additional integration gateways and testing - Initiate program office support of government and contractor labor /travel for related research, development, and test support for ground training systems - Initiate cyber related testing and system development to retain authority to operate/connected to current and new networks - Initiate test and integration efforts with operational gear (C4I) - Initiate interoperability activities including gateway development with ground and air training systems - Initiate planning/development of Leader Focus Decision Game (LFDG) ***FY 2024 Base Plans:*** - Continue development of Live, Virtual, Constructive functionality among constituents to include front end analysis for constituent and enterprise services. - Continue development of enterprise services to include Cross Domain Solution (CDS), Exercise Control Tool (ECT), Exercise Design Tool (EDT), After Action Review (AAR) solution, Data Repository, and Simulation Infrastructure Translation Services (SITS). - Continue transition of Office of ONR products into the enterprise services - Continue development of additional integration gateways and testing - Continue program office support of government and contractor labor /travel for related research, development, and test support for ground training systems - Continue cyber related testing and system development to retain authority to operate/connected to current and new networks - Continue test and integration efforts with operational gear (C4I) - Continue interoperability activities including gateway development with ground and air training systems - Complete planning/development of Leader Focus Decision Game (LFDG)					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Initiate planning and development for Project Tripoli - Initiate development, testing, and prototyping of new and emerging technologies that support LVC training - Initiate Front End Analysis for emerging requirements ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease is due to programmatic rephase to better align with the schedule.					
Title: Indoor Simulated Marksmanship Trainer (ISMT)	0.000	0.977	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: Indoor Simulated Marksmanship Trainer (ISMT) provides basic and advanced marksmanship, shoot/no-shoot judgment scenarios, combat marksmanship, and weapons employment tactics. The ISMT provides infantry squad members with the ability to gain proficiency in multiple weapon platforms. Force Design 2030 will ensure small units, especially infantry squads, are led by the most well-trained and capable infantry Marines. The ISMT provides infantry squad members with the ability to gain proficiency in multiple weapon platforms while simulating live weapons training without the expenditure of expensive live ammunition. The system has five (5) firing positions and is capable of operating simulated weapons such as: rifles, pistols, machine guns, shotguns, mortars, and anti-tank weapons. ISMT also provides multiple courses of fire to include the Annual Rifle Qualification (ARQ) which is used to score Marines proficiency with service rifles. ISMT provides direct impact on the lethality of our infantry units. ***FY 2023 Plans:*** - Initiate and complete development of ISMT Ballistic Testing and Data Capture. Efforts will baseline simulated courses of fire against live fire events. Feedback will shape improved ballistics and performance of trainers - Initiate and complete development of ISMT new weapons concurrency. Efforts will provide new training anti-tank capabilities and more efficient electric weapons in place of compressed air models ***FY 2024 Base Plans:*** N/A ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:***					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Decrease is due to completion of ballistic testing, data capture, and new weapons development.					
Title: Family of Egress Trainers (FET)	0.000	0.929	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: The Family of Egress Trainers (FET) is comprised of the Underwater Egress Training (UET) and the Dry Rollover Egress Training (DRET). The UET consists of the Modular Amphibious Egress Trainer (MAET) a modular training device designed to train Marines to egress a downed aircraft; the Submerged Vehicle Egress Trainer (SVET) designed to train egress from ground tactical vehicles; and the Shallow Water Egress Trainer (SWET) which is a procedural trainer used prior to SVET and MAET. The trainers and associated training programs are conducted by contractors. The program is directed toward non-air crew passengers aboard these vehicles. The DRET is comprised of the HMMWV Egress Trainer (HEAT), the MRAP Egress Trainer (MET), and the JLTV Egress Trainer (JET). All of these devices have the ability to train egress principles that can be applied to increase survivability during a catastrophic event. This type of training can only be conducted by the use of these systems. ***FY 2023 Plans:*** - Initiate and complete design of the Multi Use Egress Trainer (MUET) trainer. ***FY 2024 Base Plans:*** N/A ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease is due to completion of MUET design.					
Accomplishments/Planned Programs Subtotals	35.090	36.833	27.494	0.000	27.494

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• PMC/6532-01: *Training Devices, CACCTUS*	1.754	0.000	0.000	-	0.000	6.553	0.924	0.943	0.962	Continuing	Continuing
• PMC/6532-02: *Training Devices, DVTE*	0.700	1.791	1.630	-	1.630	1.966	0.721	0.735	0.750	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• PMC/6532-03: *Training Devices, FoFTS*	0.000	36.128	44.982	-	44.982	33.286	9.821	9.968	10.237	Continuing	Continuing
• PMC/6532-04: *Training Devices, MTWS*	0.117	0.000	2.245	-	2.245	0.597	0.127	0.129	0.132	Continuing	Continuing
• PMC/6532-05: *Training Devices, RTAM*	4.340	14.661	27.209	-	27.209	36.534	31.389	32.456	34.815	Continuing	Continuing
• PMC/6532-06: *Training Devices, TSS*	6.067	13.248	0.000	-	0.000	0.000	0.884	1.036	1.040	Continuing	Continuing
• PMC/6532-07: *Training Devices, FET*	0.000	0.000	13.888	-	13.888	6.961	6.703	7.055	3.782	Continuing	Continuing
• PMC/6532-08: *Training Devices, ITRS*	0.000	1.535	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1.535
• PMC/6532-09: *Training Devices, ISMT*	2.906	0.000	6.216	-	6.216	7.003	10.641	7.286	7.432	Continuing	Continuing
• PMC/6532-10: *Training Devices, SAVT*	0.000	0.000	0.000	-	0.000	6.774	10.586	6.899	7.037	Continuing	Continuing

Remarks

D. Acquisition Strategy

CACCTUS - Developing tasking orders on electronics and communication services for system development, test, and integration efforts. IDIQ will be used for contractor and reimbursable work requests for Navy Program Support labor.

DVTE - Developing tasking orders on electronics and communication services for system development, test, and integration efforts. IDIQ will be used for contractor and reimbursable work requests for Navy Program Support labor.

FoFTS - The FoFTS-Next program successfully awarded the anticipated Undefinitized Contract Action (UCA) on 17 June 2021 for production of the FoFTS-Next MCTIS-P and MCTIS-V base kits. The contract was subsequently definitized on 9 March 2022. Full MCTIS-V and MCTIS-WS RDT&E projects will be pursued via prototype OTAs. Upon successful completion of those prototype efforts, the successful prototyped items will be procured separately on either a production OTA or another FAR based type of contract vehicle.

MTWS - Developing Tasking orders on ECS for System Development/test and integration efforts. Using MIPR to Hill AFB for labor supporting modernization efforts. Using IDIQ for Contractor and Reimbursable work request for Navy Program Support labor.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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RTAM - MIPR to the Army-PEO STRI planned for award on existing Consolidated Product-line Management Contract.

SAVT - Developing Tasking orders on ECS for System Development/test and integration efforts.

ITRS - MIPR to the ACC-Orlando planned for award on existing Consolidated Product-line Management Contract. MIPR to ACC-Orlando planned for OTA award to CGF. AK47 and RPK Blank Fire Only (BFO) weapon development by NSWC Crane. AK47 and RPK BFO weapon validation and testing by Corona.

TSS - MIPR to the Army-PEO STRI planned for award on existing Consolidated Product-line Management Contract to start the development effort for LVC-TE functionality including constituent integration efforts. Using IDIQ for Contractor Labor and Reimbursable work request for Navy Program Support labor. Hardware will be procured competitively. Planned for award and support on the LVC enterprise product line management and software development.

MCTIMS - Modernization efforts to utilize reimbursable work request(s) to NIWC Atlantic planned for both Navy and contractor support.

ISMT - Pursuing the Advanced Small Arms Lethality Trainer (ASALT) which will provide advanced marksmanship training and alignment to Force Design 2030. Weapons concurrency and technology refresh of all software and hardware are planned for upcoming fiscal years. Newly fielded tactical systems like M3A1 Multi-Role Anti-Armor Anti-Personnel Weapons System (MAAWS) will be simulated on ISMT. System upgrades and new capabilities will be pursued via prototype OTAs. Upon successful completion of those prototype efforts, items will be procured separately on either a production OTA or another FAR based type of contract vehicle. RDT&E are centered on human performance data capture and improved simulator ballistics. Future integration requirements will align ISMT capabilities with LVC-TE training goals.

FET - The acquisition strategy is designated for the design and test of the next generation of Submerged Vehicle Egress Trainer (SVET) and the Multi-Use Egress Trainer (MUET).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CACCTUS - Development/ Integration/Interoperability	C/CPFF	Eng. and Comp. Sim : Orlando, FL	0.000	0.610	Apr 2022	4.720	Jun 2023	3.776	Feb 2024	-		3.776	0.000	9.106	-
CACCTUS - SW Dev	MIPR	CERDEC : Ft. Belvoir	0.200	0.000		0.000		0.000		-		0.000	0.000	0.200	-
DVTE - Development/ Integration/Interoperability	Various	Various : Various	0.000	0.438	Aug 2022	0.215	Apr 2023	0.215	Feb 2024	-		0.215	0.000	0.868	-
DVTE - SW Dev - VBS	SS/IDIQ	Bohemia Interactive : Orlando, FL	17.619	0.000		0.000		0.000		-		0.000	0.000	17.619	-
FoFTS Mountain Top Base Station Dev	WR	NSWC Corona : NSWC Corona	0.044	0.000		0.000		0.000		-		0.000	0.000	0.044	-
FoFTS Software Development	MIPR	ACC-Orlando : Orlando, FL	2.926	0.000		0.000		0.000		-		0.000	0.000	2.926	-
FoFTS Laser Compliance Testing	MIPR	NIWC-Atlantic : TBD	0.000	0.145	Aug 2022	0.000		0.000		-		0.000	0.000	0.145	-
FoFTS MCTIS-WS Development	Various	MCSC : TBD	0.000	0.114	Feb 2023	0.177	May 2023	3.290	Feb 2024	-		3.290	0.000	3.581	-
FoFTS OTA Capability Demonstration	Various	MCSC : TBD	0.260	0.000		0.000		0.000		-		0.000	0.000	0.260	-
FoFTS TREX Surrogate Weapons	PO	MCSC : Quantico, VA	1.971	0.000		0.000		0.000		-		0.000	0.000	1.971	-
FoFTS - ITRS AK47 BFO	C/BA	NSWC Crane : Crane, IN	0.391	0.000		0.000		0.000		-		0.000	0.000	0.391	-
FoFTS OTA Phase III	Various	MCSC : Quantico, VA	1.160	0.000		0.000		0.000		-		0.000	0.000	1.160	-
FoFTS MCTIS-V Development	Various	MCSC : Quantico, VA	0.284	0.054	Dec 2022	3.152	Mar 2023	0.000		-		0.000	0.000	3.490	-
FoFTS Human Factors Prototype	TBD	MCSC : Quantico, VA	0.010	0.000		0.000		0.000		-		0.000	0.000	0.010	-
MTWS - Reengineering	MIPR	Hill AFB : Utah	8.362	7.932	Jan 2022	3.145	Mar 2023	3.500	Jan 2024	-		3.500	Continuing	Continuing	Continuing
MTWS - Development/ Integration/Interoperability	C/CPFF	Envision Innovative Solution : Orlando, FL	0.000	1.172	Apr 2022	0.700	Apr 2023	0.549	Apr 2024	-		0.549	0.000	2.421	-

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MTWS - SW Dev 1	C/IDIQ	Cole Engineering, Inc. : Orlando, FL	10.867	0.000		0.000		0.000		-		0.000	0.000	10.867	-
MTWS - SW Dev 2	C/IDIQ	Cole Engineering, Inc. : Orlando, FL	1.002	0.000		0.000		0.000		-		0.000	0.000	1.002	-
MCTIMS	WR	NIWC-LANT : Charleston, SC	0.000	3.586	Aug 2022	3.648	Apr 2023	0.000		-		0.000	0.000	7.234	-
RTAM RISCon-T/PDSS SW/TRACR II Dev	MIPR	ACC-Orlando : Orlando, FL	11.217	0.345	Sep 2022	0.877	Jun 2023	1.064	May 2024	-		1.064	Continuing	Continuing	Continuing
RTAM LFET	C/FFP	NSWC Dahlgren : Dahlgren, VA	0.207	0.000		0.000		1.100	Jun 2024	-		1.100	0.000	1.307	-
RTAM Electronic Warfare	TBD	NSWC Dahlgren : Dahlgren, VA	0.000	2.100	May 2022	3.804	Mar 2023	0.400	Jun 2024	-		0.400	0.000	6.304	-
RTAM KDAS efforts	SS/FFP	ACC-Orlando : Orlando, FL	0.651	0.000		0.000		0.724	Mar 2024	-		0.724	0.000	1.375	-
RTAM KDAS Target System	SS/FFP	DLA : Philadelphia, PA	0.605	0.000		0.000		0.000		-		0.000	0.000	0.605	-
RTAM KDAS GCPC	Various	Various : Various	0.009	0.000		0.000		0.000		-		0.000	0.000	0.009	-
SAVT - Development/ Integration/Interoperability	Various	Various : Various	0.000	2.911	Feb 2022	1.580	Feb 2023	0.740	Feb 2024	-		0.740	0.000	5.231	-
SAVT - Tech Insertion	C/FFP	Riptide Software, Inc. : Orlando, FL	5.846	0.000		0.000		0.000		-		0.000	0.000	5.846	-
ITRS Computer Generated Forces	MIPR	ACC-Orlando : Orlando, FL	0.766	0.382	Sep 2022	1.052	May 2023	0.791	May 2024	-		0.791	0.000	2.991	-
ITRS - CPM MITE	MIPR	ACC-Orlando : Orlando, FL	9.402	1.046	Jun 2022	1.062	Mar 2023	1.084	Mar 2024	-		1.084	Continuing	Continuing	Continuing
Training Simulation Support	C/CPFF	General Dynamics : Orlando, FL	0.000	9.932	Apr 2022	0.000		0.000		-		0.000	0.000	9.932	-
Training Simulation Support	MIPR	Various : Orlando, FL	0.157	0.645	Jun 2022	6.680	Mar 2023	6.721	Dec 2023	-		6.721	0.000	14.203	-
ISMT Ballistics Testing and Data Capture	MIPR	ONR : San Diego, CA	0.000	0.000		0.639	Apr 2023	0.000		-		0.000	0.000	0.639	-
FET MUET Trainer ACV	TBD	TBD : TBD	0.000	0.000		0.929	Sep 2023	0.000		-		0.000	0.000	0.929	-

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Cumulative Funding	Various	Various : Various	91.239	0.000		0.000		0.000		-		0.000	0.000	91.239	-
ISMT Weapons Development SIM	MIPR	NSWC TSD : Orlando, FL	0.000	0.000		0.308	Apr 2023	0.000		-		0.000	0.000	0.308	-
		Subtotal	165.195	31.412		32.688		23.954		-		23.954	Continuing	Continuing	N/A

Remarks

Overall is primarily attributed to completion of ISMT ballistic testing and data capture, FET SVET design, and RTAM Ballistic Concrete testing.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
FoFTS Delta PDSC Support	C/FFP	MCSC TRASYS : Orlando, FL	0.000	0.208	Jan 2022	0.000		0.000		-		0.000	0.000	0.208	-
FoFTS Fire Supp. Eng. Support	C/BA	DLA : Philadelphia, PA	0.000	0.043	Jan 2023	0.000		0.000		-		0.000	0.000	0.043	-
CACCTUS/LVCTE Prototype Integration	MIPR	PEO STRI : Orlando, FL	0.499	0.000		0.000		0.000		-		0.000	0.000	0.499	-
CACCTUS/LVCTE Pre Development	MIPR	PEO STRI : Orlando, FL	1.662	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
ITRS Corona Spt	WR	NSWC Corona : Corona, CA	0.671	0.247	Nov 2021	0.000		0.260	Oct 2023	-		0.260	0.000	1.178	-
ITRS ISS Front End Analysis	WR	NSWC PCD : Panama City, FL	0.034	0.000		0.000		0.000		-		0.000	0.000	0.034	-
ITRS PDSC	C/FFP	MCSC TRASYS : Orlando, FL	0.000	0.156	Jan 2022	0.000		0.000		-		0.000	0.000	0.156	-
TSS LVC-TE Front End Analysis	TBD	TBD : TBD	0.000	0.000		0.000	Apr 2023	0.000		-		0.000	0.000	0.000	-
RTAM Corona Spt	WR	NSWC Corona : Corona, CA	0.634	0.491	Oct 2021	0.000		0.214	Oct 2023	-		0.214	0.000	1.339	-

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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
RTAM NSLC Spt	WR	NAVSEALOGCEN : Mechanicsburg, PA	0.034	0.000		0.000		0.000		-		0.000	0.000	0.034	-
RTAM LFET	WR	NSWC Dahlgren : Dahlgren, VA	0.231	0.000		0.000		0.195	Mar 2024	-		0.195	0.000	0.426	-
RTAM KDAS Navy support	WR	NSWC Crane : Crane, IN	0.224	0.000		0.000		0.000		-		0.000	0.000	0.224	-
RTAM NAWC-TSD Support	WR	NAWC-TSD : Orlando, FL	0.101	0.000		0.000		0.000		-		0.000	0.000	0.101	-
RTAM Electronic Warfare	WR	NSWC Dahlgren : Dahlgren, VA	0.568	0.115	Mar 2022	0.000		0.000		-		0.000	0.000	0.683	-
RTAM PDSC	C/FFP	MCSC TRASYS : Orlando, FL	0.000	0.155	Jan 2022	0.000		0.000		-		0.000	0.000	0.155	-
SAVT Risk Managemnt Framework (RMF)	TBD	NSWC Corona : Corona, CA	0.098	0.000		0.000		0.000		-		0.000	0.000	0.098	-
Prior Year Cumulative Funding	Various	Various : Various	16.866	0.000		0.000		0.000		-		0.000	0.000	16.866	-
ISMT Prototype Support	MIPR	NSWC TSD : Orlando, FL	0.000	0.000		0.030	Apr 2023	0.000		-		0.000	0.000	0.030	-
		Subtotal	21.622	1.415		0.030		0.669		-		0.669	Continuing	Continuing	N/A

Remarks

Overall decrease is primarily attributed to completion of RTAM Ballistic Concrete testing.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation (OT&E)	PO	NSWC Corona : Corona, CA	0.925	0.000	Jan 2022	0.000		0.000		-		0.000	0.000	0.925	-
Developmental Test & Evaluation (DT&E)	MIPR	ACC Orando : Orlando, FL	0.149	0.000		0.000		0.000	May 2024	-		0.000	0.000	0.149	-

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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	C/FFP	RipTide : Orlando, FL	0.041	0.000		0.000		0.000		-		0.000	0.000	0.041	-
Operational Test & Evaluation (OT&E)	MIPR	ITRS RPK BFO NSWC Crane : Crane, IN	0.000	0.242	Apr 2022	0.000		0.000		-		0.000	0.000	0.242	-
Developmental Test & Evaluation (DT&E)	MIPR	RTAM SACON - ATC : Aberdeen, MD	0.510	0.000		0.000		0.000		-		0.000	0.000	0.510	-
Operational Test & Evaluation (OT&E)	MIPR	RTAM LFTS ATO V&V - NSWC Corona : Corona, CA	0.000	0.000		0.097	Jan 2023	0.000		-		0.000	0.000	0.097	-
Operational Test & Evaluation (OT&E)	WR	FOFTS LASER EVAL - NSWC Dahlgreen : Dahlgren, VA	0.038	0.000		0.000		0.000		-		0.000	0.000	0.038	-
Operational Test & Evaluation (OT&E)	WR	FOFTS AMITS - NSWC Dahlgreen : Dahlgren, VA	0.025	0.000		0.000		0.000		-		0.000	0.000	0.025	-
Operational Test & Evaluation (OT&E)	MIPR	FOFTS NSWC Dahlgren : Dahlgren, VA	0.000	0.024	Feb 2023	0.000		0.000		-		0.000	0.000	0.024	-
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	PO	NSWC Corona : Corona, CA	0.100	0.000		0.000		0.000		-		0.000	0.000	0.100	-
Operational Test & Evaluation (OT&E)	MIPR	ACC Orando : Orlando, FL	0.000	0.000		0.000	Dec 2022	0.000		-		0.000	0.000	0.000	-
Operational Test & Evaluation (OT&E)	Various	Various : Various	0.002	0.000		0.000		0.000		-		0.000	0.000	0.002	-
		Subtotal	1.790	0.266		0.097		0.000		-		0.000	0.000	2.153	N/A

Remarks

Overall decrease is due to decreased testing requirements related to TSS Interoperability with LVC functionality.

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Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CACCTUS - Program Support	Various	Various : Various	2.001	0.348	Oct 2021	1.387	Oct 2022	1.500	Oct 2023	-		1.500	0.000	5.236	-
DVTE - Program Support	Various	Various : Various	0.756	0.132	Oct 2021	0.150	Apr 2023	0.150	Oct 2023	-		0.150	0.000	1.188	-
FoFTS - Travel	Various	DTS : Various	0.002	0.014	Sep 2022	0.022	Dec 2022	0.015	Oct 2023	-		0.015	0.000	0.053	-
MTWS - Program Support	Various	Various : Various	0.582	0.136	Oct 2021	0.150	Oct 2022	0.213	Oct 2023	-		0.213	0.000	1.081	-
RTAM - Travel	Various	DTS : Various	0.027	0.110	Oct 2021	0.050	Oct 2022	0.050	Oct 2023	-		0.050	0.000	0.237	-
RTAM Program Support	TBD	TBD : TBD	0.189	0.000		0.000		0.000		-		0.000	0.000	0.189	-
RTAM KDAS Travel	Various	DTS : Various	0.014	0.000		0.000		0.000		-		0.000	0.000	0.014	-
ITRS - Travel	Various	DTS : Various	0.170	0.005	Sep 2022	0.000	Sep 2023	0.020	Sep 2024	-		0.020	0.000	0.195	-
ITRS - Program Support	C/BA	MCSC : Orlando, FL	0.102	0.000		0.000		0.000		-		0.000	0.000	0.102	-
TSS/LVCTE - Program Support	Various	Various : Various	0.150	1.252	Oct 2021	2.259	Oct 2022	0.923	Oct 2023	-		0.923	0.000	4.584	-
SAVT - Program Support	TBD	TBD : TBD	0.087	0.000		0.000		0.000		-		0.000	0.000	0.087	-
Prior Year Cumulative Funding	Various	Various : Various	0.139	0.000		0.000		0.000		-		0.000	0.000	0.139	-
		Subtotal	4.219	1.997		4.018		2.871		-		2.871	0.000	13.105	N/A

Remarks

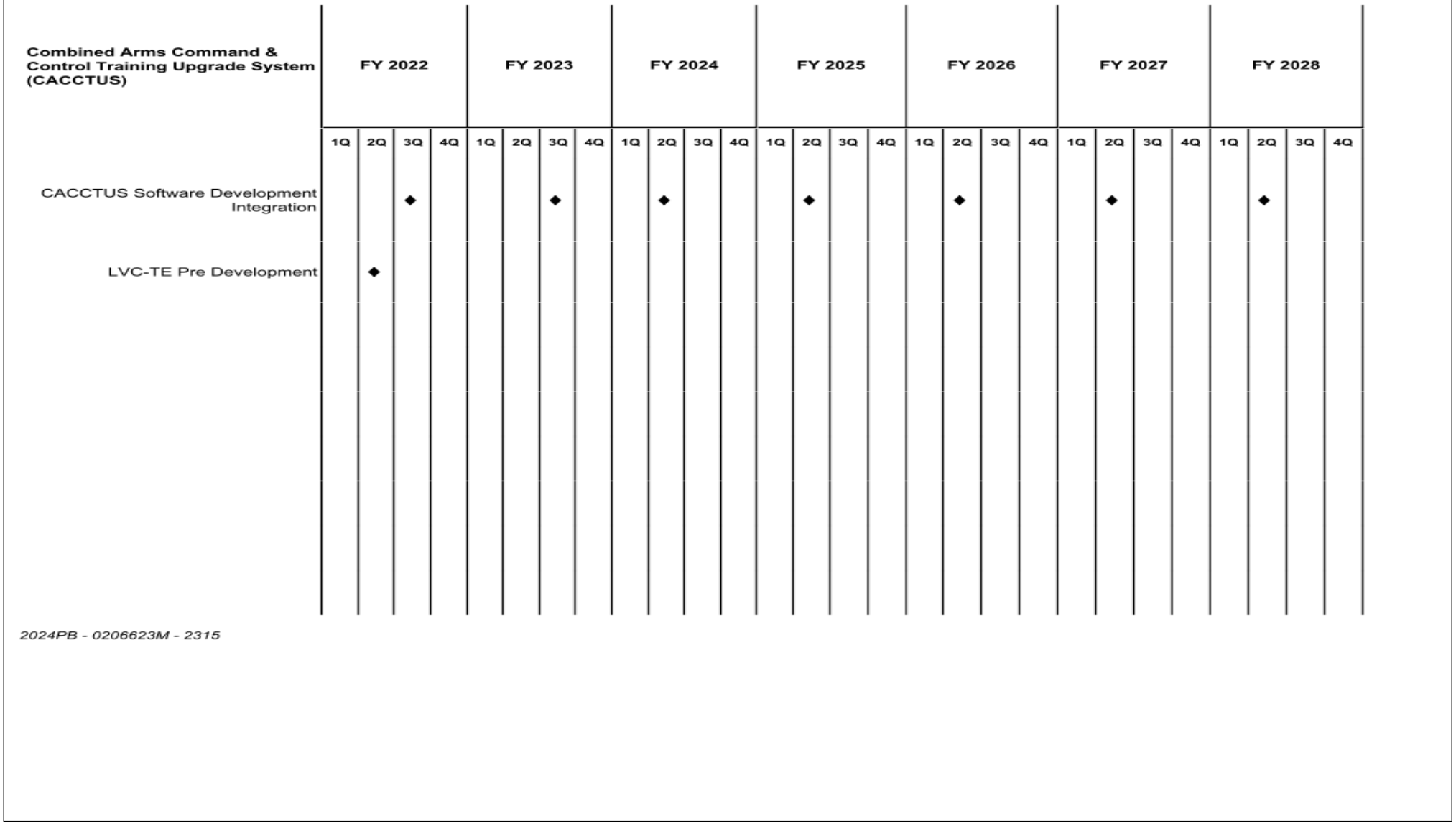
Overall decrease is due to TSS programmatic rephase to better align with the schedule.

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	192.826	35.090		36.833		27.494		-		27.494	Continuing	Continuing	N/A

Remarks

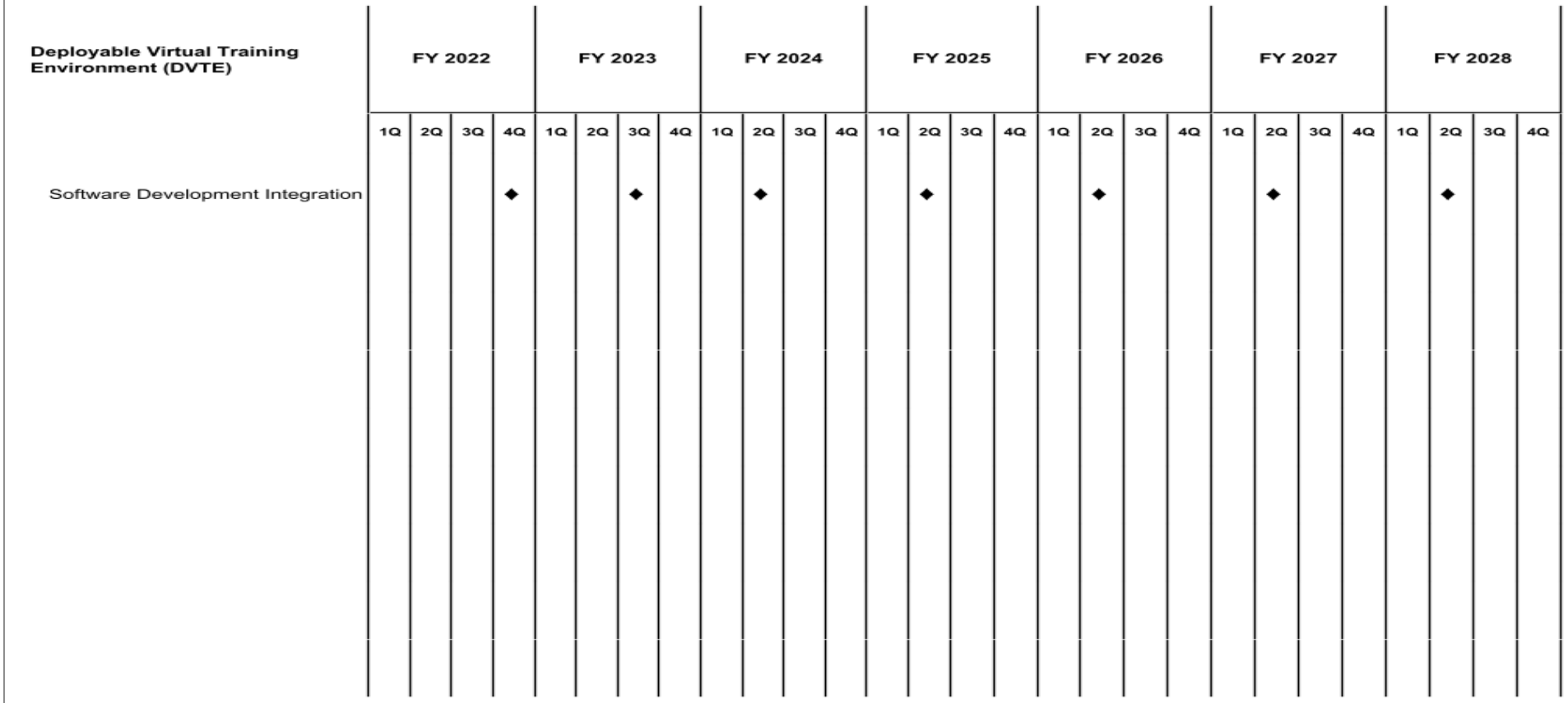
Overall decrease is primarily attributed to completion of ISMT ballistic testing and data capture, FET SVET design, and RTAM Ballistic Concrete testing.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2315 / *Training Devices/Simulators*



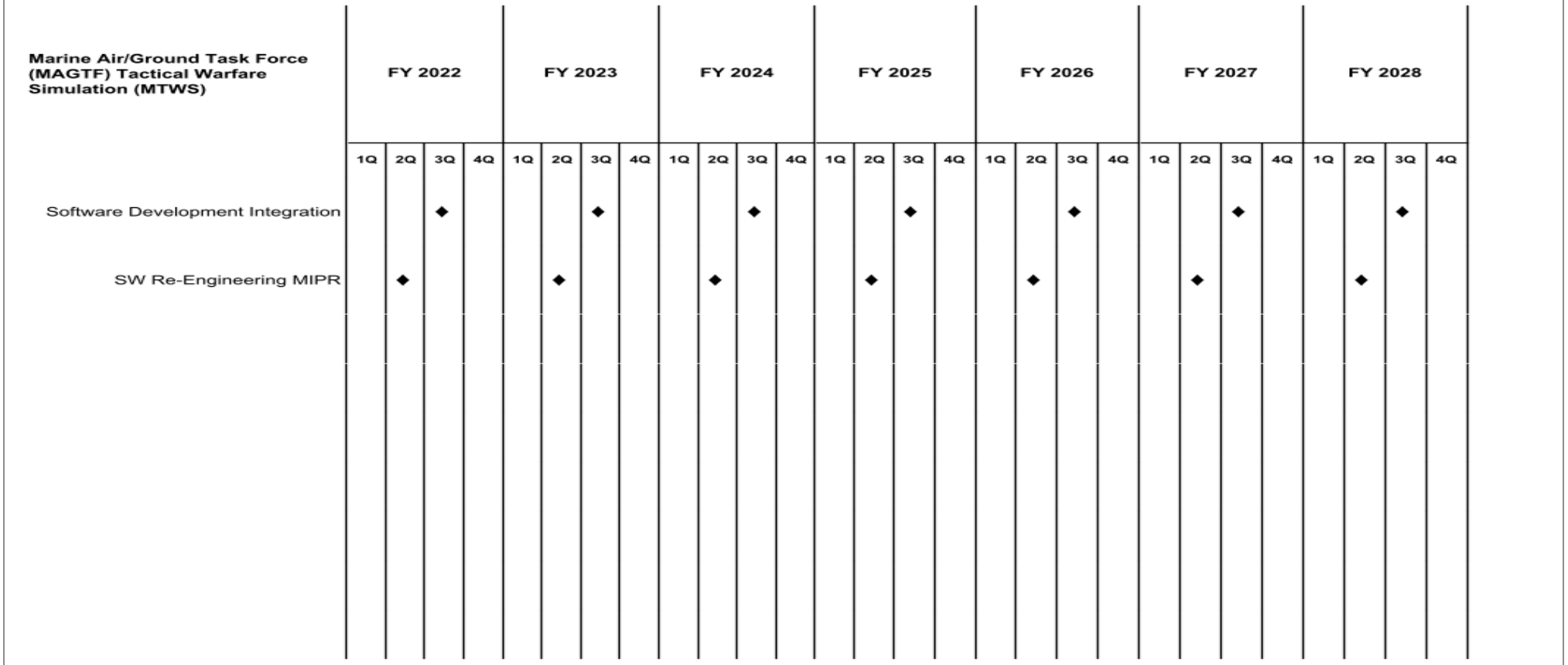
2024PB - 0206623M - 2315

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2315 / *Training Devices/Simulators*



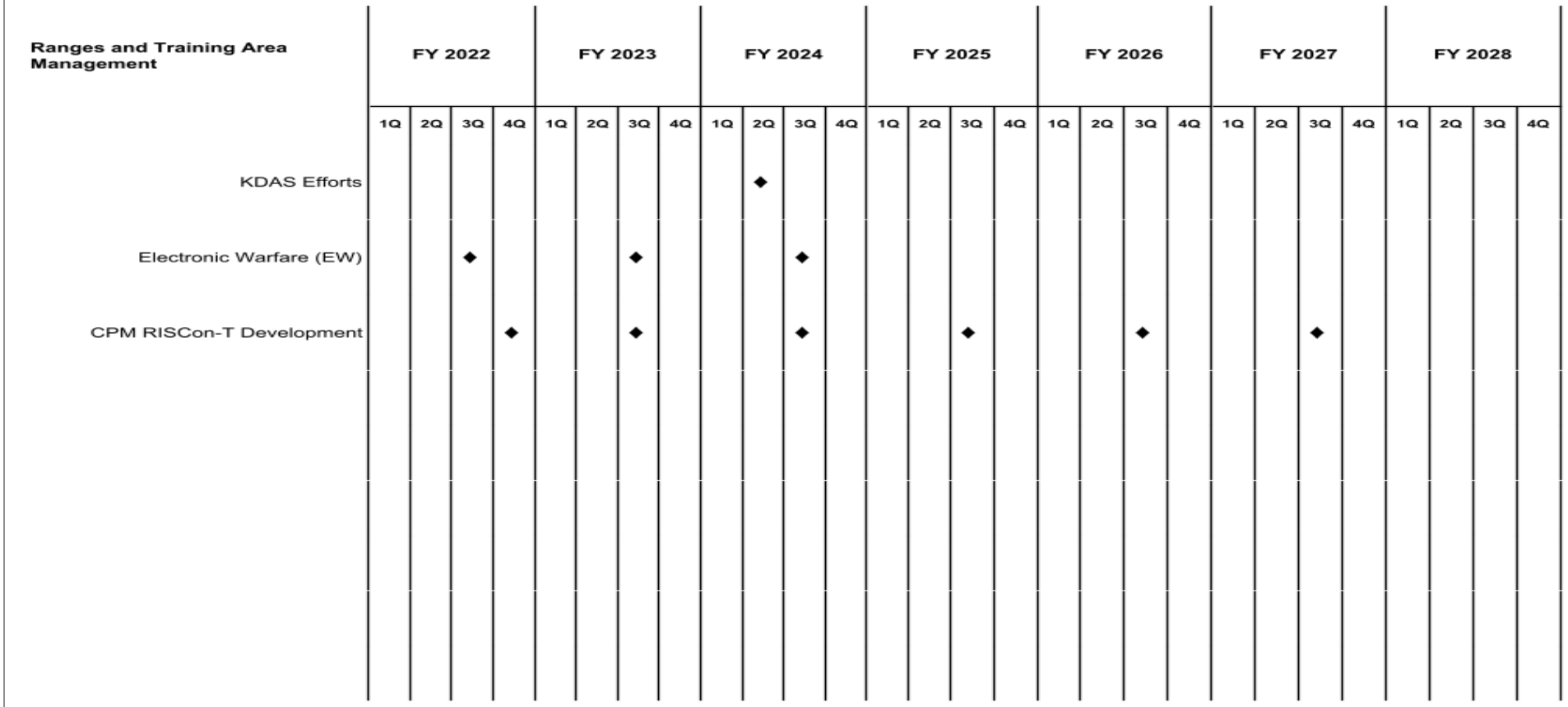
2024PB - 0206623M - 2315

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2315 / *Training Devices/Simulators*



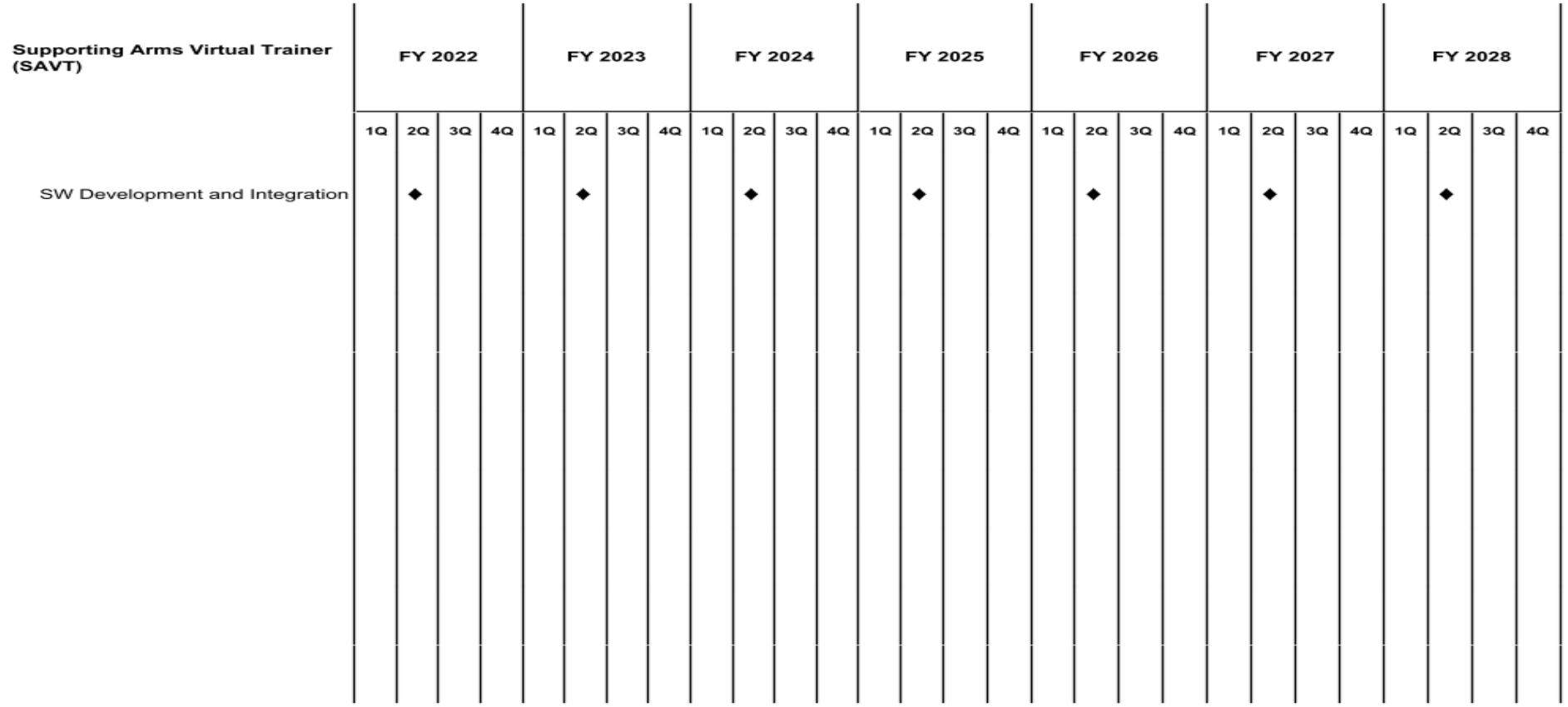
2024PB - 0206623M - 2315

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2315 / *Training Devices/Simulators*



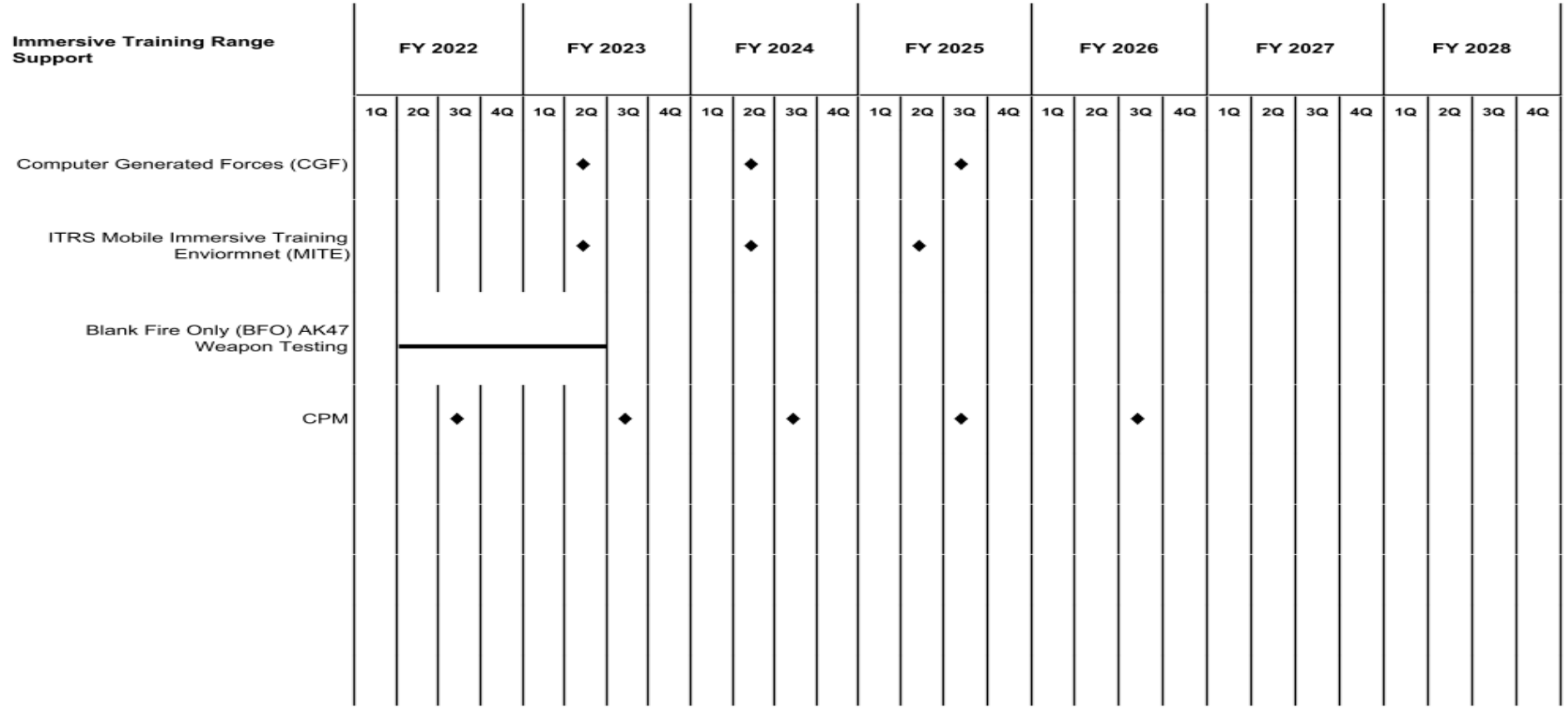
2024PB - 0206623M - 2315

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2315 / *Training Devices/Simulators*



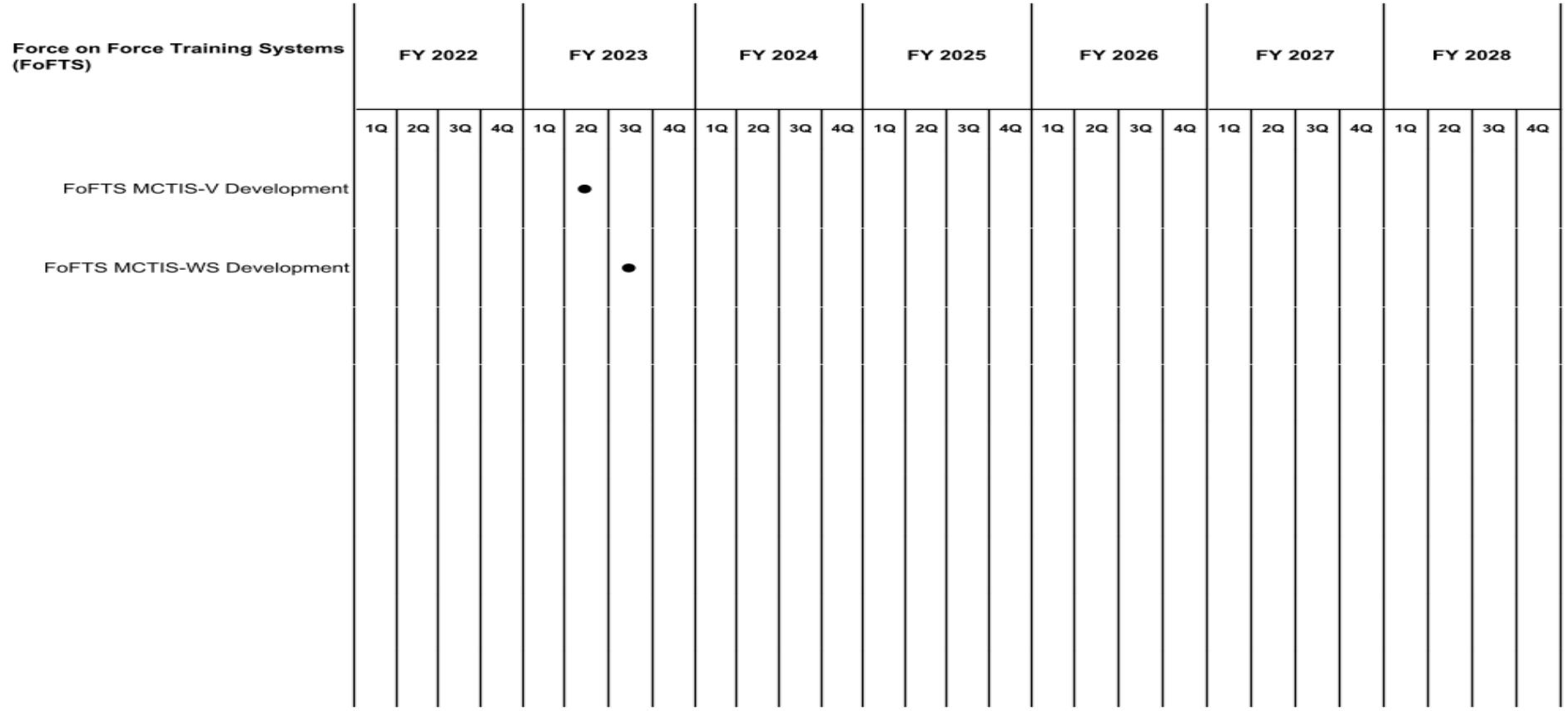
2024PB - 0206623M - 2315

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2315 / *Training Devices/Simulators*



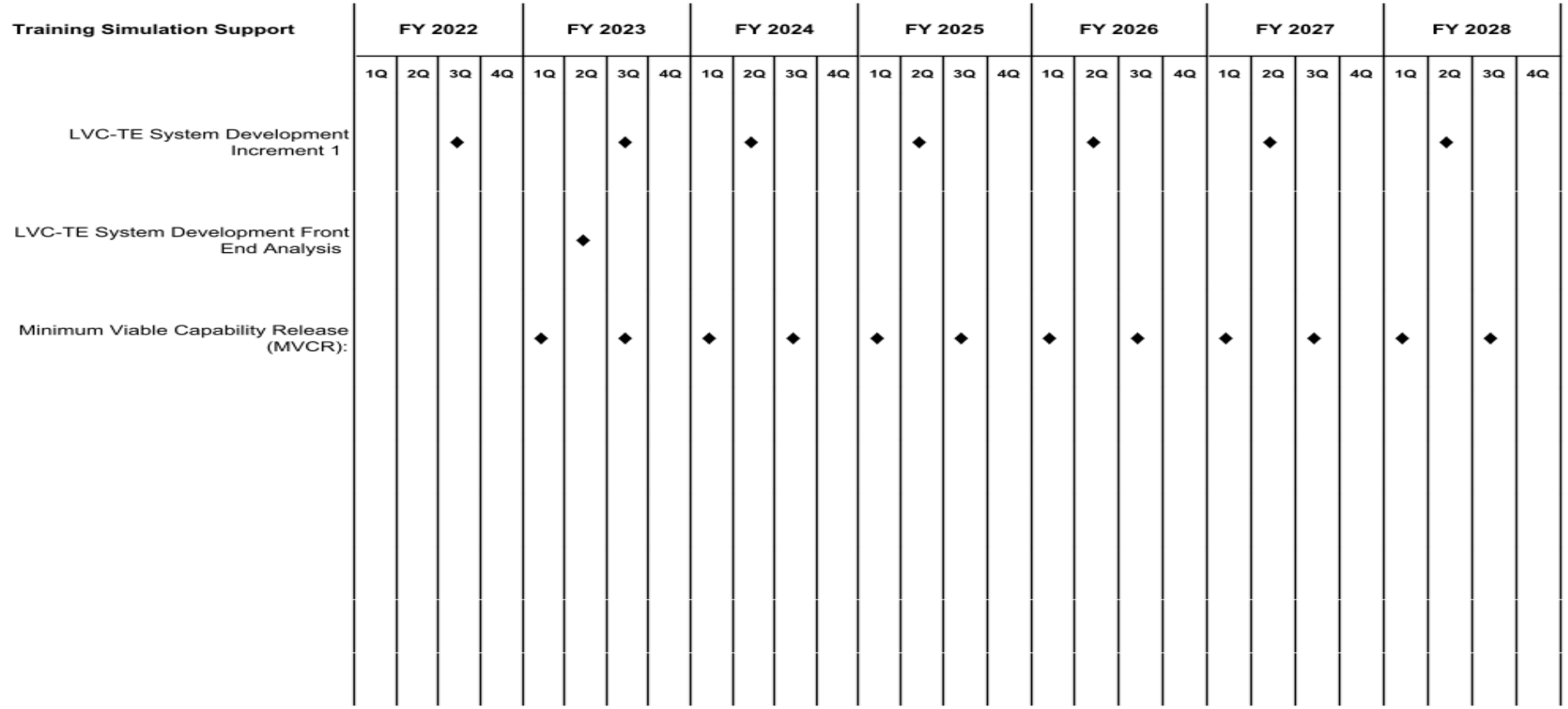
2024PB - 0206623M - 2315

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2315 / *Training Devices/Simulators*



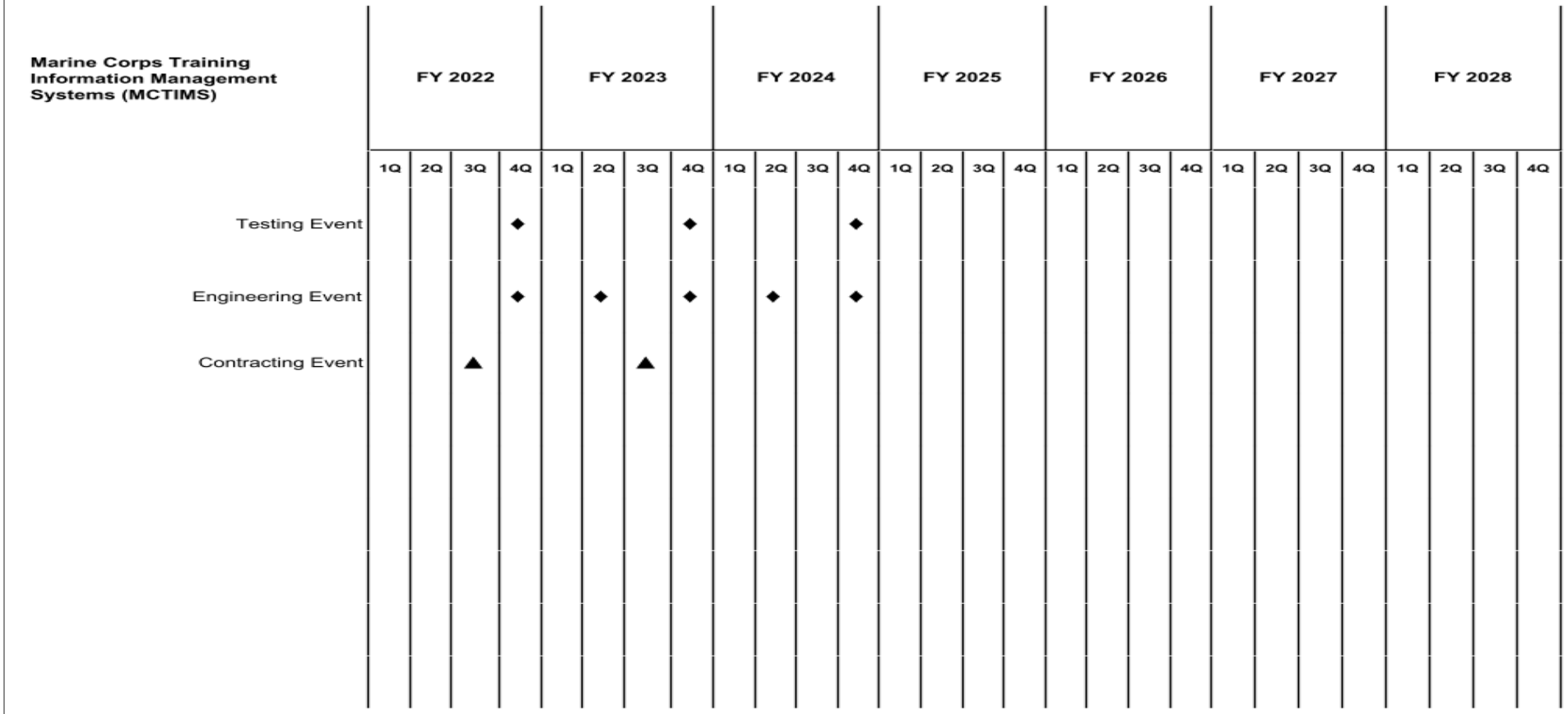
2024PB - 0206623M - 2315

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2315 / *Training Devices/Simulators*



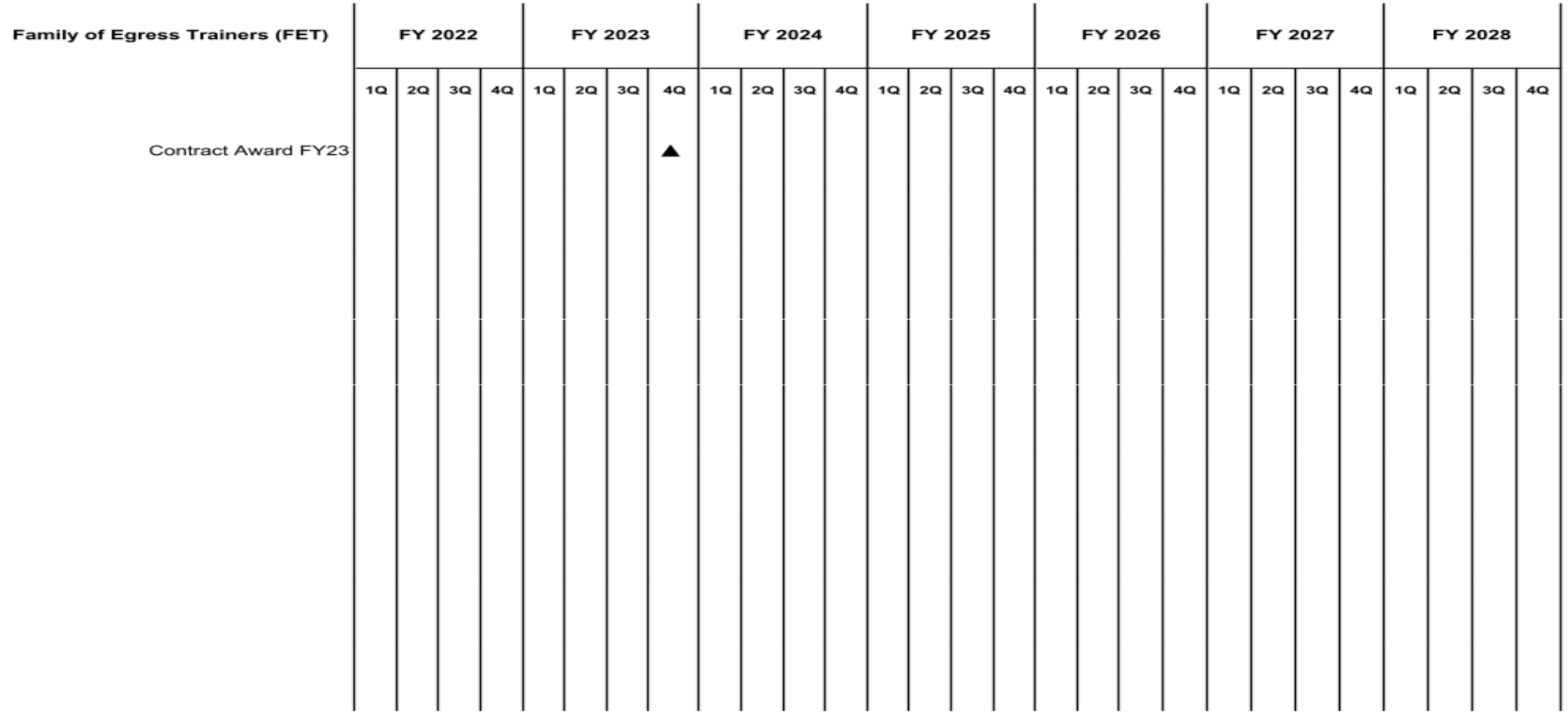
2024PB - 0206623M - 2315

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2315 / *Training Devices/Simulators*



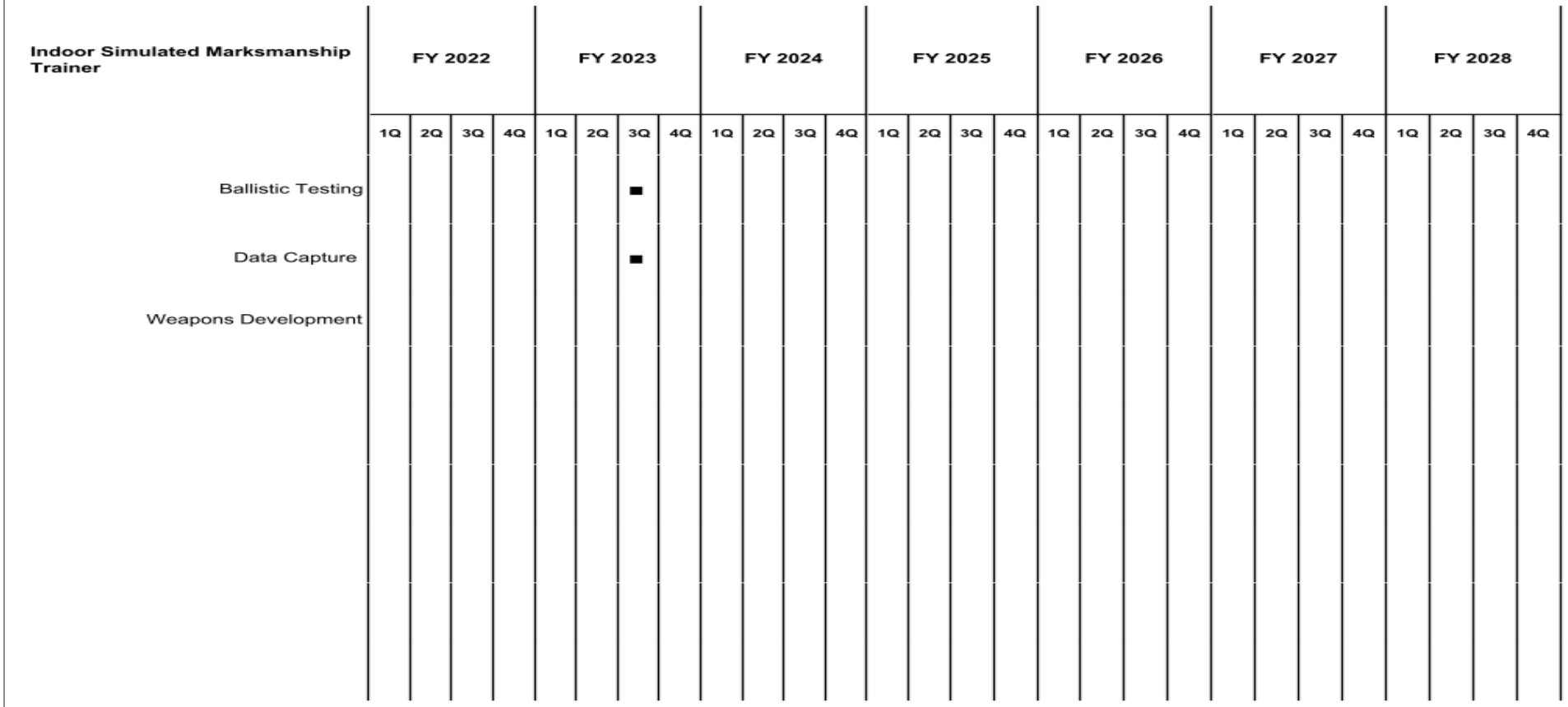
2024PB - 0206623M - 2315

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2315 / *Training Devices/Simulators*



2024PB - 0206623M - 2315

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2315 / *Training Devices/Simulators*



2024PB - 0206623M - 2315

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2315 / *Training Devices/Simulators*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Combined Arms Command & Control Training Upgrade System (CACCTUS)				
CACCTUS Software Development Integration: FY22 CACCTUS Software Development Integration	3	2022	3	2022
CACCTUS Software Development Integration: FY23 CACCTUS Software Development Integration	3	2023	3	2023
CACCTUS Software Development Integration: FY24 CACCTUS Software Development Integration	2	2024	2	2024
CACCTUS Software Development Integration: FY25 CACCTUS Software Development Integration	2	2025	2	2025
CACCTUS Software Development Integration: FY26 CACCTUS Software Development Integration	2	2026	2	2026
CACCTUS Software Development Integration: FY27 CACCTUS Software Development Integration	2	2027	2	2027
CACCTUS Software Development Integration: FY28 CACCTUS Software Development Integration	2	2028	2	2028
LVC-TE Pre Development: System Integration (FY22)	2	2022	2	2022
Deployable Virtual Training Environment (DVTE)				
Software Development Integration: FY22 Software Development Integration	4	2022	4	2022
Software Development Integration: FY23 Software Development Integration	3	2023	3	2023
Software Development Integration: FY24 Software Development Integration	2	2024	2	2024
Software Development Integration: FY25 Software Development Integration	2	2025	2	2025
Software Development Integration: FY26 Software Development Integration	2	2026	2	2026
Software Development Integration: FY27 Software Development Integration	2	2027	2	2027
Software Development Integration: FY28 Software Development Integration	2	2028	2	2028

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2315 / *Training Devices/Simulators*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Marine Air/Ground Task Force (MAGTF) Tactical Warfare Simulation (MTWS)				
Software Development Integration: FY22 Software Development Integration	3	2022	3	2022
Software Development Integration: FY23 Software Development Integration	3	2023	3	2023
Software Development Integration: FY24 Software Development Integration	3	2024	3	2024
Software Development Integration: FY25 Software Development Integration	3	2025	3	2025
Software Development Integration: FY26 Software Development Integration	3	2026	3	2026
Software Development Integration: FY27 Software Development Integration	3	2027	3	2027
Software Development Integration: FY28 Software Development Integration	3	2028	3	2028
SW Re-Engineering MIPR: FY22 SW Re-Engineering MIPR	2	2022	2	2022
SW Re-Engineering MIPR: FY23 SW Re-Engineering MIPR	2	2023	2	2023
SW Re-Engineering MIPR: FY24 SW Re-Engineering MIPR	2	2024	2	2024
SW Re-Engineering MIPR: FY25 SW Re-Engineering MIPR	2	2025	2	2025
SW Re-Engineering MIPR: FY26 SW Re-Engineering MIPR	2	2026	2	2026
SW Re-Engineering MIPR: FY27 SW Re-Engineering MIPR	2	2027	2	2027
SW Re-Engineering MIPR: FY28 SW Re-Engineering MIPR	2	2028	2	2028
Ranges and Training Area Management				
KDAS Efforts: FY24 KDAS Efforts	2	2024	2	2024
Electronic Warfare (EW): FY22 Electronic Warfare (EW)	3	2022	3	2022
Electronic Warfare (EW): FY23 Electronic Warfare (EW)	3	2023	3	2023
Electronic Warfare (EW): FY24 Electronic Warfare (EW)	3	2024	3	2024
CPM RISCon-T Development: CPM RISCon-T SW Integration FY22	4	2022	4	2022
CPM RISCon-T Development: CPM RISCon-T SW Integration FY23	3	2023	3	2023
CPM RISCon-T Development: CPM RISCon-T SW Integration FY24	3	2024	3	2024
CPM RISCon-T Development: CPM RISCon-T SW Integration FY25	3	2025	3	2025
CPM RISCon-T Development: CPM RISCon-T SW Integration FY26	3	2026	3	2026

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2315 / *Training Devices/Simulators*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
CPM RISCon-T Development: CPM RISCon-T SW Integration FY27	3	2027	3	2027
Supporting Arms Virtual Trainer (SAVT)				
SW Development and Integration: FY22 Task Order Award	2	2022	2	2022
SW Development and Integration: FY23 Task Order Award	2	2023	2	2023
SW Development and Integration: FY24 Task Order Award	2	2024	2	2024
SW Development and Integration: FY25 Task Order Award	2	2025	2	2025
SW Development and Integration: FY26 Task Order Award	2	2026	2	2026
SW Development and Integration: FY27 Task Order Award	2	2027	2	2027
SW Development and Integration: FY28 Task Order Award	2	2028	2	2028
Immersive Training Range Support				
Computer Generated Forces (CGF): FY22 Computer Generated Forces (CGF)	2	2023	2	2023
Computer Generated Forces (CGF): FY23 Computer Generated Forces (CGF)	2	2024	2	2024
Computer Generated Forces (CGF): FY24 Computer Generated Forces (CGF)	2	2025	2	2025
ITRS Mobile Immersive Training Enviormnet (MITE): ITRS Mobile Immersive Training Enviormnet (MITE) FY23	2	2023	2	2023
ITRS Mobile Immersive Training Enviormnet (MITE): ITRS Mobile Immersive Training Enviormnet (MITE) FY24	2	2024	2	2024
ITRS Mobile Immersive Training Enviormnet (MITE): ITRS Mobile Immersive Training Enviormnet (MITE) FY25	2	2025	2	2025
Blank Fire Only (BFO) AK47 Weapon Testing: NSWC Corona AK47 Testing	2	2022	2	2023
CPM: CPM (2022)	3	2022	3	2022
CPM: CPM (2023)	3	2023	3	2023
CPM: CPM (2024)	3	2024	3	2024
CPM: CPM (2025)	3	2025	3	2025
CPM: CPM (2026)	3	2026	3	2026
Force on Force Training Systems (FoFTS)				

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2315 / *Training Devices/Simulators*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
FoFTS MCTIS-V Development: FY22 FoFTS MCTIS-V Development	2	2023	2	2023
FoFTS MCTIS-V Development: FY23 FoFTS MCTIS-V Development	3	2023	3	2023
FoFTS MCTIS-WS Development: FY23 FoFTS MCTIS-WS Development	3	2023	3	2023
FoFTS MCTIS-WS Development: FY24 FoFTS MCTIS-WS Development	2	2024	2	2024
FoFTS MCTIS-WS Development: FY25 FoFTS MCTIS-WS Development	2	2025	2	2025
Training Simulation Support				
LVC-TE System Development Increment 1: FY22 LVC-TE System Development Increment 1	3	2022	3	2022
LVC-TE System Development Increment 1: FY23 LVC-TE System Development Increment 1	3	2023	3	2023
LVC-TE System Development Increment 1: FY24 LVC-TE System Development Increment 1	2	2024	2	2024
LVC-TE System Development Increment 1: FY25 LVC-TE System Development Increment 1	2	2025	2	2025
LVC-TE System Development Increment 1: FY26 LVC-TE System Development Increment 1	2	2026	2	2026
LVC-TE System Development Increment 1: FY27 LVC-TE System Development Increment 1	2	2027	2	2027
LVC-TE System Development Increment 1: FY28 LVC-TE System Development Increment 1	2	2028	2	2028
LVC-TE System Development Front End Analysis: Front End Analysis FY23	2	2023	2	2023
Minimum Viable Capability Release (MVCR):: Minimum Viable Capability Release (MVCR):1st FY23	1	2023	1	2023
Minimum Viable Capability Release (MVCR):: Minimum Viable Capability Release (MVCR):3Qtr FY23	3	2023	3	2023
Minimum Viable Capability Release (MVCR):: Minimum Viable Capability Release (MVCR):1st FY24	1	2024	1	2024

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2315 / *Training Devices/Simulators*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Minimum Viable Capability Release (MVCR):: Minimum Viable Capability Release (MVCR):3Qtr FY24	3	2024	3	2024
Minimum Viable Capability Release (MVCR):: Minimum Viable Capability Release (MVCR):1st FY25	1	2025	1	2025
Minimum Viable Capability Release (MVCR):: Minimum Viable Capability Release (MVCR):3Qtr FY25	3	2025	3	2025
Minimum Viable Capability Release (MVCR):: Minimum Viable Capability Release (MVCR):1st FY26	1	2026	1	2026
Minimum Viable Capability Release (MVCR):: Minimum Viable Capability Release (MVCR): 3Qtr FY26	3	2026	3	2026
Minimum Viable Capability Release (MVCR):: Minimum Viable Capability Release (MVCR):1st FY27	1	2027	1	2027
Minimum Viable Capability Release (MVCR):: Minimum Viable Capability Release (MVCR): 3Qtr FY27	3	2027	3	2027
Minimum Viable Capability Release (MVCR):: Minimum Viable Capability Release (MVCR):1st FY28	1	2028	1	2028
Minimum Viable Capability Release (MVCR):: Minimum Viable Capability Release (MVCR): 3Qtr FY28	3	2028	3	2028
Marine Corps Training Information Management Systems (MCTIMS)				
Testing Event: GAT FY22 Testing Event	4	2022	4	2022
Testing Event: GAT FY23 Testing Event	4	2023	4	2023
Testing Event: GAT FY24 Testing Event	4	2024	4	2024
Engineering Event: Software Release FY22 4Q	4	2022	4	2022
Engineering Event: Software Release FY23 2Q	2	2023	2	2023
Engineering Event: Software Release FY23 4Q	4	2023	4	2023
Engineering Event: Software Release FY24 2Q	2	2024	2	2024
Engineering Event: Software Release FY24 4Q	4	2024	4	2024

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2315 / *Training Devices/Simulators*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Contracting Event: Contract Award FY22	3	2022	3	2022
Contracting Event: Contract Award FY23	3	2023	3	2023
Family of Egress Trainers (FET)				
Contract Award FY23: Contract Award FY23	4	2023	4	2023
Indoor Simulated Marksmanship Trainer				
Ballistic Testing: Ballistic Testing	3	2023	3	2023
Data Capture: Data Capture	3	2023	3	2023
Weapons Development: Weapons Development (Javelin)	3	2023	3	2023
Weapons Development: Weapons Development (M27)l	3	2023	3	2023
Weapons Development: Weapons Development (M240)	3	2023	3	2023

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0206623M / *MC Ground Cmbt Spt Arms Sys*				Project (Number/Name) 2503 / *Initial Issue*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
2503: *Initial Issue*	68.130	4.213	13.294	5.850	-	5.850	13.961	14.904	11.114	11.379	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This funding provides research, development, test, and evaluation (RDT&E) on low cost items with an emphasis on Non-Developmental Items/Commercial-Off-the-Shelf (NDI/COTS) available items. Much of the RDT&E is conducted in coordination/concert with other services and joint organizations, and in consideration of RDT&E efforts being pursued by the other Services. Items approved for procurement will transition into Operation and Maintenance Marine Corps accounts for Marine Corps Uniforms, Cold Weather Mountaineering, and Load Bearing and Pack Systems, Family of Shelters, Combat Field Feeding Systems, and Family of Field Medical Equipment. Family of Field Medical Equipment items approved for procurement will also transition to the Procurement, Marine Corps account. The benefits will be reduced logistics, less weight, improved combat effectiveness, better echelon I and II care for Marines, improved individual and unit protection, expeditionary feeding platforms, tactical mobility, calibration and maintenance, etc. The employment of state of the art equipment will ensure Marines are equipped and supported with the best items that technology can offer.

The PM Infantry Weapons portfolio of capabilities encompasses Marine Corps Uniforms, Cold Weather and Mountaineering, Load Bearing and Pack Systems, and Individual Warfighting Equipment. Load Bearing and Pack Systems now includes the waterproof bag efforts previously included under Individual Warfighting Equipment. The continual research development and testing of technological advancements leads to performance enhancements, upgrades and modifications to legacy systems and new developments. Funding for this capability area leverages other Services' and governmental partners' efforts to maximize returns on investment and promote coordination and cooperation for same or similar requirements and capabilities. The objective is to equip individual Marines with uniforms and combat equipment to maximize effectiveness in every environment across the full range of military operations, and includes support to the basic recruit issue seabag.

The Family of Field Medical Equipment (FFME) focus is to provide state of the art medical equipment and emerging medical technology that will improve the clinical outcomes for casualties. The objective is to replace obsolete items with those that fulfill the requirements and needs while increasing performance characteristics in the areas of energy efficiency, durability, reliability, and survivability while reducing weight and size in austere environments of a variety of climes. The focus is also to update and promote new supporting technologies and joint interoperability of operational medical equipment in support of Force Design 2030 Littoral Operation in a Contested Environment and Expeditionary Advanced Base Operations (EABO).

The Family of Shelters and Shelters Equipment (FSSE) and The Family of Combat Field Feeding Systems (CFFS) portfolio focus is to provide scalable expeditionary capabilities to the warfighter, with specific emphasis on supporting Expeditionary Advanced Base Operations (EABO) and austere base establishment in the littorals. The FSSE funding will be used to improve legacy material solutions and develop new solutions that protect the Fleet Marine Force from observation, detection, adverse climatic conditions, and combat hazards. Furthermore, continuation of camouflage research which is vital to provide both cover and concealment in visual, signature reduction, and infrared and radar spectrums against near peer adversaries in support of the Commandant's Planning Guidance. Continuation of shelter research and development is required to design more reliable systems, lighten current shelters and shelter systems and minimize power requirements for environmental systems in support of EABO.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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The Family of CFFS funding seeks to maximize fuel efficiency, reduce size and weight, and improve transportability of equipment used to provide nutrition on the go to Marines conducting training and contingency operations in future EABO and forward operating environments.

The Calibration and Maintenance Program (CAMP) calibrates the majority of tools and test equipment that ensure the safe and accurate operation of the ground weapon systems required to conduct Expeditionary Advanced Base Operations. The entire ground maintenance effort relies on CAMP activities to maintain combat effectiveness. This funding will be used to identify and assess the latest technology in calibration equipment, which is necessary to replace obsolete equipment, increase performance and reduce the footprint of deployable calibration sets. Funding will also develop new automated test procedures and protocols aimed at making the Marine Corps' deployable ground calibration sets more efficient.

Family of Expeditionary Water Systems (FEWS) is a family of systems line that contains purification, storage, distribution, hygiene, and test systems for water. This capability is necessary to provide safe and potable water to Marines in expeditionary environments. The family contains individual Table of Allowance Material Control Numbers which supports Fleet Marine Force (FMF), Marine Air-Ground Task Force (MAGTF) operations, and future operating concepts by providing all aspects of land-based water support to include test analysis, purification, reuse, storage, transfer, dispensing, and field hygiene support.

Family of Expeditionary Fuel Systems (FEFS) is a family of systems that contains highly versatile fuel systems in support of FMF operations. The family contains individual Table of Allowance Material Control Numbers which support FMF, MAGTF operations, and future operating concepts by providing all aspects of land and littoral-based fuel support to include receiving, test, additization, storage, sensors and metering, and transfer and dispensing of fuel.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Marine Corps Uniforms (MCU)	0.840	1.125	0.940	0.000	0.940
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue test and evaluation of Short Wave Infrared (SWIR) signature mitigation and Flame Resistant (FR) properties into the Marine Corps Combat Utility Uniform (MCCUU) resulting in a NexGen MCCUU. Test and evaluation includes follow-on user evaluations of NexGen MCCUUs and material property tests with SWIR mitigation and FR improvements that lead to an updated MCCUU specification for economical FR/SWIR capabilities in the NexGen MCCUU for all Marines. - Continue research and development for lighter uniforms, and footwear, and develop upgraded specifications for sustainment by DLA that leverage emerging technologies in durability, design, and development. - Continue research and development for Marine clothing efforts, to include field and dress uniform certification, improvements to maternity service and dress uniforms, and associated accoutrements which includes badges, ribbons, and devices.					

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Continue research, development, and testing to enhance appearance and service life of seabag issue items, which consists of initial basic training allowance of clothing, footwear, and associated individual uniform items resulting in upgraded specifications for sustainment by DLA. - Conduct research, development, and testing of emergent CMC initiatives as requested. ***FY 2024 Base Plans:*** - Continue test and evaluation of signature mitigation and flame resistant (FR) properties and other CD&I prioritized attributes resulting in a NexGen MCCUU and/or a Close Combat Uniform. Test and evaluation includes follow-on user evaluations of NexGen MCCUUs, Close Combat Uniform along with material property tests in the laboratory. - Continue research and development for lighter uniforms, and footwear, and develop upgraded specifications for sustainment by DLA that leverage emerging technologies in durability, design, and development. Includes efforts in the Marine Corps Uniform Certification Program. - Continue research and development for Marine clothing efforts, to include field and dress uniform certification improvements to maternity service and dress uniforms, and associated accoutrements which includes badges, ribbons, and devices. Includes efforts in the Marine Corps Uniform Certification Program. - Continue research, development, and testing to enhance appearance and service life of recruit initial seabag issue items, which consists of initial basic training allowance of clothing, footwear, and associated individual uniform items resulting in upgraded specifications for sustainment by DLA. - Conduct research, development, and testing of emergent CMC initiatives as requested. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease of $0.185M from FY 2023 to FY 2024 reduces the amount of continued material property product development, testing, and follow on user evaluations of NexGen MCCUU/ Close Combat Uniform with signature management mitigation, and FR improvements.					
Title: Cold Weather and Mountaineering (CWM)	0.000	0.194	0.130	0.000	0.130
Articles:	-	-	-	-	-
FY 2023 Plans: - Initiate material tests as part of research and development of emerging materials and technology to enhance existing cold weather clothing and equipment effectiveness while lightening the load of the individual Marine.					

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Initiate research and evaluation of the Cold Weather clothing and equipment items with lighter materials that provide increased insulation and protection from the elements. ***FY 2024 Base Plans:*** - Continue material tests as part of research and development of emerging materials and technology to enhance existing cold weather clothing and equipment effectiveness to include FR protection and signature management while lightening the load of the individual Marine. - Continue research and evaluation of the Cold Weather clothing and equipment items with lighter materials that provide increased insulation and protection from the elements. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The decrease funding from FY 2023 to FY 2024 is due to a reduced efforts in Cold Weather and Mountaineering research and evaluation.					
Title: Load Bearing and Pack Systems (LBPS) ***Articles:*** ***FY 2023 Plans:*** - Continue product improvements and upgrades for LBPS by leveraging technological advancements of industry; lighten load and increase mobility of effectiveness. - Continue to evaluate pack frame system capable of carrying heavy crew-serve weapon systems. - Continue implementation of power and data management into Load Bearing equipment (Main Pack and Assault Pack). - Complete evaluations on loadbearing equipment such as Marine Corps packs and pouch sets. - Complete the design, development, and evaluation of the waist pouch. - Initiate the evaluation of materials capable of providing SWIR capabilities in the USMC Pack and Pouch System. ***FY 2024 Base Plans:*** - Continue product improvements and upgrades for LBPS by leveraging technological advancements of industry; lighten load and increase mobility of effectiveness. - Continue to evaluate pack frame system capable of carrying heavy crew-serve weapon systems.	0.214 -	0.427 -	0.407 -	0.000 -	0.407 -

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Continue implementation of power and data management into loadbearing equipment (Main Pack and Assault Pack). - Continue the evaluation of materials capable of providing SWIR capabilities in the USMC Pack and Pouch System. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Load Bearing and Pack System decrease from FY 2023 to FY 2024 is due to the completion of the waist belt development effort.					
Title: *Family of Field Medical Equipment (FFME)	1.186	2.186	2.126	0.000	2.126
Articles:	-	-	-	-	-
FY 2023 Plans: - Initiate product verification test and evaluation for equipment such as expeditionary medical oxygen, whole blood utilization, and traumatic brain injury treatment. - Continue research and development for Project Phoenix medical support framework in support of the Marine Littoral Regiment (MLR). Research validates engineering changes to Authorized Medical Allowance Lists (AMAL) product baselines. - Continue research to develop advanced wound healing bandages for prolonged field care in the MLR under Distributed Maritime Operations (DMO)/Littoral Operations in a Contested Environment (LOCE), validating engineering changes to AMAL product baselines. - Continue research, development, testing, and evaluation of new packing configurations of currently fielded forward surgical and trauma resuscitation capabilities and patient transport capabilities to reduce the cubic foot space requirements in order to utilize limited lift capabilities. Conduct further analysis to validate the existing patient condition code requirements, and patient streams against future casualty stream estimates in the corresponding future operational environment(s) to identify material that can be removed from capabilities without impacting effectiveness. - Continue to test COTS/NDI medical equipment items for the En Route Care System (ERCS), Forward Resuscitative Surgery System (FRSS), and Shock Trauma Platoon (STP) to determine future viability in an operational environment.					

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Continue testing of medical equipment items to evaluate their energy efficiency, functionality, and ability to improve the quality of healthcare provided to the warfighter and reduce the logistics footprint of USMC medical equipment. - Continue testing and product development for possible application technology for insertion, such as: portable patient life support systems, expeditionary medical refrigeration, oxygen production, sterilization, whole blood utilization, patient warming, and standardization of currently independent equipment sets to be employed for forward resuscitative, surgical care, and casualty evacuation. ***FY 2024 Base Plans:*** - Complete product verification test and evaluation for equipment such as expeditionary medical oxygen, whole blood utilization, and traumatic brain injury treatment. - Continue research and development for Project Phoenix medical support framework in support of the MLR to validate engineering changes to AMAL product baselines. - Continue research to develop advanced wound healing bandages for prolonged field care in the MLR under DMO/LOCE, validating engineering changes to AMAL product baselines. - Continue research, development, testing, and evaluation of new packing configurations of currently fielded forward surgical and trauma resuscitation capabilities and patient transport capabilities to reduce the cubic foot space requirements in order to utilize limited lift capabilities. Conduct further analysis to validate the existing patient condition code requirements and patient streams against future casualty stream estimates in the corresponding future operational environment(s) to identify material that can be removed from capabilities without impacting effectiveness. - Continue to test COTS/NDI medical equipment items for the ERCS, FRSS, and STP to determine future viability in an operational environment. - Continue testing of medical equipment items to evaluate their energy efficiency, functionality, and ability to improve the quality of healthcare provided to the warfighter and reduce the logistics footprint of USMC medical equipment. - Continue testing and product development for possible application technology for insertion, such as: portable patient life support systems, expeditionary medical refrigeration, oxygen production, sterilization, whole blood					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
utilization, patient warming, and standardization of currently independent equipment sets to be employed for forward resuscitative, surgical care, and casualty evacuation. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease from FY 2023 to FY 2024 aligns with costs associated with the MLR and AMAL Studies in accordance with the 2030 Concept of Operations (CONOPS). Decrease also aligns with testing and evaluation completion of expeditionary medical oxygen in FY 2024.					
Title: *Family of Shelters and Shelter Equipment (FSSE) ***Articles:*** ***FY 2023 Plans:*** - Continue the evaluation and development of FSSE energy efficient ECPs such as alternative production techniques and designs. ***FY 2024 Base Plans:*** - Continue the evaluation and development of FSSE energy efficient ECPs such as alternative production techniques and designs. - Initiating development of Indo-Pacific (INDOPACOM) Ultra Light Weight Camouflage Net System (ULCANS) variant and conduct user evaluation. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY 2023 to FY 2024 aligns with the requirement to develop an INDOPACOM ULCANS variant and conduct user evaluation to assess the new color's ability to conceal in tropical operating environments. Variants will be assessed by III MEF in South Pacific region to assess the new color's effectiveness to conceal against adversary sensors.	0.000 -	0.199 -	0.549 -	0.000 -	0.549 -
Title: Calibration and Maintenance Program (CAMP) ***Articles:*** ***FY 2023 Plans:***	0.297 -	0.249 -	0.254 -	0.000 -	0.254 -

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Continue exploration of emerging technologies to enhance technical capabilities of individual calibration equipment (standards) used within expeditionary calibration facilities by deployed Marine Corps units. New calibration standards are required to replace obsolete items. ***FY 2024 Base Plans:*** - Continue exploration of emerging technologies to enhance technical capabilities of individual calibration equipment (standards) used within expeditionary calibration facilities by deployed Marine Corps units. New calibration standards are required to replace obsolete items. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The increase from FY 2023 to FY 2024 is to continue exploration of emerging technologies to enhance technical capabilities of individual calibration equipment (standards) used within expeditionary calibration facilities by deployed Marine Corps units. New calibration standards are required to replace obsolete items.					
Title: *Family of Combat Field Feeding (CFFS)	0.318	0.068	0.070	0.000	0.070
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue to reduce the overall logistics burden by researching and testing technological improvements for CFFS components such as commercial food service and alternative field sanitation solutions. - Continue research and development of lighter weight and scalable field feeding and field sanitation equipment that use alternate energy sources or provide reduced fuel consumption. ***FY 2024 Base Plans:*** - Continue to reduce the overall logistics burden by researching and testing technological improvements for CFFS components such as commercial food service and alternative field sanitation solutions. - Continue research and development of lighter weight and scalable field feeding and field sanitation equipment that use alternate energy sources or provide reduced fuel consumption. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:***					

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Increase from FY 2023 to FY 2024 is due to projected labor cost increase for research and testing technology to improve CFFS components such as commercial food service and field sanitation solutions.					
Title: Family of Expeditionary Water Systems (FEWS) ***Articles:*** ***FY 2023 Plans:*** N/A ***FY 2024 Base Plans:*** N/A ***FY 2024 OCO Plans:*** N/A	0.753 -	0.000 -	0.000 -	0.000 -	0.000 -
Title: Family of Expeditionary Fuel Systems (FEFS) ***Articles:*** ***FY 2023 Plans:*** -Initiate and continue research of alternative fuel distribution and storage technologies in support of EABO and the Commandant's Force Design 2030 implementation plan. -Continue research and development of the LPDS capability under development by the Office of Naval Research, developing sub-components, integrating autonomy, and supporting testing and certifications to improve the system's technology readiness level. ***FY 2024 Base Plans:*** -Initiate testing of sensor and meter reporting technologies for fuel systems. -Continue research of alternative fuel distribution and storage technologies in support of EABO and the Commandant's Force Modernization 2030 implementation plan, supporting the Self-support Portable Distributed Refueling System (SPDRS) and Expeditionary Fuel Dispensing System (EFDS) development, and modernization of other legacy fuel systems. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:***	0.605 -	8.846 -	1.374 -	0.000 -	1.374 -

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
The FY 2023 to FY 2024 decrease is due to realignment of funds to PE 0603635M to support the advance prototyping development conducted by the Office of Naval Research for the LPDS.					
Accomplishments/Planned Programs Subtotals	4.213	13.294	5.850	0.000	5.850

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• PMC/6522: *Family of Field Medical Equipment (FFME)*	8.105	21.780	5.457	-	5.457	10.968	50.562	51.562	52.593	Continuing	Continuing
• PMC/4181: *Calibration & Maintenance Program (CAMP).*	2.883	0.129	0.130	-	0.130	0.137	2.806	2.862	2.919	0.000	38.460
• PMC/6670: *Family of Expeditionary Water Systems (FEWS)*	0.000	3.670	5.637	-	5.637	8.175	12.415	12.650	12.907	Continuing	Continuing
• PMC/6277: *Family of Expeditionary Fuel Systems (FEFS)*	2.161	7.854	12.956	-	12.956	30.458	32.923	31.522	32.506	Continuing	Continuing
• PMC/6670/: *Family of Shelters and Shelter Equipment (FSSE)*	0.000	18.758	17.695	-	17.695	15.606	14.327	14.614	23.340	0.000	104.340
• RDTEN/0603635M/3835: *FEFS*	0.000	0.000	14.124	-	14.124	6.185	0.000	0.000	0.000	0.000	20.309
• RDTEN/0603635M/7400: *FEFS*	4.700	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	4.700

Remarks

D. Acquisition Strategy

Cold Weather and Mountaineering, Load Bearing and Pack Systems, Individual Warfighting Equipment, Marine Corps Uniforms: Items utilize various acquisition strategies. These programs leverage heavily on current developments and technology in commercial industry. As a result, the government's R&D phase is relatively short. Contracting is performed by either Marine Corps Systems Command, the Naval Research Laboratory, or the U.S. Army Natick Soldier Research, Development, and Engineering Center via Indefinite Delivery/Indefinite Quantity (ID/IQ) contracts. ID/IQ contracts are used to decrease the government risk, allow maximum contract flexibility and capitalize on the savings realized by utilizing Economic Order (EO) quantities.

Family of Shelters: The Shelter acquisition strategy is to modify non-developmental items (NDI) to further meet the requirements of the Marine Corps, to support development of multi-service items through inter-service agreements and to adopt commercial-off-the-shelf (COTS) items where applicable.

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Family of Field Medical Equipment: These programs leverage heavily on current development and technology in the commercial medical industry. The field medical acquisition strategy is to modify NDI and adopt COTS items. Due to the nature of medical device development and the USMC reliance on commercial RDT&E practices, it is frequently difficult to accurately predict successful transition due in part to strict Food and Drug Administration oversight and approval processes.

Combat Field Feeding Systems: This program utilized various acquisition strategies and leverages heavily on current developments and technology in commercial industry and other Service field feeding systems. As a result, the government's RDT&E phase is relatively short. Contracting is performed by either Marine Corps Systems Command Contracting Directorate or the US Army Combat Capabilities Development Command (DoD Executive Agent for Field Feeding) via ID/IQ contracts.

Calibration and Maintenance Program (CAMP): The CAMP acquisition strategy is to evaluate NDI items and ask industry for enhancements and modifications to meet technical and expeditionary requirements. This will be in concert with the Navy's calibration RDT&E efforts.

Family of Expeditionary Water Systems (FEWS): Low/No Power Water Purification System (LNPWPS) data collection and deliverables from a Phase II Small Business Innovative Research effort and testing will inform future requirements. Funding also supports the product verification testing of modification kits for the Lightweight Water Purification System (LWPS).

Family of Expeditionary Fuel Systems (FEFS): The FEFS acquisition strategy is to continue researching alternative fuel distribution and storage technologies for the Self-support Portable Distributed Refueling System (SPDRS) and Expeditionary Fuel Dispensing System (EFDS) development, supporting portfolio capability modernization, along with initiating testing of sensor and meter reporting technologies through lab In-Service Engineer Agent support. Realignment of funds from PE 0206623M (BA07/6.7) to PE 0603635M (BA04/6.4) is planned to support the prototype development conducted by the Office of Naval Research (ONR) for the Low-Profile Distribution System (LPDS).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Marine Corps Uniforms	MIPR	USA NSRDEC : Natick, MA	6.802	0.420	Mar 2022	0.565	Mar 2023	0.470	Mar 2024	-		0.470	Continuing	Continuing	Continuing
Cold Weather & Mountaineering	MIPR	USA NSRDEC : Natick, MA	2.981	0.000		0.194	Dec 2022	0.130	Dec 2023	-		0.130	0.000	3.305	Continuing
Load Bearing and Pack Systems	C/FFP	MCSC : Quantico, VA	1.927	0.214	Feb 2022	0.427	Feb 2023	0.407	Feb 2024	-		0.407	Continuing	Continuing	Continuing
Family of Field Medical	MIPR	MCSC : Quantico, VA	0.000	0.000		0.000		0.815	Jan 2024	-		0.815	0.000	0.815	-
Family of Shelters and Shelter Equipment	MIPR	DEVCOM : Natick, MA	1.264	0.000		0.199	Mar 2023	0.549	Mar 2024	-		0.549	0.000	2.012	-
Calibration and Maintenance Program	WR	NSWC : Corona, CA	0.736	0.297	Jan 2022	0.249	Jan 2023	0.254	Jan 2024	-		0.254	Continuing	Continuing	Continuing
Family of Expeditionary Fuel Systems	Various	Various : Various	0.415	0.363	Mar 2022	0.000		0.000		-		0.000	0.000	0.778	-
Family of Expeditionary Fuel Systems	MIPR	ONR : Arlington,VA	0.510	0.000		8.846	Feb 2023	0.000		-		0.000	0.000	9.356	-
Prior Year Cumulative Funding	Various	Various : Various	26.454	0.000		0.000		0.000		-		0.000	0.000	26.454	-
		Subtotal	41.089	1.294		10.480		2.625		-		2.625	Continuing	Continuing	N/A

Remarks

Overall decrease from FY 2023 to FY 2024 is largely attributed to the realignment of funds to PE 0603635M RDTEN to support the advanced prototyping development conducted by the Office of Naval Research for the Low Profile Distribution System and reduced product development of NexGen MCCUU/Close Combat Uniform.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Cumulative Funding	Various	Various : Various	1.096	0.000		0.000		0.000		-		0.000	0.000	1.096	-
		Subtotal	1.096	0.000		0.000		0.000		-		0.000	0.000	1.096	N/A

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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	MIPR	USA NSRDEC : Natick, MA	2.028	0.420	Mar 2022	0.560	Dec 2022	0.470	Dec 2023	-		0.470	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	MIPR	U.S. Army Aeromedical Research Lab : Ft. Rucker, AL	0.443	0.176	May 2022	0.750	Mar 2023	0.200	Apr 2024	-		0.200	0.000	1.569	-
Operational Test & Evaluation (OT&E)	MIPR	NSWC : Crane, ID	0.330	0.000		0.240	Dec 2022	0.000		-		0.000	0.000	0.570	-
Operational Test & Evaluation (OT&E)	WR	NHRC : Silver Spring MD	0.249	0.199	Apr 2022	0.200	Nov 2022	0.200	Mar 2024	-		0.200	0.000	0.848	-
Operational Test & Evaluation (OT&E)	MIPR	NSWC : Dahlgren, VA	11.081	0.375	Mar 2022	0.250	Mar 2023	0.300	Dec 2023	-		0.300	0.000	12.006	-
Developmental Test & Evaluation (DT&E)	MIPR	NSWC Indian Head : Indian Head, MD	0.376	0.000		0.350	May 2023	0.000		-		0.000	0.000	0.726	-
Operational Test & Evaluation (OT&E)	MIPR	NSWC Dahlgren : Dahlgren, VA	0.050	0.000		0.250	Dec 2022	0.250	Apr 2024	-		0.250	0.000	0.550	-
Developmental Test & Evaluation (DT&E)	MIPR	US Army CCDC/ DEVCOM : Natick, MA	1.029	0.104	Aug 2022	0.068	Dec 2022	0.070	Dec 2023	-		0.070	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	MIPR	DEVCOM : Natick, MA	0.046	0.232	Jul 2022	0.000		0.000		-		0.000	0.000	0.278	-
Developmental Test & Evaluation (DT&E)	C/FFP	MCSC : Quantico, VA	0.273	0.101	Jul 2022	0.000		0.000		-		0.000	0.000	0.374	-
Developmental Test & Evaluation (DT&E)	MIPR	MCSC : Quantico VA	0.000	0.032	Mar 2022	0.000		0.000		-		0.000	0.000	0.032	-
Developmental Test & Evaluation (DT&E)	MIPR	NAVFAC : Port Huene	0.097	0.257	Apr 2022	0.000		0.000		-		0.000	0.000	0.354	-
Developmental Test & Evaluation (DT&E)	Various	Various : Various	0.810	0.242	Mar 2022	0.000		1.374	Dec 2023	-		1.374	0.000	2.426	-
Developmental Test & Evaluation (DT&E)	MIPR	GVSC/CCDC : Warren, MI	0.016	0.131	Mar 2022	0.000		0.000		-		0.000	0.000	0.147	-
Developmental Test & Evaluation (DT&E)	MIPR	USAARL : Ft. Rucker, AL	0.000	0.383	Jul 2022	0.000		0.175	Dec 2023	-		0.175	0.000	0.558	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2503 / *Initial Issue*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	MIPR	DLA Troop Support : Philadelphia, PA	0.000	0.214	Aug 2022	0.000		0.000		-		0.000	0.000	0.214	-
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	Various	Various : Various	8.449	0.000		0.000		0.000		-		0.000	0.000	8.449	-
		Subtotal	25.277	2.866		2.668		3.039		-		3.039	Continuing	Continuing	N/A

Remarks

Overall increase from FY 2023 to FY 2024 is primarily attributed to initiation of testing of sensor and meter reporting technologies for fuel systems and Expeditionary Fuel Dispensing System development.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Family of Field Medical	Various	MARCORSYSCOM : Quantico, VA	0.208	0.053	Sep 2022	0.059	Sep 2023	0.081	Aug 2024	-		0.081	0.000	0.401	-
Family of Field Medical	Various	MCSC : Quantico, VA	0.072	0.000		0.087	Oct 2022	0.105	Oct 2023	-		0.105	0.000	0.264	-
Prior Year Cumulative Funding	Various	Various : Various	0.388	0.000		0.000		0.000		-		0.000	0.000	0.388	-
		Subtotal	0.668	0.053		0.146		0.186		-		0.186	0.000	1.053	N/A

Remarks

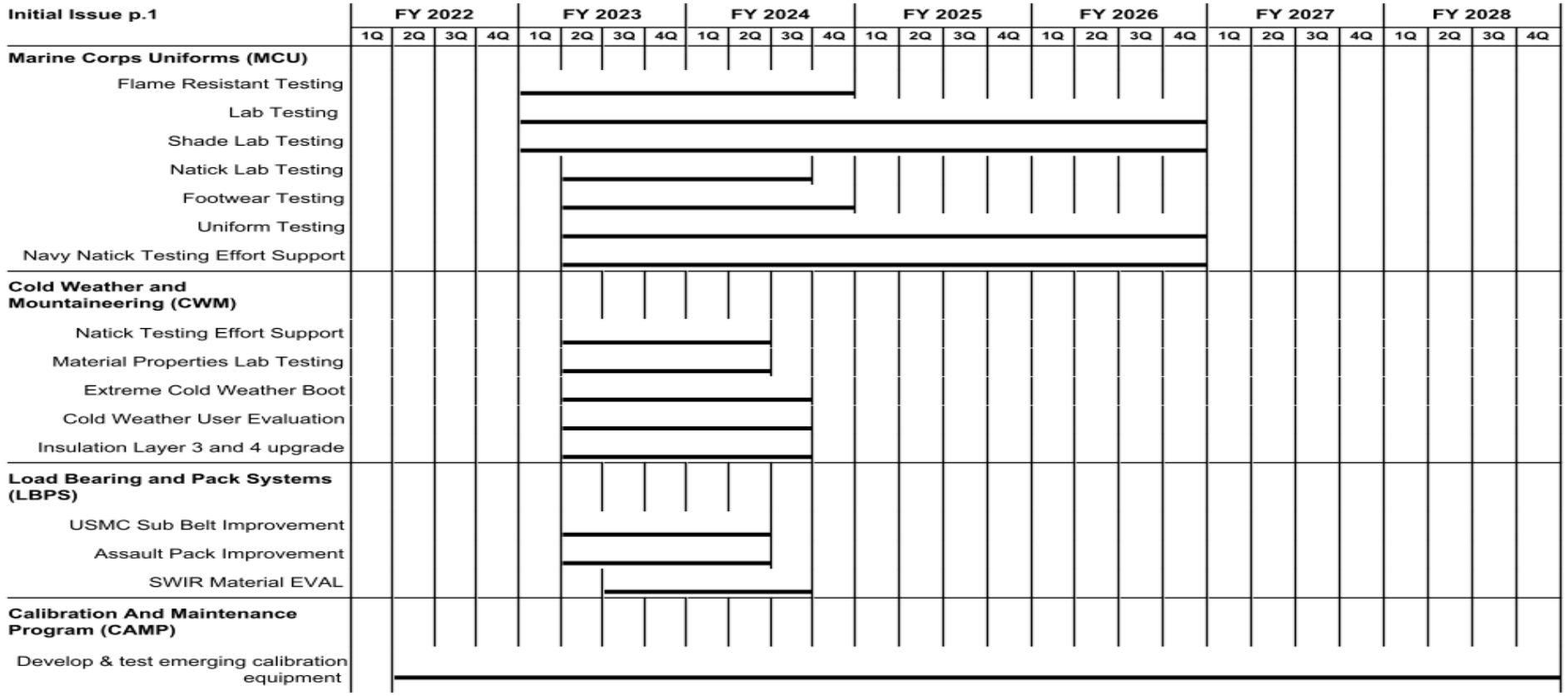
No significant change.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	68.130	4.213		13.294		5.850		-		5.850	Continuing	Continuing	N/A

Remarks

Overall decrease from FY 2023 to FY 2024 is largely attributed to the realignment of funds to PE 0603635M RDTEN to support the advanced prototyping development conducted by the Office of Naval Research for the Low Profile Distribution System and reduced product development of NexGen MCCUU/Close Combat Uniform.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2503 / *Initial Issue*



2024PB - 0206623M - 2503

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2503 / *Initial Issue*

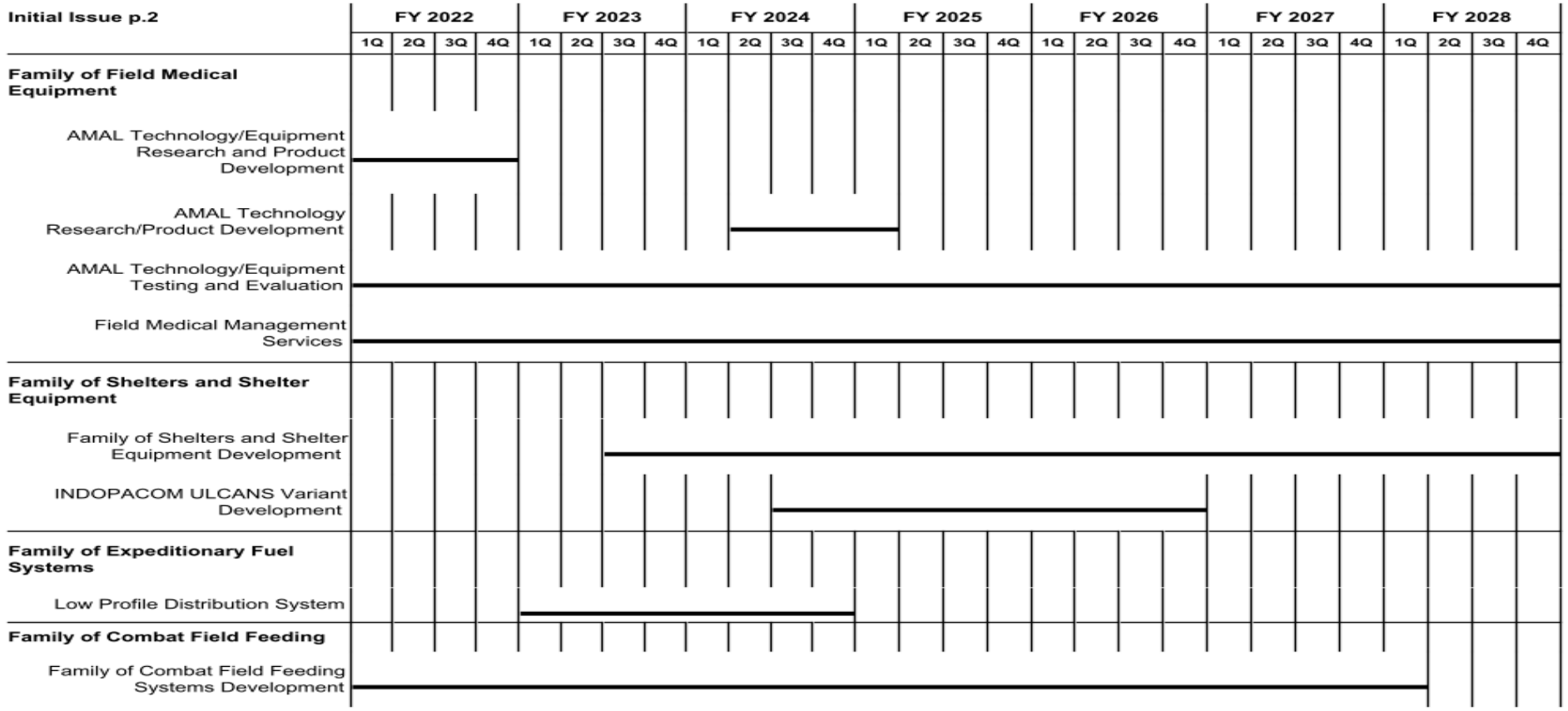


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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2503 / *Initial Issue*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Initial Issue p.1				
Marine Corps Uniforms (MCU): Flame Resistant Testing:	1	2023	4	2024
Marine Corps Uniforms (MCU): Lab Testing:	1	2023	4	2026
Marine Corps Uniforms (MCU): Shade Lab Testing:	1	2023	4	2026
Marine Corps Uniforms (MCU): Natick Lab Testing:	2	2023	3	2024
Marine Corps Uniforms (MCU): Footwear Testing:	2	2023	4	2024
Marine Corps Uniforms (MCU): Uniform Testing:	2	2023	4	2026
Marine Corps Uniforms (MCU): Navy Natick Testing Effort Support:	2	2023	4	2026
Cold Weather and Mountaineering (CWM): Natick Testing Effort Support:	2	2023	2	2024
Cold Weather and Mountaineering (CWM): Material Properties Lab Testing:	2	2023	2	2024
Cold Weather and Mountaineering (CWM): Extreme Cold Weather Boot:	2	2023	3	2024
Cold Weather and Mountaineering (CWM): Cold Weather User Evaluation:	2	2023	3	2024
Cold Weather and Mountaineering (CWM): Insulation Layer 3 and 4 upgrade:	2	2023	3	2024
Load Bearing and Pack Systems (LBPS): USMC Sub Belt Improvement: USMC Sub Belt Improvement	2	2023	2	2024
Load Bearing and Pack Systems (LBPS): Assault Pack Improvement: Assault Pack Improvement	2	2023	2	2024
Load Bearing and Pack Systems (LBPS): SWIR Material EVAL: SWIR Material EVAL	3	2023	3	2024
Calibration And Maintenance Program (CAMP): Develop & test emerging calibration equipment: Develop & test emerging calibration equipment	2	2022	4	2028
Initial Issue p.2				
Family of Field Medical Equipment: AMAL Technology/Equipment Research and Product Development:	1	2022	4	2022

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2503 / *Initial Issue*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Family of Field Medical Equipment: AMAL Technology Research/Product Development:	2	2024	1	2025
Family of Field Medical Equipment: AMAL Technology/Equipment Testing and Evaluation:	1	2022	4	2028
Family of Field Medical Equipment: Field Medical Management Services:	1	2022	4	2028
Family of Shelters and Shelter Equipment: Family of Shelters and Shelter Equipment Development: Schedule Detail	3	2023	4	2028
Family of Shelters and Shelter Equipment: INDOPACOM ULCANS Variant Development: Schedule Detail	3	2024	4	2026
Family of Expeditionary Fuel Systems: Low Profile Distribution System: Medium Cale Iv/USV Demos	1	2023	4	2024
Family of Combat Field Feeding: Family of Combat Field Feeding Systems Development: Schedule Detail	1	2022	1	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	Project (Number/Name) 2513 / *Body Armor*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2513: *Body Armor*	52.897	4.518	5.468	5.269	-	5.269	4.814	4.899	4.980	5.080	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Ballistic Protection Systems (BPS) provides the most technologically advanced protection at the lightest weight available in the world today. It provides the critical ballistic protective systems that save lives, reduce the severity of combat injuries, and increase combat effectiveness by keeping more Marines in the fight. Major BPS programs include: Plate Carrier Generation III (PC Gen III); Lightweight Plates (LWP); Enhanced Combat Helmet (ECH); Improved Ballistic Eyewear (IBE); Integrated Helmet System (IHS) and Hearing Enhancement. The major focus areas of all BPS programs are adapting ballistic protective systems to the constantly changing threat environment and leveraging emerging technologies to lighten the load and increase the mobility of each Marine.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Ballistic Protection Systems	4.518	5.468	5.269	0.000	5.269
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue research with industry partners towards understanding and developing the future technology associated with next generation PPE (i.e. helmets, body armor, and hearing protection) to reduce bulk, weight, stiffness, and improve ballistic protection while increasing the mobility of the individual Marine. - Continue to research and develop solutions that improves fit, modularity, and integration of body armor systems. - Continue the development of data and power management components within helmets through prototype development and testing. - Complete testing and conduct user evaluations of the Integrated Helmet System (IHS). - Initiate research and development of the Next Generation Plate Carrier (PC GEN IV) to include enhanced camouflage protection and mitigation of Short Wave Infrared (SWIR) and thermal signature. Analyze Flame Resistant (FR) and non-FR materials with enhanced signature mitigation as it pertains to the evolution of body armor and plate carriers.					
FY 2024 Base Plans: - Continue research with industry partners towards understanding and developing the future technology associated with next generation PPE (i.e. helmets, body armor, and hearing protection) to reduce bulk, weight, stiffness, and improve ballistic protection while increasing the mobility of the individual Marine.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2513 / *Body Armor*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Continue to research and develop solutions that improves fit, modularity, and integration of body armor systems. - Continue the development of data and power management components within helmets through prototype development and testing. - Continue research and development of the Next Generation Plate Carrier (PC GEN IV) to include enhanced camouflage protection and mitigation of Short Wave Infrared (SWIR) and thermal signature. Analyze Flame Resistant (FR) and non-FR materials with enhanced signature mitigation as it pertains to the evolution of body armor and plate carriers. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Ballistic Protection System decrease from FY 2023 to FY 2024 is due to the completion of the initial IHS testing efforts.					
Accomplishments/Planned Programs Subtotals	4.518	5.468	5.269	0.000	5.269

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Marine Corps Ballistic Protection Systems (BPS) research, development, testing & evaluation activities include seeking new developments in ballistic technology that feature reductions in weight, improvements in ballistic performance, enhanced operational effectiveness through improved product designs, and the application of new material technologies to reduce total ownership costs by improving the expected service life of fielded systems. In order to accomplish these goals, the Marine Corps uses a broad array of government and contractor performers to achieve the desired end state. This includes partnerships with government entities and research and development contracts and partnership intermediaries where applicable. The Marine Corps also leverages advancements in industry capabilities to rapidly field non-developmental and commercially available off-the-shelf armor solutions. Performance is confirmed by characterizing ballistic performance and data collected during user evaluations.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	Project (Number/Name) 2513 / *Body Armor*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development of Integrated Helmet (IHS)	C/FFP	MCSC : Quantico, VA	2.766	1.000	Dec 2021	0.000		0.000		-		0.000	0.000	3.766	-
Mosaic/Multi-layer Hard Armor Development	C/FFP	NRL : Washington DC	17.672	0.000		0.000		0.000		-		0.000	0.000	17.672	-
PC Gen III/Hard Armor Printed Plates	C/FFP	MCSC : Quantico, VA	4.638	0.000		0.000		0.000		-		0.000	0.000	4.638	-
Next Gen Plate Carriers	C/FFP	NCTRF : Natick, MA	0.000	0.000		1.000	Apr 2023	2.334	Apr 2024	-		2.334	0.000	3.334	-
MATLAB Software Development	C/FFP	NSWC : Crane, IN	0.000	0.276	Jul 2022	0.000		0.000		-		0.000	0.000	0.276	-
		Subtotal	25.076	1.276		1.000		2.334		-		2.334	0.000	29.686	N/A

Remarks

The increase in FY 2024 is due to seeking new developments in ballistic technology that features reductions in weight, improvements in ballistic performance, and enhanced operational effectiveness through improved product designs.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Support (Army)	MIPR	CCDC SC : Natick, MA	3.225	0.886	Dec 2021	0.945	Dec 2022	1.212	Dec 2023	-		1.212	Continuing	Continuing	Continuing
Engineering Support (Navy)	WR	NCTRF : Natick, MA	0.170	0.170	Mar 2022	0.175	Mar 2023	0.175	Jan 2024	-		0.175	Continuing	Continuing	Continuing
Ballistic Protection Systems	MIPR	NCTRF : Natick, MA	0.918	0.000		0.300	Jan 2023	0.000		-		0.000	0.000	1.218	-
Ballistic Protection Systems Support Services-Eng,Log,PM	C/FFP	MCSC : Quantico, VA	1.668	1.655	Mar 2022	0.883	Mar 2023	0.848	Feb 2024	-		0.848	Continuing	Continuing	Continuing
Prior Year Cumulative Funding	Various	Various : Various	0.054	0.000		0.000		0.000		-		0.000	0.000	0.054	-
		Subtotal	6.035	2.711		2.303		2.235		-		2.235	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2513 / *Body Armor*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	Various	Various : Various	4.811	0.531	Dec 2021	2.165	Dec 2022	0.700	Dec 2023	-		0.700	0.000	8.207	-
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	Various	Various : Various	16.975	0.000		0.000		0.000		-		0.000	0.000	16.975	-
		Subtotal	21.786	0.531		2.165		0.700		-		0.700	0.000	25.182	N/A

Remarks

The overall decrease in FY 2024 is primarily due to the completion of Integrated Helmet System (IHS) testing.

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	52.897	4.518		5.468		5.269		-		5.269	Continuing	Continuing	N/A

Remarks

Overall decrease in FY 2024 is primarily attributed to the completion of the Integrated Helmet System (IHS) testing efforts in FY 2023.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2513 / *Body Armor*

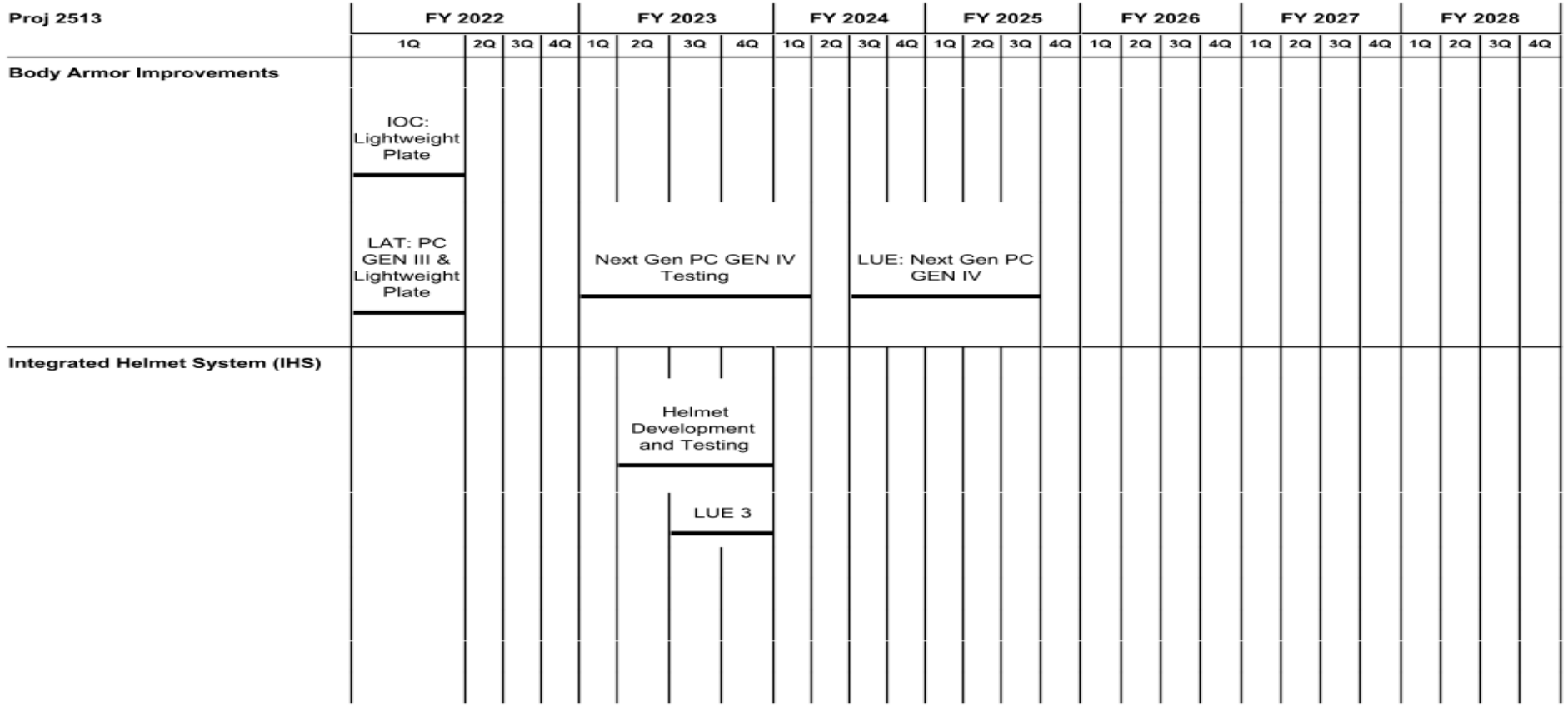

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2513 / *Body Armor*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2513				
Body Armor Improvements: IOC: Lightweight Plate	1	2022	1	2022
Body Armor Improvements: Lot Acceptance Testing (LAT): PC GEN III & Lightweight Plate	1	2022	1	2022
Body Armor Improvements: Next Gen PC GEN IV Development and Testing	1	2023	1	2024
Body Armor Improvements: LUE: Next Gen PC GEN IV	3	2024	3	2025
Integrated Helmet System (IHS): Helmet Development and Testing	2	2023	4	2023
Integrated Helmet System (IHS): LUE 3	3	2023	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	Project (Number/Name) 2530 / *Unmanned Expeditionary Systems*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2530: *Unmanned Expeditionary Systems*	0.000	0.000	0.000	16.039	-	16.039	11.339	10.949	10.282	8.673	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Prior to FY 2023, Unmanned Logistics System-Air (ULS-A) was funded in Project 4002 Family of Raid Reconnaissance. The establishment of this new project and realignment of funding more closely align the programmatics of ULS-A to Unmanned Expeditionary Systems mission sets.

UES is a Commandant of the Marine Corps (CMC) Force Design 2030 (FD2030) initiative. FD2030 recognizes the complex, high threat and diverse environments in the INDOPACOM area of operations encountered by Marine Air Ground Task Force (MAGTF) and Marine Littoral Regiments (MLRs). UES consists of the ULS-A Small (Tactical Resupply Unmanned Aircraft System-TRUAS) and the Medium ULS- A resupply vehicle. As system technology advances in future years, UES will also include emerging technologies to include autonomous distribution capabilities for elements across the MAGTF and MLR, enabling more diversified distribution and the sustainment of Marine Corps forces across future operating environments.

The TRUAS provides an unmanned organic battlefield logistics capability primarily in distribution of critical supplies in Expeditionary Advanced Base Operations (EABO) safely within the Surface to Air Missile (SAM) Weapon Engagement Zone (WEZ), where the risk to manned aircraft would deny manned aviation resupply operations. TRUAS will have the capability to carry 120-pound payloads at a distance of 12 kilometers at a cruise speed of 50 knots.

TRUAS will complete rapid prototyping in 2Q FY 2023. Integrated Test (IT) (IT includes Developmental Test (DT) and Operational Test (OT)) will complete 2Q FY 2023. Following a production decision planned for 2Q FY2023, a production contract award planned for 2Q FY 2023 allowing the program to reach Initial Operational Capability (IOC) by the end of FY 2023. End User Evaluations will be conducted through the end of FY 2023 to continue the refinement of the TRUAS CONOP.

Medium ULS-A is an autonomous UAS prototype that can carry a logistic payload between 300 and 600lbs to a combat radius from 25 to 100 nautical miles (NM). The system will support a logistics distribution mission at the tactical edge for resupplying forward deployed ground forces. The MAGTF and MLR require the flexibility to draw sustainment from anywhere supplies exist. Supplies moved organically through aerial capabilities offer the speed and persistence needed to maintain critical operational tempo. Medium ULS-A, complementing the capabilities of the TRUAS, provides a heavier aerial distribution capability in environments in which the risk to manned aircraft may be too great.

Two prototyping contracts awarded in 2Q FY 2023 with prototype deliveries planned for 4Q 2024. Contractor testing scheduled to complete 4Q FY 2024, with Integrated Test (IT) to complete 4Q FY 2026, followed by a Production Decision in 1Q FY2027.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2530 / *Unmanned Expeditionary Systems*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Unmanned Expeditionary Systems (UES)	0.000	0.000	16.039	0.000	16.039
Articles:	-	-	-	-	-
FY 2023 Plans: Funding in FY 2023 is within Project Unit 4002 Family of Raid Reconnaissance. Continue research and development of ULS-A to include integration and development of autonomy aspects, initial development of ULS-A Medium variant prototypes, and final developments prior to initial phase of rapid fielding efforts for ULS-A Small TRUAS. ***FY 2024 Base Plans:*** Continue research and development of Medium ULS-A enabling technologies, and continue Medium ULS-A prototyping in support of a FUCA that is scheduled for 4Q FY 2024. Initiate research and development of GPS-denied and Sense and Avoid capabilities for TRUAS. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Prior to FY 2024, ULS-A was funded in Project 4002 Family of Raid Reconnaissance. The equivalent request for FY 2023 was $16.802M. The decrease from FY 2023 to FY 2024 is due to a reduction in research and development of TRUAS Landing Zone Detection capabilities.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	16.039	0.000	16.039

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The program office continues to implement acquisition approaches to quickly field new technology and capabilities to meet requirements set forth by USMC in order to meet FD2030 objectives.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2530 / *Unmanned Expeditionary Systems*

TRUAS established as an Abbreviated Acquisition Program (AAP) in accordance with Secretary of the Navy Instruction 5000.2G with a Production Decision Review planned for 2Q FY 2023, IOC in 4Q FY 2023, and FOC in 4Q FY 2028.

Medium ULS-A is leveraging Other Transaction Authority for accelerated prototyping, continue IT through FY 2026, followed by a production decision in FY 2027.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2530 / *Unmanned Expeditionary Systems*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
TRUAS, Small ULS-AIR	Various	NAVAIR : Pax River, MD	0.000	0.000		0.000		1.000	Jan 2024	-		1.000	Continuing	Continuing	Continuing
Medium ULS-AIR	Various	Various : Various	0.000	0.000		0.000		13.000	Jan 2024	-		13.000	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.000		14.000		-		14.000	Continuing	Continuing	N/A

Remarks

The increase in Medium ULS-A is to procure an additional prototype system for experimentation and further Integrated Testing.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ULS-A Support	Various	NAVAIR : Pax River, MD	0.000	0.000		0.000		1.039	Feb 2024	-		1.039	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.000		1.039		-		1.039	Continuing	Continuing	N/A

Remarks

The increase in ULS-A Support is to provide additional support for integration of autonomous system capabilities.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	MIPR	NAVAIR : Pax River, MD	0.000	0.000		0.000		0.500	Jan 2024	-		0.500	Continuing	Continuing	Continuing
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	Various	NAVAIR : Pax River, MD	0.000	0.000		0.000		0.500	Jan 2024	-		0.500	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.000		1.000		-		1.000	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2530 / *Unmanned Expeditionary Systems*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			0.000	0.000		0.000		16.039		-		16.039	Continuing	Continuing	N/A

Remarks

The increase from PROJ 4002, to FY 2024, PROJ 2530, is primarily due to additional APS-1 developmental testing, Drop Bag evaluations, and continued research, development, test, and evaluations associated with Medium ULS-A.

Remarks

Beginning in FY 2024, Unmanned Logistics System-Air (ULS-A) has been realigned from Project 4002 Family of Raid Reconnaissance to Project 2530 Unmanned Expeditionary Systems (UES). Overall decrease is primarily due to a reduction in Landing Zone Detection capability integration for ULS-A.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2530 / *Unmanned Expeditionary Systems*

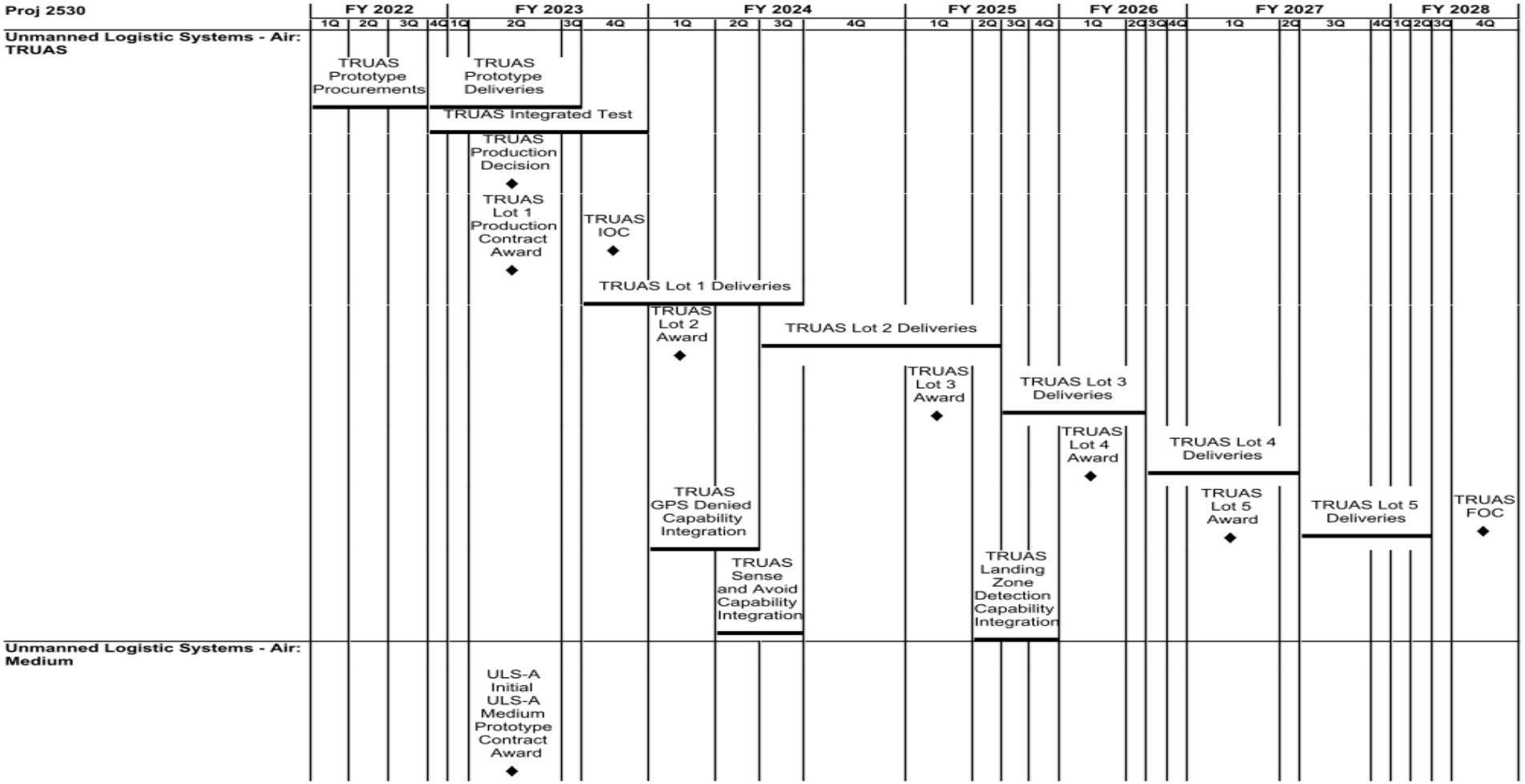


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2530 / *Unmanned Expeditionary Systems*

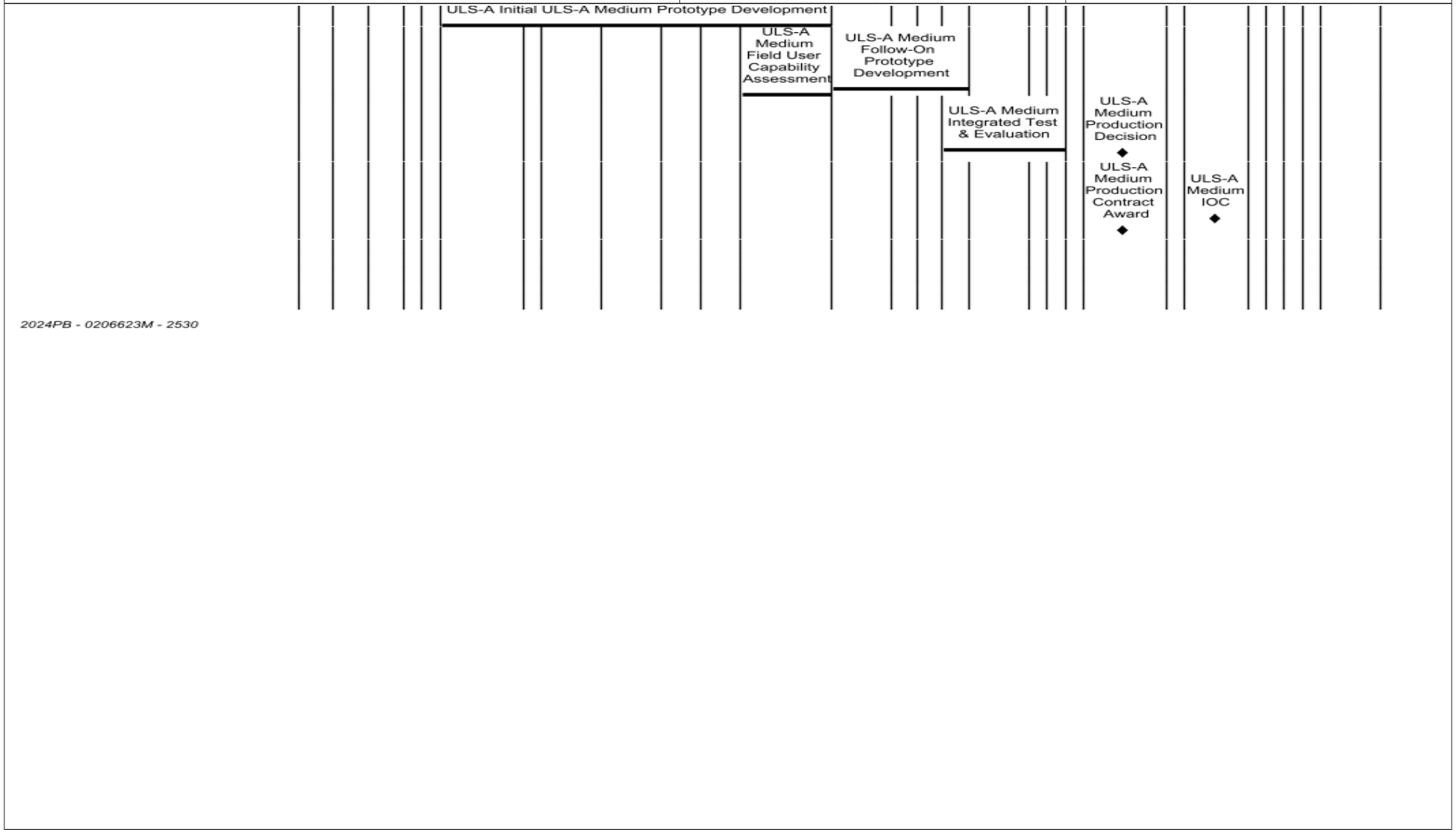


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2530 / *Unmanned Expeditionary Systems*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2530				
Unmanned Logistic Systems - Air: TRUAS: TRUAS Prototype Procurements	1	2022	3	2022
Unmanned Logistic Systems - Air: TRUAS: TRUAS Prototype Deliveries	4	2022	3	2023
Unmanned Logistic Systems - Air: TRUAS: TRUAS Prototype End User Evaluations	3	2022	4	2023
Unmanned Logistic Systems - Air: TRUAS: TRUAS Integrated Test	4	2022	4	2023
Unmanned Logistic Systems - Air: TRUAS: TRUAS Production Decision	2	2023	2	2023
Unmanned Logistic Systems - Air: TRUAS: TRUAS Lot 1 Production Contract Award	2	2023	2	2023
Unmanned Logistic Systems - Air: TRUAS: TRUAS IOC	4	2023	4	2023
Unmanned Logistic Systems - Air: TRUAS: TRUAS Lot 1 Deliveries	4	2023	3	2024
Unmanned Logistic Systems - Air: TRUAS: TRUAS Lot 2 Award	1	2024	1	2024
Unmanned Logistic Systems - Air: TRUAS: TRUAS Lot 2 Deliveries	3	2024	2	2025
Unmanned Logistic Systems - Air: TRUAS: TRUAS Option Lot 3 Award	1	2025	1	2025
Unmanned Logistic Systems - Air: TRUAS: TRUAS Lot 3 Deliveries	3	2025	2	2026
Unmanned Logistic Systems - Air: TRUAS: TRUAS Lot 4 Award	1	2026	1	2026
Unmanned Logistic Systems - Air: TRUAS: TRUAS Lot 4 Deliveries	3	2026	2	2027
Unmanned Logistic Systems - Air: TRUAS: TRUAS Lot 5 Award	1	2027	1	2027
Unmanned Logistic Systems - Air: TRUAS: TRUAS Lot 5 Deliveries	3	2027	2	2028
Unmanned Logistic Systems - Air: TRUAS: TRUAS FOC	4	2028	4	2028
Unmanned Logistic Systems - Air: TRUAS: TRUAS GPS Denied Capability Integration	1	2024	2	2024
Unmanned Logistic Systems - Air: TRUAS: TRUAS Sense and Avoid Capability Integration	2	2024	3	2024
Unmanned Logistic Systems - Air: TRUAS: TRUAS Landing Zone Detection Capability Integration	2	2025	4	2025

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2530 / *Unmanned Expeditionary Systems*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Unmanned Logistic Systems - Air: Medium: Medium Prototype Contract Award	2	2023	2	2023
Unmanned Logistic Systems - Air: Medium: Medium Prototype Development	2	2023	4	2024
Unmanned Logistic Systems - Air: Medium: Medium Field User Capability Assessment	4	2024	4	2024
Unmanned Logistic Systems - Air: Medium: Medium Follow-On Prototype Development	1	2025	4	2025
Unmanned Logistic Systems - Air: Medium: Medium Integrated Test & Evaluation	4	2025	3	2026
Unmanned Logistic Systems - Air: Medium: Medium Production Decision	1	2027	1	2027
Unmanned Logistic Systems - Air: Medium: Medium Production Contract Award	1	2027	1	2027
Unmanned Logistic Systems - Air: Medium: Medium IOC	3	2027	3	2027

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	Project (Number/Name) 2928 / *Exp Indirect Fire Gen Supt Wpn Sys*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2928: *Exp Indirect Fire Gen Supt Wpn Sys*	49.497	0.494	0.512	0.521	-	0.521	0.527	0.536	0.545	0.556	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Expeditionary Indirect Fires provides the Ground Combat Element (GCE) systems needed to engage multiple enemy threats from land and sea. High Mobility Artillery Rocket Systems (HIMARS) which is a C-130 transportable, wheeled, indirect fire, rocket/missile system capable of firing all rockets and missiles in the Multiple Launch Rocket System (MLRS) Family of Munitions (MFOM). The system includes one launcher, two Re-Supply Systems, and the MFOM. HIMARS provides the Marine Air-Ground Task Force (MAGTF) with 24 hour ground-based, responsive General Support/General Support Reinforcing (GS/GSR) indirect fires which accurately engage targets at long range (60+km), with high volumes of lethal fire under all weather conditions throughout all phases of combat operations ashore, to include irregular warfare, distributed operations and sea control. Development provides for the modernization and obsolescence mitigation of the HIMARS in order to provide improved operational capabilities. Development also provides for the qualification/certification of newly developed MFOM for shipboard transportability.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: HIMARS Expeditionary & Naval Integration Capabilities	0.494	0.512	0.521	0.000	0.521
Articles:	-	-	-	-	-
FY 2023 Plans: HIMARS: - Engineering and Integration testing of the system, radio and intercom modernization. - Communication modernization integration testing of fully tested software into the launcher. - Communication modernization integration testing of hardware components (radios, intercoms, A-kits and B-kits).					
FY 2024 Base Plans: HIMARS: - Continued Engineering and Integration testing of the system, radio and intercom modernization. - Electromagnetic, Environmental, Effects (E3) testing of the radio and intercom modernization. - Software development of MLRS Test Program Set to the current Launcher Software Suite.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2928 / *Exp Indirect Fire Gen Supt Wpn Sys*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Increase of $0.009M from FY 2023 to FY 2024 due to inflation.					
Accomplishments/Planned Programs Subtotals	0.494	0.512	0.521	0.000	0.521

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• PMC/ BLI 2212: *High Mobility Artillery Rocket System (HIMARS)*	221.347	143.808	285.025	-	285.025	279.566	322.426	227.069	231.610	61.792	2,584.882
• PMC/ BLI 3025: *Guided Multiple Launch Rocket System (GMLRS)*	76.368	7.605	8.867	-	8.867	1.575	1.800	1.836	1.873	Continuing	Continuing

Remarks

BLI 2212 Artillery Weapons System includes funding for HIMARS, GBASM, and LRF.

D. Acquisition Strategy

Engineering support will come from multiple Army and Navy labs.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	Project (Number/Name) 2928 / *Exp Indirect Fire Gen Supt Wpn Sys*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
HIMARS RSS Intercom/ Radio Integration	WR	SPAWAR : Charleston	0.576	0.000		0.000		0.000		-		0.000	0.000	0.576	-
HIMARS Launcher Radio Integration	WR	PIF : Huntsville, AL	0.658	0.163	Jun 2022	0.225	Dec 2022	0.097	Dec 2023	-		0.097	0.000	1.143	-
HIMARS Engineering	WR	NSWC : Various	0.456	0.000		0.099	Dec 2022	0.000		-		0.000	Continuing	Continuing	Continuing
HIMARS Launcher Software	WR	S3i : Huntsville, AL	0.000	0.331	Apr 2022	0.000		0.238	Dec 2023	-		0.238	0.000	0.569	-
Prior Years Cumulative Funding	Various	Various : Various	32.890	0.000		0.000		0.000		-		0.000	0.000	32.890	-
		Subtotal	34.580	0.494		0.324		0.335		-		0.335	Continuing	Continuing	N/A

Remarks

FY 2023 to FY 2024 increase reflects software development of MLRS Test Program Set.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	Various	Various : Various	9.273	0.000		0.000		0.000		-		0.000	0.000	9.273	-
Developmental Test & Evaluation (DT&E)	WR	NSWC-DD : Dahlgren, VA	0.000	0.000		0.188	Jan 2023	0.186	Dec 2023	-		0.186	0.000	0.374	-
		Subtotal	9.273	0.000		0.188		0.186		-		0.186	0.000	9.647	N/A

Remarks

FY 2023 to FY 2024 decrease reflects completion of HIMARS launcher communications qualification testing.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	Project (Number/Name) 2928 / *Exp Indirect Fire Gen Supt Wpn Sys*	

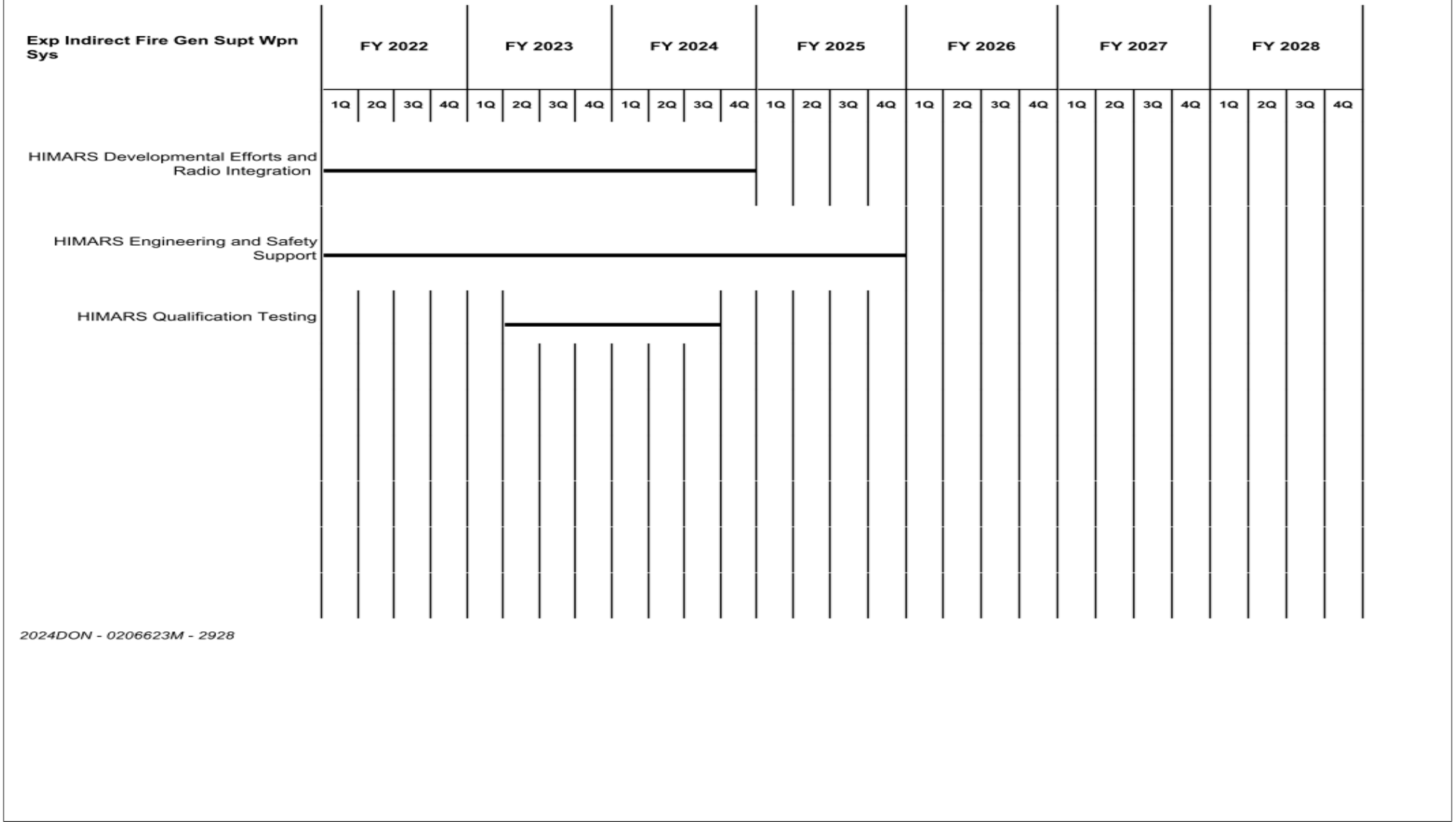
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Years Cumulative Funding	Various	Various : Various	5.644	0.000		0.000		0.000		-		0.000	0.000	5.644	-
		Subtotal	5.644	0.000		0.000		0.000		-		0.000	0.000	5.644	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	49.497	0.494		0.512		0.521		-		0.521	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2928 / *Exp Indirect Fire Gen Supt Wpn Sys*



2024DON - 0206623M - 2928

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 2928 / *Exp Indirect Fire Gen Supt Wpn Sys*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Exp Indirect Fire Gen Supt Wpn Sys				
HIMARS Developmental Efforts and Radio Integration: HIMARS Developmental Efforts and Radio Integration	1	2022	4	2024
HIMARS Engineering and Safety Support: HIMARS Engineering and Safety Support	1	2022	4	2025
HIMARS Qualification Testing: HIMARS Qualification Testing	2	2023	3	2024

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	Project (Number/Name) 3098 / *Fire Support System*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
3098: *Fire Support System*	173.619	2.761	2.241	3.335	-	3.335	11.055	15.362	15.433	15.741	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project 3098 Fire Support System funds the development of critical United States Marine Corps (USMC) key efforts: fire support coordination, targeting, and digital interoperability systems required for the employment of air and ground fires. Fire Support Systems develop and integrate a digital networked sensor to shooter kill chain supporting the Marine Air-Ground Task Force (MAGTF). Key efforts included are:

The Fire Support Mod Line (FSML) is a set of Marine Corps efforts to address critical operational and logistics deficiencies in existing, fielded fire support/weapons systems, and equipment. FSML provides technical refresh and development of target acquisition, artillery survey, meteorological systems, and fire direction control. Provides execution of product improvements/modifications and upgrades to system hardware and software for the Marine Artillery Survey Set (MASS), Modeled Meteorological Information Manager (MMIM), Global Positioning System Survey Replacement (GPS-S), Improved Position Azimuth Determining System (IPADS), and the replacement system, known as the Location Azimuth Determining System (LADS). Funding is also used for upgrades, engineering change proposals (ECPs), and modifications for fire control systems which fall within Fire Support Systems for the Marine Corps.

The Family of Artillery Munitions (FAM) seeks to provide the warfighter with the most state of the art Global Positioning System guided and ballistic 155mm projectiles. In conjunction with the Army, the Marine Corps is evaluating new munitions that are effective against individual area targets dispersed over a defined area, targets whose precise locations are not known, time-sensitive or moving targets, and massed formations of enemy forces. Funding is used to develop and mature these projectiles for the Marine Corps and includes conducting safety and engineering analysis as well as ship compatibility studies.

The Common Laser Range Finder (CLRF) is an association of targeting systems that provide handheld, lightweight, man portable devices supporting the employment of air and surface fires. They provide foot mobile users the ability to locate, identify, mark, and designate targets in both day and night conditions for engagement by fire support and weapons platforms. CLRF systems support the collection and dissemination of targeting information to maneuver, fire support, and intelligence personnel via external digital devices such as the Advanced Field Artillery Tactical Data System (AFATDS) and the Target Handoff System (THS) using associated Combat Net Radios. The CLRF includes two major components; the CLRF Integrated Capability (IC) Laser Range Finder (LRF) supports the requirement to locate and transmit targeting information, while the Next Generation Handheld Targeting System (NGHTS) combines the capabilities of the LRF with the ability to designate for specific requirements associated with laser guided munitions.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Fire Support Mods (FSM)	1.973	1.319	2.377	0.000	2.377
Articles:	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 3098 / *Fire Support System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Description: Funding is used for upgrades, engineering change proposals (ECPs), and modifications to system hardware and software for the Marine Artillery Survey Set (MASS), Meteorological Information Manager (MMIM), Global Positioning System Survey Replacement (GPS-S), the Improved Position Azimuth Determining System (IPADS), and the replacement system known as the Location Azimuth Determining System (LADS), as well as technical refresh for target acquisition, and artillery survey and meteorological systems. ***FY 2023 Plans:*** - Initiated development and integration of LADS to the Joint Light Tactical Vehicle (JLTV). ***FY 2024 Base Plans:*** - Initiate the development, integration, and testing for the Helium Rack to mount in the JLTV. - Initiate the development, integration, and testing of the Electronic Mechanical Meteorological Theodolite (EMMT) to support replacement for Pilot Balloon (PIBAL). - Continue the development and integration of LADS to the JLTV. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY 2023 to FY 2024 is primarily a result of the initiation of the development, integration, and testing of the PIBAL Helium Rack into the JLTV.					
Title: Family of Artillery Munitions (FAM)	0.214	0.313	0.338	0.000	0.338
Articles:	-	-	-	-	-
Description: Family of Artillery Munitions (FAM) is an effort that seeks to provide the warfighter with the most state of the art Global Positioning System guided and Ballistic 155mm projectiles. In conjunction with the Army, the Marine Corps is evaluating new munitions that are effective against individual area targets dispersed over a defined area, targets whose precise locations are not known, time-sensitive or moving targets, and massed formations of enemy forces. Funding is used to develop and mature these projectiles for the Marine Corps to include conducting safety and engineering analysis as well as ship compatibility studies. ***FY 2023 Plans:*** - Perform HERO Tech Agent Certification and Electro Static Discharge Review for the XM1208. - Perform Safety Support and Oversight for the 12 Meter Drop Test for the XM1208.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 3098 / *Fire Support System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Evaluate 12 Meter Drop Top Test for compatibility for Ship Board safety for the XM1208. ***FY 2024 Base Plans:*** - Perform safety confirmation of all tests to date for the XM1208. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY 2023 to FY 2024 is a result of inflation and planned safety confirmation of all testing performed in FY 2023 on the XM1208.					
Title: Common Laser Range Finder (CLRF) ***Articles:*** ***Description:*** The Common Laser Range Finder (CLRF) is a family of systems consisting of Common Laser Range finder Integrated Capability (CLRF IC) and the Next Generation Handheld Targeting System (NGHTS). The CLRF IC's scheduled end of life is FY30. Market Research for the CLRF IC replacement will begin in FY24. NGHTS is currently in LRIP phase and will continue until a scheduled Full-Rate production Decision in FY24. Ongoing research for M-CODE development and implementation for NGHTS is ongoing and scheduled for inclusion into the NGHTS in FY26. Modernization research efforts are ongoing for NGHTS and the CLRF IC replacement. ***FY 2023 Plans:*** - Conduct NGHTS Operational Testing and an OT Report. ***FY 2024 Base Plans:*** - NGHTS: Conduct M-CODE Research. - CLRF IC: Initiate Market Research for CLRF IC replacement. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The increase from FY 2023 to FY 2024 is due to scope increase of M-CODE development.	0.574 -	0.609 -	0.620 -	0.000 -	0.620 -
Accomplishments/Planned Programs Subtotals	2.761	2.241	3.335	0.000	3.335

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 3098 / *Fire Support System*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• PMC/4733: *Fire Support Mods*	7.575	4.646	4.747	-	4.747	4.830	4.924	5.020	5.121	Continuing	Continuing
• PMC/4733/: *Common Laser Range Finder (CLRF)*	16.842	22.865	32.360	-	32.360	32.577	33.292	33.957	34.636	Continuing	Continuing

Remarks

D. Acquisition Strategy

These programs range from off-the-shelf modifications to developmental items. Development will typically be conducted at government labs.

Fire Support Mod Line (FSML):
Leverage acquisition efforts in conjunction with the Army, Warfare Centers and labs for existing fielded systems. Continue efforts between the Army's Combat Capabilities Development Command - Armaments Center (CCDC-AC), and NSWC Dahlgren for the Future Survey System replacement. Procure hardware and software refreshes for the GPSS, MASS, and MMIM to ensure compliance with cybersecurity policies and address obsolescence and interoperability with other C2 systems.

Family of Artillery Munitions (FAM):
Program includes artillery munitions which are being developed by the Army. The Army is the lead service for these programs but continues to interact with the FAM IPT to ensure USMC requirements and capability needs are met. This allows the USMC to become users of the munition and certify the round for naval transportation. The munitions include, but are not limited to, Dual Purpose Improved Conventional Munitions (DPICM) replacement, Precision Guidance Kit (PGK), and 155mm rounds. USMC engineering efforts are conducted primarily at Navy Warfare Centers.

Common Laser Range Finder (CLRF):
The Next Generation Handheld Targeting System (NGHTS) was developed by using competitively awarded Other Transaction Agreements (OTA) for a phased approach that resulted in a competitive down select to a single vendor. Procurement contract was awarded to support Low Rate Initial Production, Production Verification Testing, and Full Rate Production of the NGHTS Approved Acquisition Objective quantity of systems and provided initial training and maintenance support.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 3098 / *Fire Support System*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
FSML: LADS Development	MIPR	CCDC : Picatinny, NJ	6.024	1.493	Mar 2022	0.000		0.000		-		0.000	0.000	7.517	-
FSML: MASS Android Sensor Software Development	MIPR	CCDC : Picatinny, NJ	0.242	0.150	Mar 2022	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
FSML: LADS/JLTV Integration	MIPR	CCDC : Picatinny, NJ	0.000	0.000		1.165	Nov 2022	0.250	Nov 2023	-		0.250	0.000	1.415	-
FSML: Helium Rack Development and Integration	MIPR	LOGCOM : Albany, GA	0.000	0.000		0.000		0.934	Apr 2024	-		0.934	0.000	0.934	-
CLRF: NGHTS	C/FFP	NSWC : Dahlgren, VA	12.965	0.400	Nov 2021	0.050	Nov 2022	0.060	Nov 2023	-		0.060	0.000	13.475	-
Prior Years Cumulative Funding	Various	Various : Various	136.446	0.000		0.000		0.000		-		0.000	0.000	136.446	-
		Subtotal	155.677	2.043		1.215		1.244		-		1.244	Continuing	Continuing	N/A

Remarks

CLRF: Net increase from FY 2023 to FY 2024 is due to scope increase of M-CODE development support.
FSML - Net increase from FY 2023 to FY 2024 is a result of the initiation of the PIBAL Helium Rack Development.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
FAM: Program Mgt Support	SS/FFP	MCSC : Various	0.200	0.000		0.108	Mar 2023	0.000		-		0.000	0.000	0.308	-
FAM: Safety Engineer Support	SS/FFP	NSWC : Indian Head, MD	0.180	0.211	Jan 2022	0.168	Dec 2022	0.338	Dec 2023	-		0.338	0.000	0.897	-
FSML: Engineering Support	WR	NSWC : Dahlgren, VA	0.378	0.225	Mar 2022	0.154	Nov 2022	0.273	Nov 2023	-		0.273	0.000	1.030	-
FSML: Engineering Support	C/FFP	MCSC : Quantico, VA	0.000	0.000		0.000		0.244	Mar 2024	-		0.244	0.000	0.244	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	Project (Number/Name) 3098 / *Fire Support System*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CLRF: CLRF IC	WR	NSWC : Dahlgren, VA	0.450	0.045	Nov 2021	0.059	Nov 2022	0.201	Nov 2023	-		0.201	0.000	0.755	-
Prior Years Cumulative Funding	Various	Various : Various	6.677	0.000		0.000		0.000		-		0.000	0.000	6.677	-
		Subtotal	7.885	0.481		0.489		1.056		-		1.056	0.000	9.911	N/A

Remarks

CLRF - Net increase from FY 2023 to FY 2024 is support of Market Research for CLRF IC replacement.
FAM - Net increase from FY 2023 to FY 2024 is a result of inflation and expected costs of planned safety confirmation of all testing performed in FY 2023 on the XM1208.
FSML - Net increase from FY 2023 to FY 2024 is a result of the increased engineering support required for the initiation of the PIBAL Helium Rack Development and Integration and the EMMT Integration and Testing.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	Various	Various : Various	0.000	0.108	Nov 2022	0.037	Nov 2022	0.000		-		0.000	0.000	0.145	-
Operational Test & Evaluation (OT&E)	Various	Various : Various	0.000	0.000		0.000		0.676	Apr 2024	-		0.676	0.000	0.676	-
Operational Test & Evaluation (OT&E)	WR	NSWC : Dahlgren, VA	0.291	0.129	Nov 2021	0.500	Nov 2022	0.359	Nov 2023	-		0.359	0.000	1.279	-
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	Various	Various : Various	9.766	0.000		0.000		0.000		-		0.000	0.000	9.766	-
		Subtotal	10.057	0.237		0.537		1.035		-		1.035	0.000	11.866	N/A

Remarks

CLRF - Net decrease from FY 2023 to FY 2024 is a result of completion of NGHTS OT.
FAM - Net decrease from FY 2023 to FY 2024 is a result of the completion of XM1208 Testing Evaluations.
FSML - Net increase from FY 2023 to FY 2024 is a result of the initiation of EMMT Integration and Testing.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	Project (Number/Name) 3098 / *Fire Support System*	

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	173.619	2.761		2.241		3.335		-		3.335	Continuing	Continuing	N/A

Remarks

Overall increase is primarily attributed to the initiation of EMMT Integration and Testing, initiation of the PIBAL Helium Rack Development and Integration, and efforts associated with CLRF IC replacement.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 3098 / *Fire Support System*

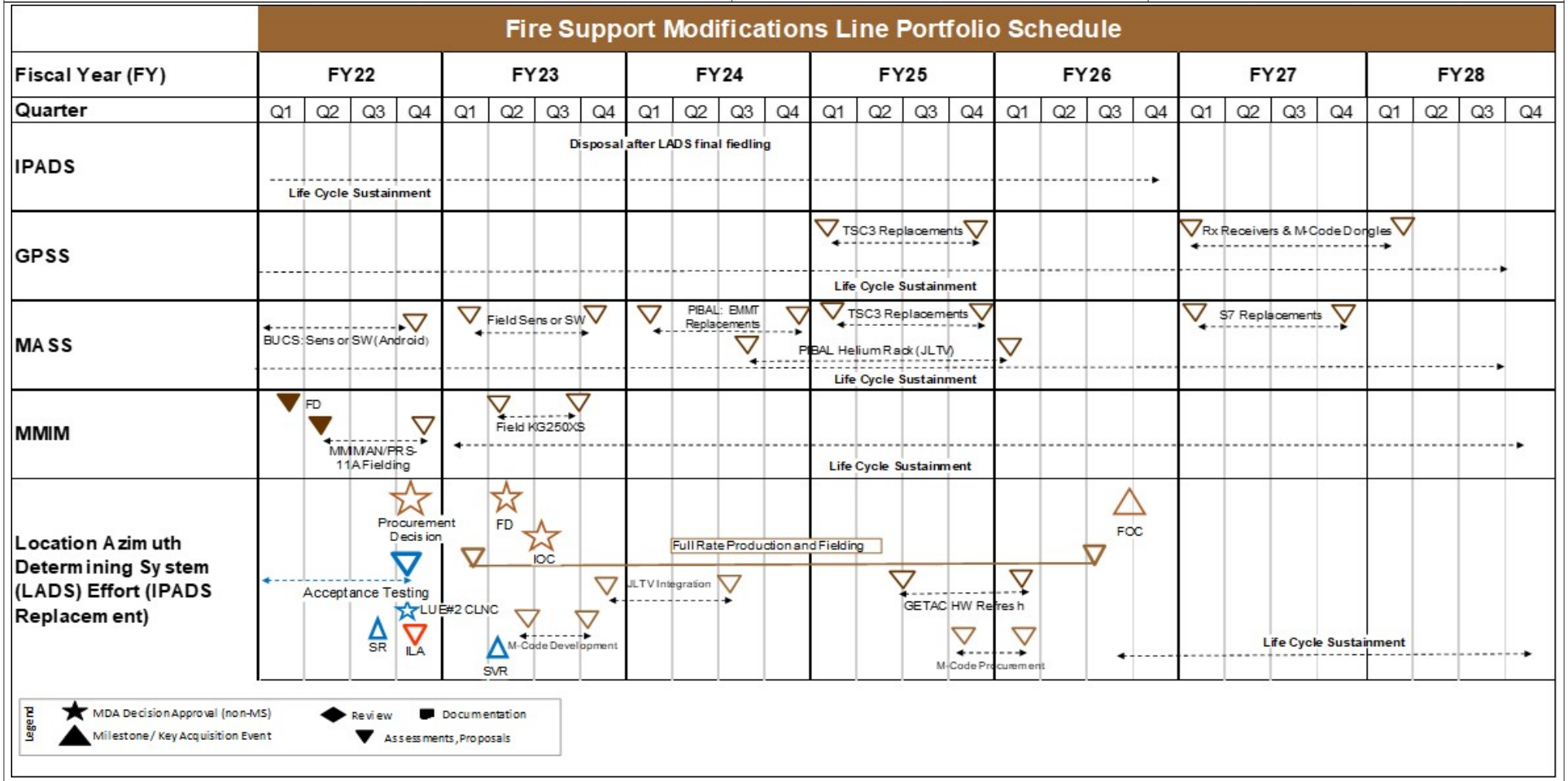


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 3098 / *Fire Support System*

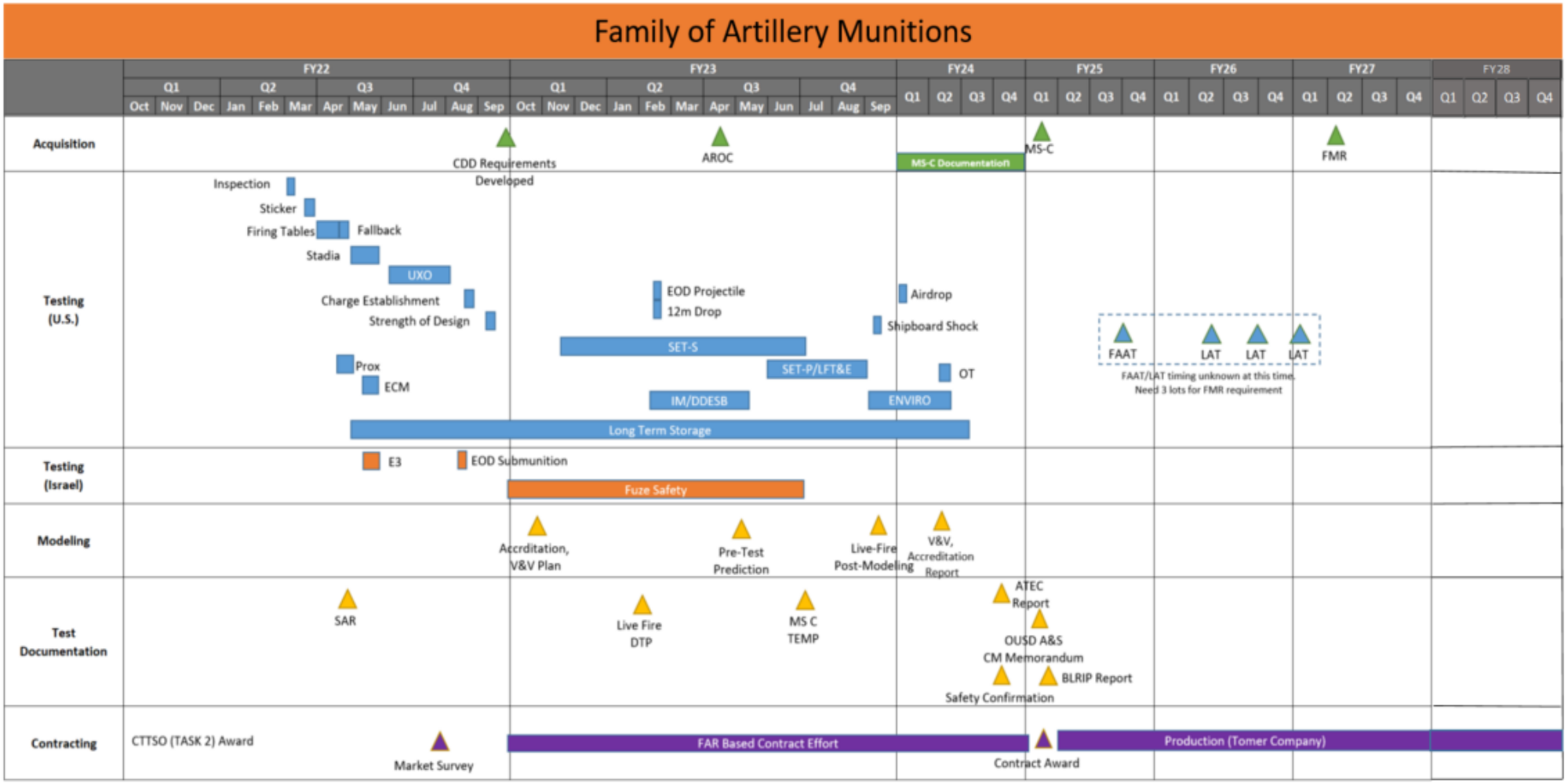


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 3098 / *Fire Support System*

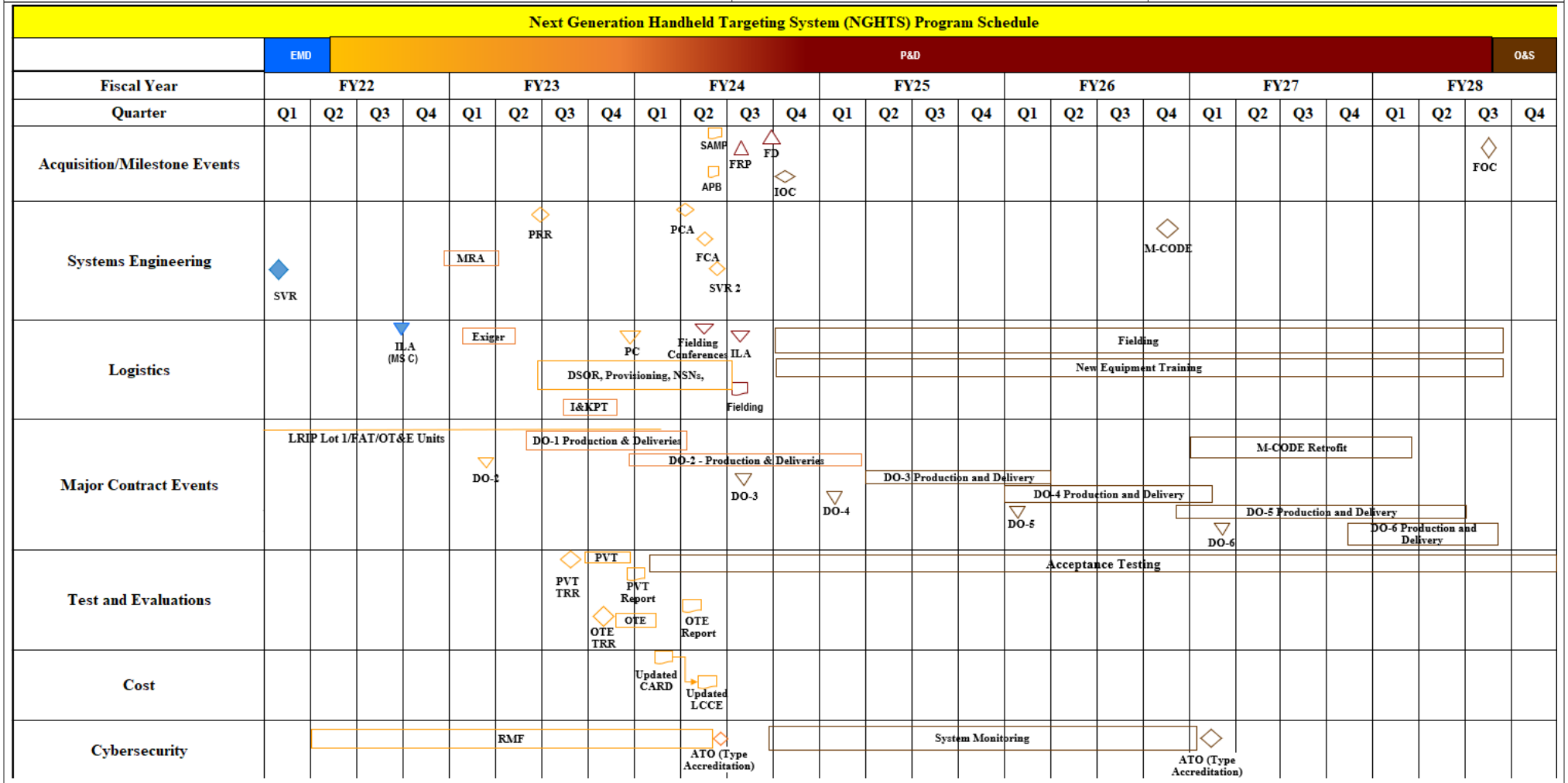


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 3098 / *Fire Support System*

Common Laser Range Finder Integrate Capability (CLRF-IC) Program Schedule

	Operations and Support																											
Fiscal Year	FY22				FY23				FY24				FY25				FY26				FY27				FY28			
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
Acquisition/Milestone Events													LOGCOM (LIS) Life Cycle Sustainment													Disposal FY30		
Capabilities/Requirements	ELRF Solar																											
	ECP Retrofit																											
Systems Engineering																												
Logistics	WMM Coefficient Org Level Update																											
Major Contract Events																												
Test and Evaluation																												
Cost																												
Cybersecurity																												

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 3098 / *Fire Support System*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3098				
FAM: Validation / Verification Accreditation Report	2	2024	2	2024
FAM: Safety Confirmation	4	2024	4	2024
FSML: PIBAL Helium Rack Development, Integration, and Testing for the JLTV	3	2024	1	2026
FSML: EMMT Integration and Testing	1	2024	4	2024
CLRF: NGHTS LRIP PVT	3	2023	4	2023
CLRF: NGHTS OT&E	4	2023	1	2024
CLRF: CLRF IC Replacement Market Research	1	2024	4	2024
CLRF: CLRF IC Test and Evaluation	3	2024	2	2025

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	Project (Number/Name) 3774 / *Marine Corps Ammo*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
3774: *Marine Corps Ammo*	4.001	10.084	10.724	5.100	-	5.100	4.947	4.220	2.763	2.818	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Ammunition Life Cycle Management (ALCM) Program supports PM Ammo's responsibility for total life cycle management for ground conventional munitions. Ammunition logistics R&D projects are designed to extend the shelf life of our current inventory, provide enhanced packaging to "lighten the load" of our munitions, and the modification of ammunition related systems to increase reliability and performance.

Conventional Ground Ammunition (CGA) is a project that identifies and develops Insensitive Munitions (IM) technologies to address IM shortfalls in new Marine Corps development or improvements to legacy CGA to meet OSD mandated IM compliance requirements. These IM technology investments directly support the development of the bi-annual Marine Corps Insensitive Munitions Strategic Plan to address the identified IM technology needs of the Marine Corps.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Ammunition Life Cycle Management	9.552	10.177	4.618	0.000	4.618
Articles:	-	-	-	-	-
Description: RDT&E funds are required to seek a prototype for the ammunition inventory management system consisting of commercially available software solution(s) with minimal customization to fully track, account, audit, and manage the supply and distribution of Class V munitions worldwide. Additionally, RDT&E funds are required to support ammunition packaging efforts to "lighten the load" for ammunition packaging. Lastly, this funding line supports modernization efforts for multiple applications within the MAKE to enhance functionality/capability and comply with Financial Improvement and Audit Readiness (FIAR) standards.					
FY 2023 Plans: - Support multiple ammunition packaging efforts to lighten the packaging for small arms munitions and pyrotechnics/grenades. This will save the Services hundreds of thousands of dollars in transportation costs and enhance operational capabilities by enabling more ammo to be distributed via unmanned air systems. - Support modernization efforts for multiple applications within the Marine Ammunition Knowledge Management Enterprise (MAKE) to enhance functionality/capability and comply with FIAR standards.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 3774 / *Marine Corps Ammo*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Support R&D of the Mk22 Mod 4 (J143) Rocket Motor to address safety concerns identified during a recent mishap and improve insensitive munitions performance (2nd year of a 3 year project). ***FY 2024 Base Plans:*** - Support modernization efforts for multiple applications within the MAKE to enhance functionality/capability and comply with FIAR standards. - Support R&D of the Mk22 Mod 4 (J143) Rocket Motor to address safety concerns identified during a recent mishap and improve insensitive munitions performance (3rd year of a 3 year project). ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The decrease from FY 2023 to FY 2024 is due to the reduction of ammunition packaging efforts in FY 2024.					
Title: Conventional Ground Ammunition	0.532	0.547	0.482	0.000	0.482
Articles:	-	-	-	-	-
FY 2023 Plans: - Continuing the J143 Rocket Motor slow cook-off mitigation development design package to a final TDP to include non-flammable container and systems level testing. - Continuing LAW FFE particle impact mitigation sleeve development design package to a final TDP to include an ECP. - Annual testing for new tools and techniques for EOD of IM - UXO applications. ***FY 2024 Base Plans:*** - Completing the J143 Rocket Motor slow cook-off mitigation development design package to a final TDP to include non-flammable container and systems level testing. This is the last year of a three year project. - Continuing LAW FFE particle impact mitigation sleeve development design package to a final TDP to include ECP.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 3774 / *Marine Corps Ammo*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Annual testing for new tools and techniques for Explosive Ordnance Disposal (EOD) of Insensitive Munitions (IM) - Unexploded Ordnance (UXO) applications. - Develop the bi-annual Marine Corps Insensitive Munitions Strategic Plan (IMSP) to address the identified IM technology needs of the Marine Corps. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The decrease from FY 2023 to FY 2024 is due to reduced annual testing for new EOD tools and techniques.					
Accomplishments/Planned Programs Subtotals	10.084	10.724	5.100	0.000	5.100

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• PANMC/1085: *Mortars*	41.228	62.713	61.274	-	61.274	108.900	93.868	103.416	113.253	Continuing	Continuing
• PANMC/1125: *Direct Support Munitions*	132.712	52.241	73.338	-	73.338	55.301	62.959	87.441	61.231	Continuing	Continuing
• PANMC/1350: *Infantry Weapons Ammunition*	68.955	161.803	178.240	-	178.240	306.232	275.097	298.094	293.362	Continuing	Continuing
• PANMC/1550: *Combat Support Munitions*	28.362	19.691	15.897	-	15.897	15.406	16.101	16.400	22.034	Continuing	Continuing
• PANMC/1630: *Ammo Modernization*	16.727	17.327	17.941	-	17.941	18.166	18.492	18.919	19.300	Continuing	Continuing
• PANMC/1650: *Artillery Munitions*	97.048	15.514	82.452	-	82.452	124.502	119.837	141.362	169.772	Continuing	Continuing
• PANMC/1660: *Items less than $5 million*	4.108	5.476	5.340	-	5.340	5.438	5.537	5.665	5.778	Continuing	Continuing

Remarks

D. Acquisition Strategy

Non Developmental Item/Commercial off the Shelf (NDI/COTS).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 3774 / *Marine Corps Ammo*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Ammunition Life Cycle Management	MIPR	DEVCOM : Picatinny, NJ	2.318	0.617	Feb 2022	1.099	Oct 2022	0.000		-		0.000	Continuing	Continuing	Continuing
Ammunition Life Cycle Management	MIPR	NSWC IHEODTD : Indian Head, MD	0.000	5.377	Dec 2022	4.750	Oct 2022	4.618	Oct 2023	-		4.618	0.000	14.745	-
Ammunition Life Cycle Management	MIPR	NSWC Corona : Norco, CA	0.154	3.428	Jun 2022	4.875	Oct 2022	0.000		-		0.000	0.000	8.457	-
Ammunition Life Cycle Management	MIPR	NRL : Washington, DC	0.000	0.130	May 2022	0.000		0.000		-		0.000	0.000	0.130	-
Conventional Ground Ammunition	MIPR	NSWC IHEODTD : Indian Head, MD	0.949	0.000		0.000		0.482	Oct 2023	-		0.482	Continuing	Continuing	Continuing
Conventional Ground Ammunition	MIPR	DEVCOM : Picatinny NJ	0.580	0.517	May 2022	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Conventional Ground Ammunition	MIPR	NSWC Dahlgren : Dahlgren, VA	0.000	0.015	Mar 2022	0.000		0.000		-		0.000	0.000	0.015	-
		Subtotal	4.001	10.084		10.724		5.100		-		5.100	Continuing	Continuing	N/A

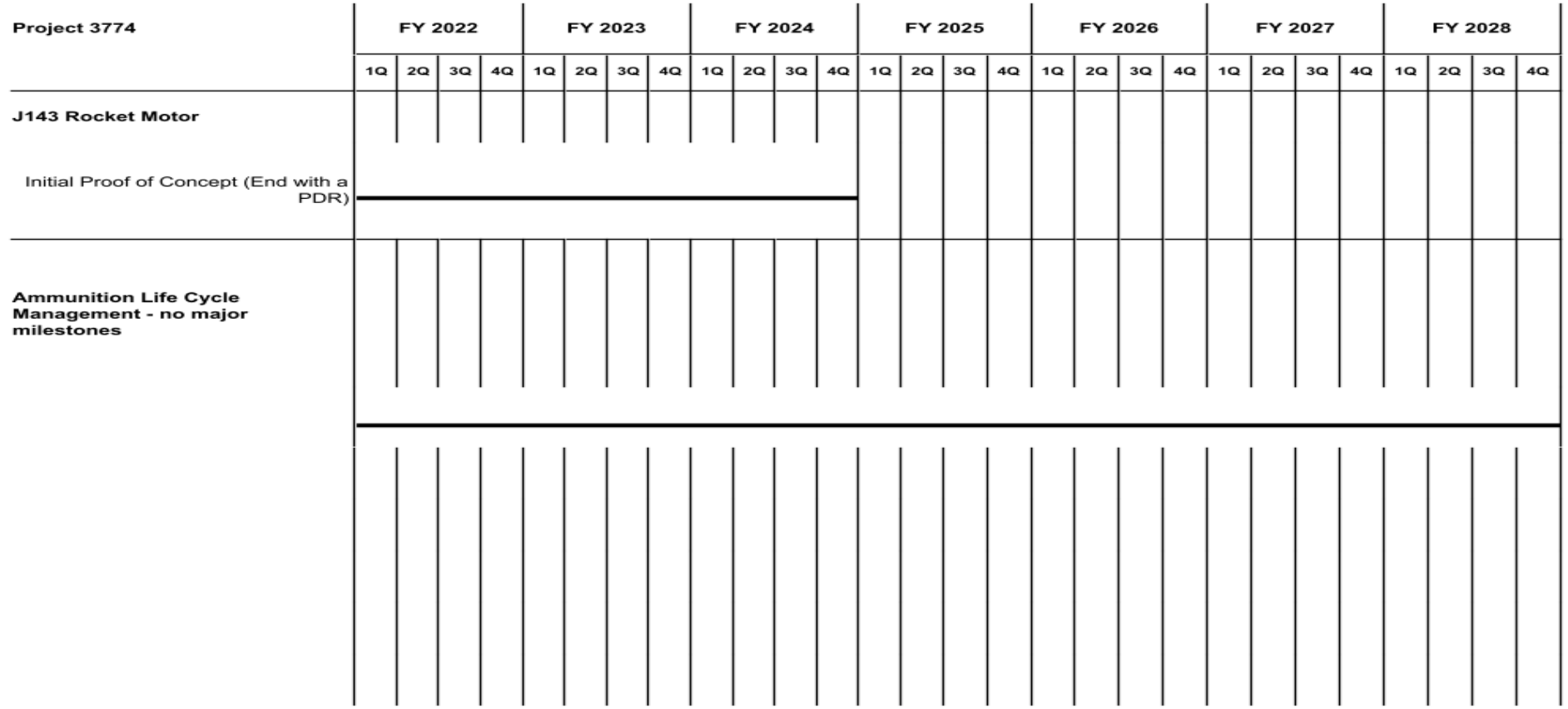
Remarks

The decrease from FY 2023 to FY 2024 is due to reduced ammunition packaging efforts during FY 2024 and reduced annual testing for new EOD tools and techniques.

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	4.001	10.084		10.724		5.100		-		5.100	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 3774 / *Marine Corps Ammo*



2024OSD - 0206623M - 3774

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 3774 / *Marine Corps Ammo*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Project 3774				
J143 Rocket Motor: Initial Proof of Concept (End with a PDR): Schedule Detail	1	2022	4	2024
Ammunition Life Cycle Management - no major milestones: Schedule Detail	1	2022	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	Project (Number/Name) 3775 / *Family of Internally Transportable Vehicles (FITV)*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
3775: *Family of Internally Transportable Vehicles (FITV)*	5.266	0.871	0.000	0.383	-	0.383	0.340	0.252	0.257	0.262	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Family of Ultra-light Tactical Vehicles (FULTV), which consists of the Utility Task Vehicle (UTV) and its replacement the Ultra-light Tactical Vehicle (ULTV), provides operational capabilities for infantry logistics, long- range surveillance, and reconnaissance missions in support of distributed heliborne operations. The lightweight vehicles provide units with increased logistics support while reducing the combat load burden on the individual Marine, as well as providing casualty evacuation for wounded Marines. The vehicles are transportable in the MV-22/CV-22 tilt rotary wing aircraft, CH-53E/ CH-53K rotary wings aircraft, and all fixed wing aircrafts. The FULTV vehicles mitigate the infantry units, reconnaissance battalions, and wing support squadrons mobility capability gaps, with the ability to operate in remote regions where currently fielded ground mobility platforms may be unsuitable due to size, weight, and transportability concerns.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Family of Ultra-light Tactical Vehicles (ULTV) Test and Evaluation	0.871	0.000	0.383	0.000	0.383
Articles:	-	-	-	-	-
FY 2023 Plans: N/A					
FY 2024 Base Plans: Conduct necessary testing to address post production engineering change proposals (ECPs).					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: Increase from FY 2023 to FY 2024 supports development and testing of post-production ECPs (i.e. Exportable High Power ECP).					
Accomplishments/Planned Programs Subtotals	0.871	0.000	0.383	0.000	0.383

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 3775 / *Family of Internally Transportable Vehicles (FITV)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• PMC/6545: *Ultra-light Tactical Vehicles (ULTV)*	15.439	15.033	17.034	-	17.034	20.191	21.134	27.034	27.574	0.000	256.956

Remarks

D. Acquisition Strategy

The strategy for the ULTV program is a partnership with Program Manager Family of Special Operations Vehicles (PM FOSOV) for testing and procurement. The partnership will capitalize on similar performance and testing specifications and generate efficiencies by conducting a cross-services acquisition. PM FOSOV released a full and open competitive solicitation and awarded an IDIQ contract 29 May 2020. The Marine Corps and PM FOSOV conducted joint testing including safety, performance, transportability, and durability. The Marine Corps completed an Operational Assessment in August 2021. The ULTV program has a planned Full Rate Production decision in 3Q FY 2023.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	Project (Number/Name) 3775 / *Family of Internally Transportable Vehicles (FITV)*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	C/CPFF	NATC : Carson City, NV	2.370	0.330	Jul 2022	0.000		0.383	Jul 2024	-		0.383	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	TBD	MCOTEA : Corona, CA	0.250	0.000		0.000		0.000		-		0.000	0.000	0.250	-
Developmental Test & Evaluation (DT&E)	Various	Various : Varios	2.646	0.000		0.000		0.000		-		0.000	0.000	2.646	-
Developmental Test & Evaluation (DT&E)	C/CPFF	Polaris : Wyoming. MN	0.000	0.541	Jul 2022	0.000		0.000		-		0.000	0.000	0.541	-
		Subtotal	5.266	0.871		0.000		0.383		-		0.383	Continuing	Continuing	N/A

Remarks

Increase from FY 2023 to FY 2024 supports development and testing of post-production ECPs.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	5.266	0.871		0.000		0.383		-		0.383	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 3775 / *Family of Internally Transportable Vehicles (FITV)*

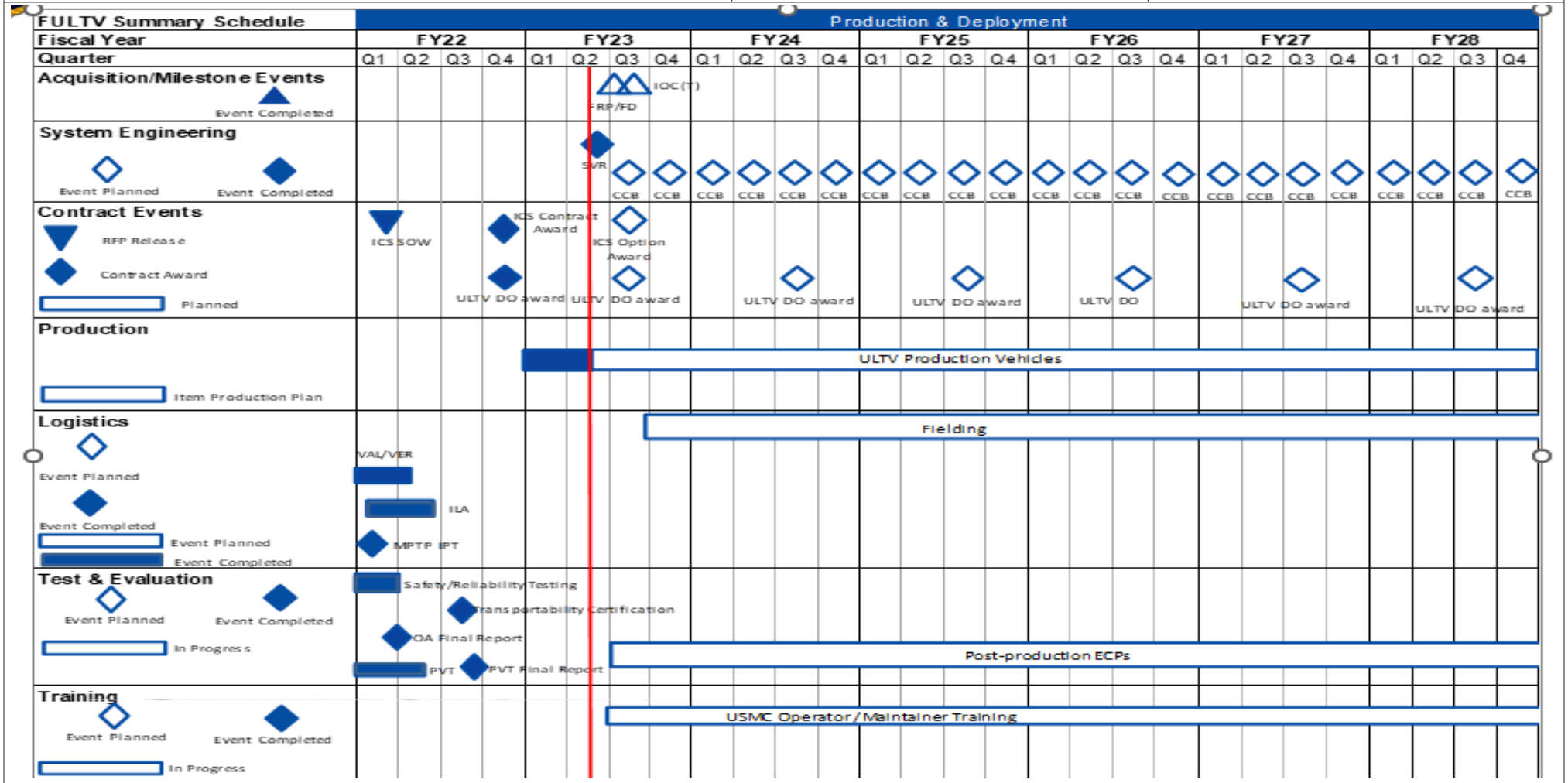


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 3775 / *Family of Internally Transportable Vehicles (FITV)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3775				
Proj 3775: ULTV Vehicle Production Award	4	2022	4	2022
Proj 3775: System Verification Review (SVR)	2	2023	2	2023
Proj 3775: ULTV Full Rate Production (FRP)	3	2023	3	2023
Proj 3775: ULTV IOC	3	2023	3	2023

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	Project (Number/Name) 4002 / *Family of Raid Reconnaissance*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
4002: *Family of Raid Reconnaissance*	13.420	12.652	17.673	1.868	-	1.868	1.526	1.456	1.485	1.514	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project supports multiple airborne/parachuting and specialized reconnaissance related programs focusing on immediate capability enhancements for numerous insertion and personnel equipment shortfalls currently within Marine Reconnaissance and Marine Raider units. These enhancements will improve airborne and amphibious capability, equipment and items for direct action missions, and specialized raid equipment. The project supports rapid fielding efforts for Integration and Logistics advocated autonomous small Unmanned Logistics System-Air (ULS-A), known as Tactical Resupply Unmanned Aircraft System (TRUAS), in support of Ground Combat Element (GCE) and Logistics Combat Element (LCE) aerial resupply requirements. Additionally, project supports development of autonomy and other enabling technologies for use across the ULS-A systems and development of a medium ULS-A aircraft.

Beginning in FY 2024, Unmanned Logistics System-Air (ULS-A) has been realigned from Project Unit 4002 Family of Raid Reconnaissance to Project Unit 2530 Unmanned Expeditionary Systems (UES).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Airborne Reconnaissance Equipment (ARE)	0.325	0.347	0.455	0.000	0.455
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue testing and evaluation of the HAHONAV and parachutist drop bag in an operational environment with current parachute systems, utilizing East Coast Blade Hours (ECBH) facilities. - Continue research and development testing of parachuting capabilities for accessing the battlespace, including High Altitude Low Opening, Low Altitude Personnel Parachutes, and related ancillary items, utilizing ECBH facilities. - Continue development of a replacement for the MC-6 low level parachute system in concert with Navy Advanced Low-Level Parachute System. - Continue testing and development for Augmented Parachute System-1 with the Navy's increased capability Powered Paraglider. - Continue evaluation of the Advanced Parachute System 1 (APS-1) to support Force Design 2030 initiative.					
FY 2024 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 4002 / *Family of Raid Reconnaissance*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Continue testing and evaluation of the HAHONAV and parachutist drop bag in an operational environment with current parachute systems, utilizing East Coast Blade Hours (ECBH) facilities. - Continue research and development testing of parachuting capabilities for accessing the battlespace, including High Altitude Low Opening, Low Altitude Personnel Parachutes, and related ancillary items, utilizing ECBH facilities. - Continue development of a replacement for the MC-6 low level parachute system in concert with Navy Advanced Low-Level Parachute System. - Continue testing and development for Augmented Parachute System-1 with the Navy's increased capability Powered Paraglider. - Continue evaluation of the Advanced Parachute System 1 (APS-1) to support Force Design 2030 initiative. - Initiate Parachute Drop Bag suitable substitute evaluations and training. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The increase from FY 2023 to FY 2024 of $0.108M reflects additional APS-1 developmental testing, which includes prototype procurement in order to conduct various mission profiles, and Drop Bag evalutions.					
Title: Amphibious Reconnaissance Capability	0.213	0.124	0.272	0.000	0.272
Articles:	-	-	-	-	-
FY 2023 Plans: - Initiate market research and developmental efforts for the E-CRRC Non Gasoline Burning Outboard Engine (NBOE) in support of fielding in FY 2025. ***FY 2024 Base Plans:*** - Continue research and developmental efforts for the E-CRRC Non Gasoline Burning Outboard Engine (NBOE) in support of fielding in FY 2025. - Initiate Enhanced-Diver Propulsion Device (E-DPD) battery testing to include certification for shipboard carry and operational utilization. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:***					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 4002 / *Family of Raid Reconnaissance*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
The increase from FY 2023 to FY 2024 of $0.148M reflects continued Non-Gasoline Burning Outboard Engine (NBOE) development, with specific emphasis on 4 stroke engines, and EDPD battery development.					
Title: Aerial Delivery and Autonomous Distribution Entry	1.365	0.400	1.141	0.000	1.141
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue JPADS and HALO GPS denied research and development to enhance accuracy of navigation in GPS denied environments to facilitate interoperability with personnel parachuting. Ensure modularity and integration within aerial delivery systems and critical capabilities such as tracking and programming. - Complete research and development of AAIRDUCT in conjunction with Army CCDC Soldier Center.					
FY 2024 Base Plans: - Continue JPADS and HALO GPS denied research and development to enhance accuracy of navigation in GPS denied environments to facilitate interoperability with personnel parachuting. Ensure modularity and integration within aerial delivery systems and critical capabilities such as tracking and programming. - Initiation of market research and development of Unmanned Gliders for Long Range Resupply initiative.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: The increase from FY 2023 to FY 2024 OF $0.741M reflects the introduction of Unmanned Gliders for Long Range Resupply initiative, High Altitude Low Opening (HALO), and related Engineering Services.					
Title: Unmanned Logistics Systems - Air	10.749	16.802	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue research and development of ULS-A to include integration and development of autonomy aspects, initial development of Medium variant prototypes of ULS-A, and final developments prior to initial phase of rapid fielding efforts for TRUAS, the Small variant of ULS-A.					
FY 2024 Base Plans: Beginning in FY 2024, Unmanned Logistics System-Air (ULS-A) has been realigned from Project Unit 4002 Family of Raid Reconnaissance to Project Unit 2530 Unmanned Expeditionary Systems (UES).					
FY 2024 OCO Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 4002 / *Family of Raid Reconnaissance*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease from FY 2023 to FY 2024 of $16.802 is due to Unmanned Logistics System-Air (ULS-A) has been realigned from Project Unit 4002 Family of Raid Reconnaissance to Project Unit 2530 Unmanned Expeditionary Systems (UES) beginning in FY 2024.					
Accomplishments/Planned Programs Subtotals	12.652	17.673	1.868	0.000	1.868

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• PMC/6518: *Amphibious Support Equipment*	12.319	34.920	15.691	-	15.691	11.817	14.265	27.621	15.731	3.654	341.152
• PMC/4758: *Unmanned Expeditionary Systems*	0.000	0.000	13.564	-	13.564	16.367	8.792	8.944	9.123	Continuing	Continuing
• 0206623M/2530: *Unmanned Expeditionary Systems*	0.000	0.000	12.939	-	12.939	11.339	10.949	10.282	8.673	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Family of Raid Reconnaissance partners with government R&D entities throughout the DoD to facilitate collaborative developmental efforts, mitigate redundancy, and ensure component cost savings. Collaborative DoD research and development supports enterprise fielding, minimizes future engineering changes, and upgrades for Service wide reconnaissance equipment. Further, collective DoD efforts ensure scalable and flexible transportation (delivery, transfer, and retrograde) of all classes of supply (I-IX) across the range of military operations. The ULS-A program continues to implement acquisition approaches to quickly field new technology and capabilities to meet requirements set forth by USMC in order to meet FD2030 objectives.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	Project (Number/Name) 4002 / *Family of Raid Reconnaissance*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ARC, NBOE	MIPR	CCD : Norfolk, VA	0.000	0.000		0.124	Jan 2023	0.200	Jan 2024	-		0.200	0.000	0.324	-
ADAD, JPADS Block Upgrades	MIPR	CCDC : Natick, MA	0.299	0.000		0.300	Jan 2023	0.270	Jan 2024	-		0.270	0.000	0.869	-
ADAD, Auto Aerial Insert Duct	MIPR	Army : CCDC	0.000	0.500	Feb 2022	0.000		0.000		-		0.000	0.000	0.500	-
ADAD, HALO	Various	MCSC : Quantico, VA	0.000	0.450	Feb 2022	0.000		0.230	Jan 2024	-		0.230	0.000	0.680	-
ADAD, Long Range Resupply	MIPR	CCDC : Natick	0.000	0.000		0.000		0.341	Feb 2024	-		0.341	0.000	0.341	-
TRUAS, Small ULS-AIR	Various	NAVAIR : Pax River, MD	3.522	6.491	May 2022	2.419	Jan 2023	0.000		-		0.000	0.000	12.432	-
Medium ULS-AIR	Various	Various : Various	2.375	1.400	Apr 2022	11.150	Jun 2023	0.000		-		0.000	0.000	14.925	-
Prior Year Cumulative	Various	Various : Various	1.182	0.000		0.000		0.000		-		0.000	0.000	1.182	-
		Subtotal	7.378	8.841		13.993		1.041		-		1.041	0.000	31.253	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ARE, Sys Eng Support	C/FFP	MCSC : Quantico, VA	0.797	0.033	Jan 2022	0.031	Jan 2023	0.050	Jan 2024	-		0.050	Continuing	Continuing	Continuing
ARC, E-DPD	Various	MCSC : Quantico, VA	0.066	0.193	Jun 2022	0.000		0.072	Dec 2023	-		0.072	0.000	0.331	-
ULS-A Support	Various	NAVAIR : Pax River, MD	0.450	2.573	Apr 2022	2.683	Apr 2023	0.000		-		0.000	0.000	5.706	-
ADAD Eng Services	C/FFP	Skylla : Stafford, Va	0.000	0.000		0.000		0.300	Mar 2024	-		0.300	0.000	0.300	-
Prior Year Cumulative	Various	Various : Various	1.232	0.000		0.000		0.000		-		0.000	0.000	1.232	-
		Subtotal	2.545	2.799		2.714		0.422		-		0.422	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 4002 / *Family of Raid Reconnaissance*

Test and Evaluation ($ in Millions)

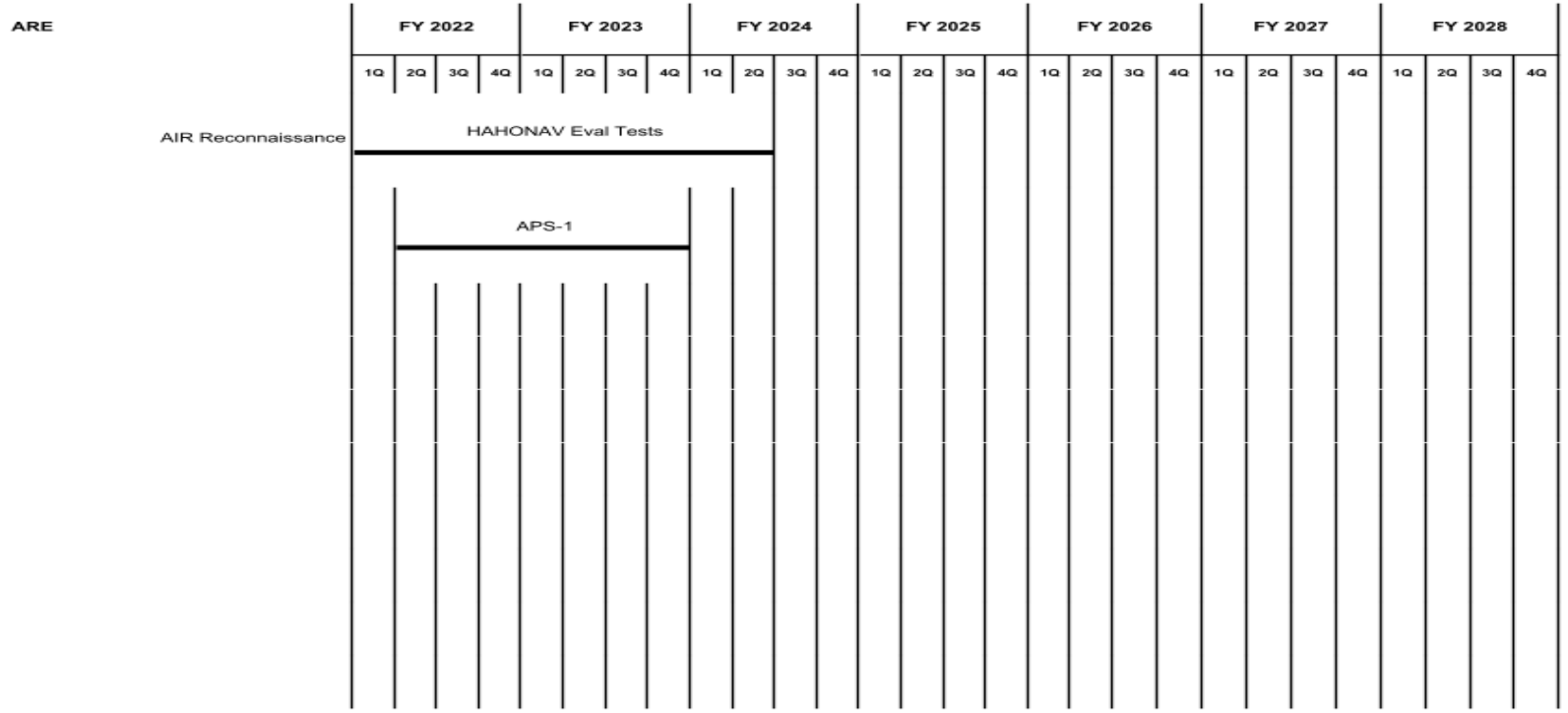
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation (OT&E)	Various	MCSC : Quantico, VA	0.589	0.207	Dec 2021	0.316	Jan 2023	0.369	Jan 2024	-		0.369	Continuing	Continuing	Continuing
Operational Test & Evaluation (OT&E)	MIPR	NAS : Pax River	0.085	0.085	Dec 2021	0.000		0.036	Dec 2023	-		0.036	0.000	0.206	-
Operational Test & Evaluation (OT&E)	Various	Various : Quantico, VA	0.138	0.020	Feb 2022	0.000		0.000		-		0.000	0.000	0.158	-
Operational Test & Evaluation (OT&E)	MIPR	NRSDEC : Natick	0.366	0.415	Feb 2022	0.000		0.000		-		0.000	0.000	0.781	-
Developmental Test & Evaluation (DT&E)	MIPR	Yuma Prov G : Yuma, AZ	0.000	0.000		0.100	Jan 2023	0.000		-		0.000	0.000	0.100	-
Developmental Test & Evaluation (DT&E)	Various	NAVAIR : Pax River, MD	0.646	0.285	Aug 2022	0.550	Mar 2023	0.000		-		0.000	0.000	1.481	-
Prior Year Operational Test & Evaluation Not Funded FYDP (PYOT&E)	Various	Various : Various	1.673	0.000		0.000		0.000		-		0.000	0.000	1.673	-
		Subtotal	3.497	1.012		0.966		0.405		-		0.405	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	13.420	12.652		17.673		1.868		-		1.868	Continuing	Continuing	N/A

Remarks

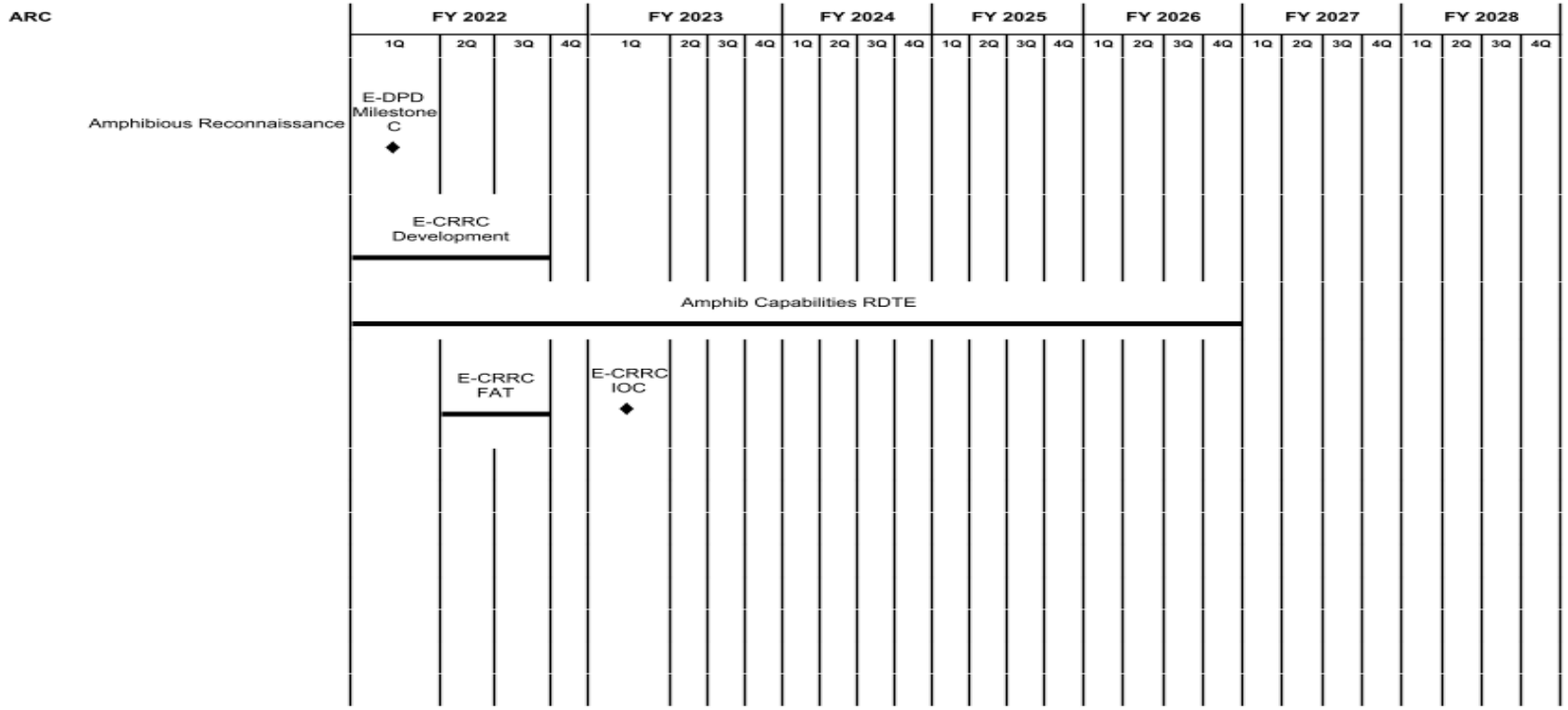
Overall decrease of $15.805M is primarily due to beginning in FY 2024, Unmanned Logistics System-Air (ULS-A) has been realigned from Project Unit 4002 Family of Raid Reconnaissance to Project Unit 2530 Unmanned Expeditionary Systems (UES).

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 4002 / *Family of Raid Reconnaissance*



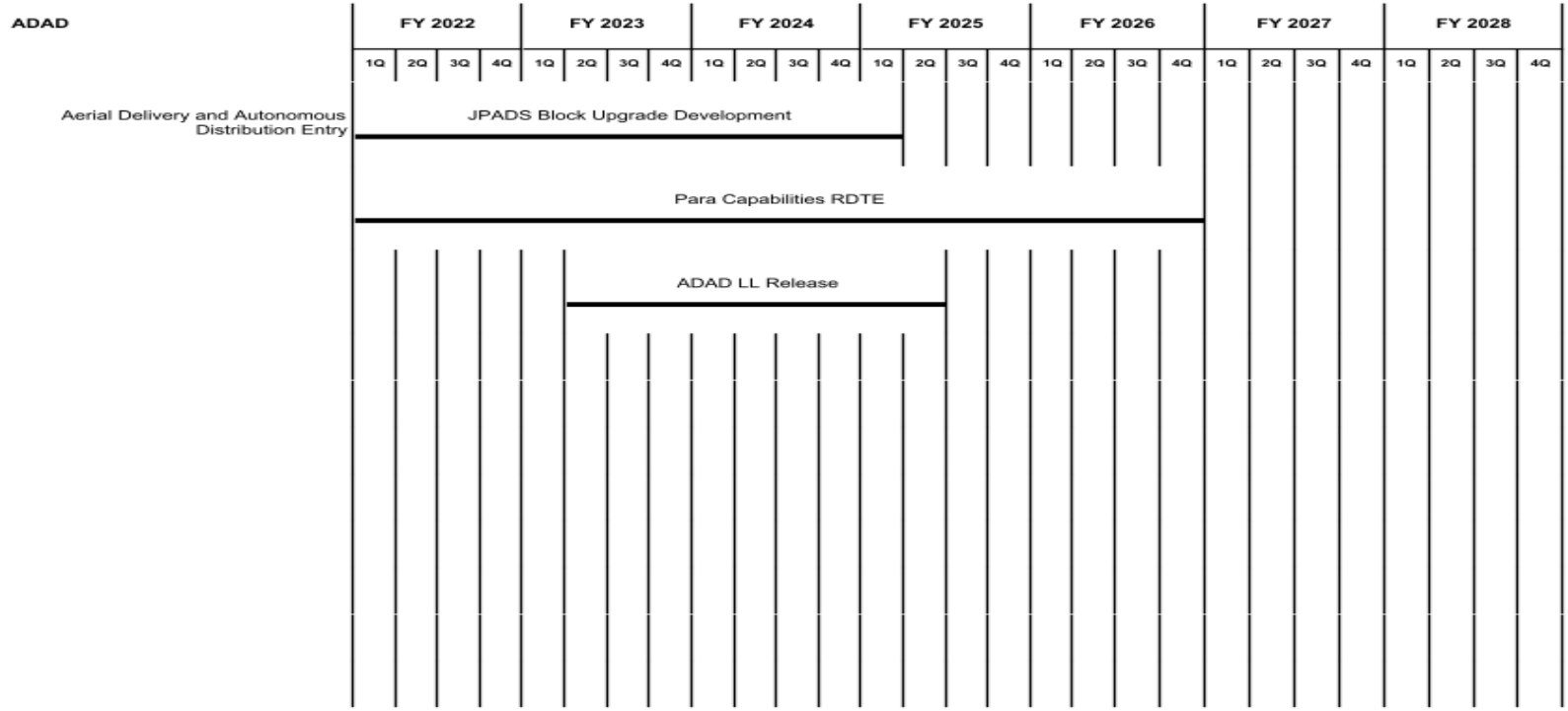
2024OSD - 0206623M - 4002

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 4002 / *Family of Raid Reconnaissance*



2024OSD - 0206623M - 4002

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 4002 / *Family of Raid Reconnaissance*



2024OSD - 0206623M - 4002

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 4002 / *Family of Raid Reconnaissance*

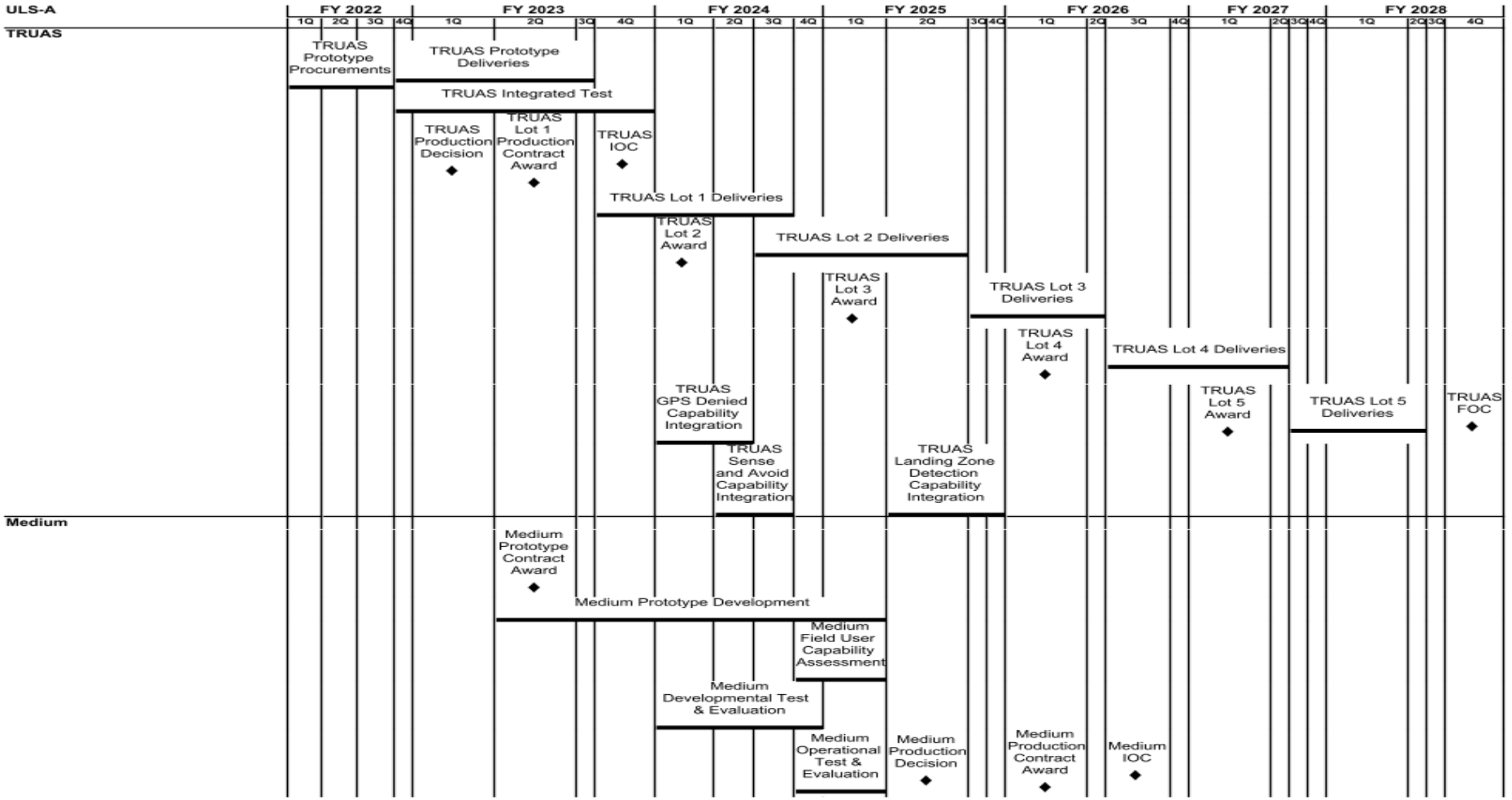
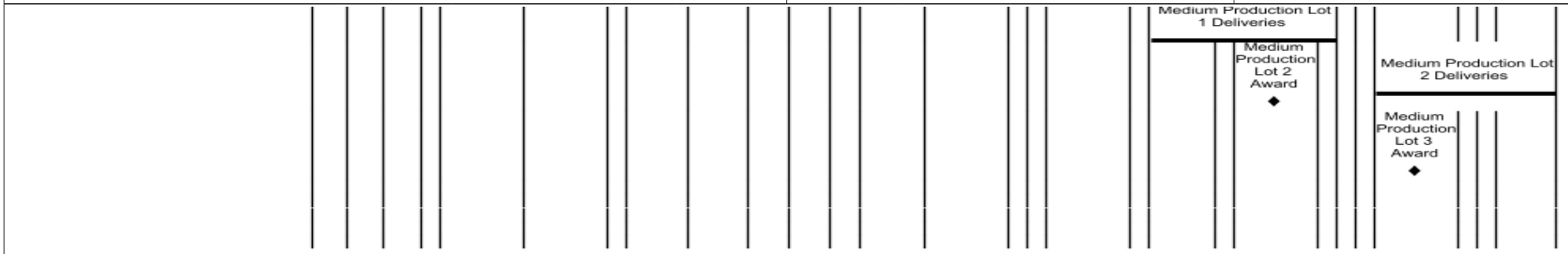


Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 4002 / *Family of Raid Reconnaissance*



2024OSD - 0206623M - 4002

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 4002 / *Family of Raid Reconnaissance*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
ARE				
AIR Reconnaissance: Air Recon: HAHONAV	1	2022	2	2024
AIR Reconnaissance: Augmented Parachute System-1	2	2022	4	2023
ARC				
Amphibious Reconnaissance: E-DPD Milestone C	1	2022	1	2022
Amphibious Reconnaissance: Enhanced Combat Rubber Reconnaissance Craft Development	1	2022	3	2022
Amphibious Reconnaissance: Amphibious Capabilities R&D	1	2022	4	2026
Amphibious Reconnaissance: E-CRRC FAT	2	2022	3	2022
Amphibious Reconnaissance: E-CRRC IOC	1	2023	1	2023
ADAD				
Aerial Delivery and Autonomous Distribution Entry: ADAD: JPADS Block Upgrades	1	2022	1	2025
Aerial Delivery and Autonomous Distribution Entry: Parachute Capabilities R&D	1	2022	4	2026
Aerial Delivery and Autonomous Distribution Entry: ADAD Low Level Release	2	2023	2	2025
ULS-A				
TRUAS: TRUAS Prototype Procurements	1	2022	3	2022
TRUAS: TRUAS Prototype Deliveries	4	2022	3	2023
TRUAS: TRUAS Integrated Test	4	2022	4	2023
TRUAS: TRUAS Production Decision	1	2023	1	2023
TRUAS: TRUAS Lot 1 Production Contract Award	2	2023	2	2023
TRUAS: TRUAS IOC	4	2023	4	2023
TRUAS: TRUAS Lot 1 Deliveries	4	2023	3	2024

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 4002 / *Family of Raid Reconnaissance*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
TRUAS: TRUAS Lot 2 Award	1	2024	1	2024
TRUAS: TRUAS Lot 2 Deliveries	3	2024	2	2025
TRUAS: TRUAS Lot 3 Award	1	2025	1	2025
TRUAS: TRUAS Lot 3 Deliveries	3	2025	2	2026
TRUAS: TRUAS Lot 4 Award	1	2026	1	2026
TRUAS: TRUAS Lot 4 Deliveries	3	2026	2	2027
TRUAS: TRUAS Lot 5 Award	1	2027	1	2027
TRUAS: TRUAS Lot 5 Deliveries	3	2027	2	2028
TRUAS: TRUAS FOC	4	2028	4	2028
TRUAS: TRUAS GPS Denied Capability Integration	1	2024	2	2024
TRUAS: TRUAS Sense and Avoid Capability Integration	2	2024	3	2024
TRUAS: TRUAS Landing Zone Detection Capability Integration	2	2025	4	2025
Medium: Medium Prototype Contract Award	2	2023	2	2023
Medium: Medium Prototype Development	2	2023	1	2025
Medium: Medium Field User Capability Assessment	4	2024	1	2025
Medium: Medium Developmental Test & Evaluation	1	2024	4	2024
Medium: Medium Operational Test & Evaluation	4	2024	1	2025
Medium: Medium Production Decision	2	2025	2	2025
Medium: Medium Production Contract Award	1	2026	1	2026
Medium: Medium IOC	3	2026	3	2026
Medium: Medium Production Lot 1 Deliveries	3	2026	2	2027
Medium: Medium Production Lot 2 Award	1	2027	1	2027
Medium: Medium Production Lot 2 Deliveries	1	2028	4	2028
Medium: Medium Production Lot 3 Award	1	2028	1	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	Project (Number/Name) 9999 / *Congressional Adds*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
9999: *Congressional Adds*	0.000	0.000	5.500	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	5.500
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Congressional Add funding for the Integrated Helmet System (IHS) provides research and development focused on ballistic and blunt impact protection, allows the Marine Corps to expand the scope of test and evaluation, and provides statistically significant data in support of the business case analysis and refinement of program requirements. The major focus area of this additional funding is to purchase additional helmets from each vendor to expand the sample size of the test and evaluation to assess durability, sustainability, and maintainability of the helmets through field exercises and training events at the infantry battalions. This increase in scope enables evaluation of integration with existing communications systems on vehicle platforms, hearing enhancement device integration, performance in various environments, and integration with associated equipment and tactics.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023
Congressional Add: Integrated helmet system	0.000	5.500
FY 2022 Accomplishments: N/A		
FY 2023 Plans: - Complete production of IHS test and evaluation articles. - Complete testing and user evaluations of the IHS. - Complete durability, sustainability, and maintainability assessment. - Complete evaluation of integration with existing communications systems on vehicle platforms. - Complete evaluation of hearing enhancement device integration. - Complete evaluation of performance in various environments. - Complete evaluation of integration with associated equipment and tactics.		
Congressional Adds Subtotals	0.000	5.500

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Under Marine Corps Ballistic Protection Systems (BPS), the IHS effort is a research, development, testing & evaluation activity designed to seek new developments in ballistic technology that feature reductions in weight, improvements in ballistic performance, enhanced operational effectiveness through improved product designs and the application of new material technologies to reduce total ownership costs by improving the expected service life of fielded systems. In order to accomplish these

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 9999 / *Congressional Adds*

goals, the Marine Corps uses an Other Transactional Authority agreement with contractor performers to achieve the desired end state. This includes partnerships with government entities and research and development contracts and partnership intermediaries where applicable. The Marine Corps also leverages advancements in industry capabilities to rapidly field non-developmental and commercially available off the shelf armor solutions. Performance is confirmed by characterizing ballistic performance and data collected during user evaluations.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	Project (Number/Name) 9999 / *Congressional Adds*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development of Integrated Helmet (IHS)	C/FFP	MCSC : Quantico, VA	0.000	0.000		3.823	Mar 2023	0.000		-		0.000	0.000	3.823	-
		Subtotal	0.000	0.000		3.823		0.000		-		0.000	0.000	3.823	N/A

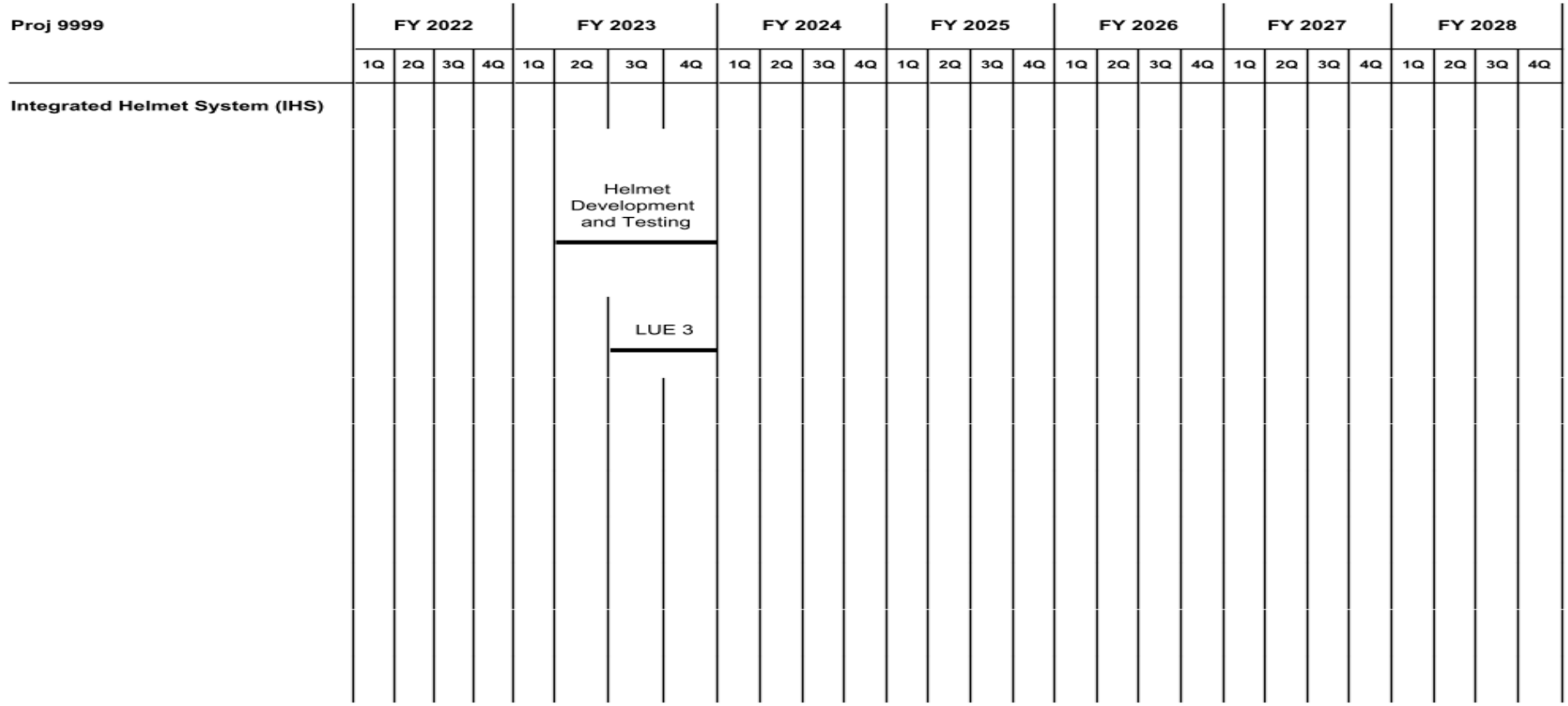
Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	C/BA	Various: Various : Not Specified	0.000	0.000		1.677	May 2023	0.000		-		0.000	0.000	1.677	-
		Subtotal	0.000	0.000		1.677		0.000		-		0.000	0.000	1.677	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		5.500		0.000		-		0.000	0.000	5.500	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 9999 / *Congressional Adds*



2024PB - 0206623M - 9999

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206623M / *MC Ground Cmbt Spt Arms Sys*	**Project (Number/Name)** 9999 / *Congressional Adds*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 9999				
Integrated Helmet System (IHS): Helmet Development and Testing	2	2023	4	2023
Integrated Helmet System (IHS): LUE 3	3	2023	4	2023

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0206624M *I Marine Corps Cmbt Services Supt*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	231.606	20.254	26.522	27.794	-	27.794	33.033	94.360	100.732	79.299	Continuing	Continuing
2316: *Combat Service Support Eng Equip*	116.490	6.525	7.734	7.474	-	7.474	5.513	13.846	5.910	6.029	Continuing	Continuing
2509: *Motor Transport Mod*	56.869	1.089	8.580	11.900	-	11.900	21.463	75.212	84.693	62.938	Continuing	Continuing
2510: *MAGTF CSSE & SE*	44.926	4.276	9.524	7.714	-	7.714	5.343	4.574	9.389	9.578	Continuing	Continuing
2929: *Testing Measuring Diag Equip & SE*	13.321	0.641	0.684	0.706	-	0.706	0.714	0.728	0.740	0.754	Continuing	Continuing
9999: *Congressional Adds*	0.000	7.723	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	7.723

A. Mission Description and Budget Item Justification

This program element (PE) provides funding for Marine Air-Ground Task Force requirements for Combat Service Support equipment improvement. It will enhance combat breaching capabilities of the ground combat elements, logistics, maintenance and transportation. The PE also provides improvements in all areas of Combat Service Support Equipment Vehicles by determining the replacement for the light fleet of vehicles. This includes projects such as: Alternative Power Sources for Communications Equipment which is a suite of devices that provide the commander with the capability to use existing power to operate his communication equipment, computers and peripheral equipment instead of using batteries or fossil fuel generators; the Marine Corps Family of Automatic Test Systems, formerly TETS, which provides automatic testing capability for use by technicians both in garrison and forward edge of the battlefield; improvements in all areas of the LVSR & MTVR; the High Performance Capabilities for Military Vehicles Project which is dedicated to applying the best practices of the motor sports industry to military vehicles including engineering expertise, equipment, and technology.

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	21.185	26.522	27.221	-	27.221
Current President's Budget	20.254	26.522	27.794	-	27.794
Total Adjustments	-0.931	0.000	0.573	-	0.573
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.348	0.000			
• SBIR/STTR Transfer	-0.583	0.000			
• Program Adjustments	0.000	0.000	0.816	-	0.816
• Rate/Misc Adjustments	0.000	0.000	-0.243	-	-0.243

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0206624M *I Marine Corps Cmbt Services Supt*

Congressional Add Details ($ in Millions, and Includes General Reductions)

	FY 2022	FY 2023
Project: 9999: *Congressional Adds*		
Congressional Add: *Field-based airborne power generation systems*	7.723	0.000
Congressional Add Subtotals for Project: 9999	7.723	0.000
Congressional Add Totals for all Projects	7.723	0.000

Change Summary Explanation

The increase of $1.272M from FY 2023 to FY 2024 is primarily attributed to the following programmatic adjustments within the PE:

1) Decrease due to Explosive Hazard Defeat Systems (EHDS) re-alignment of funds from BA7 to BA4 to Program Element: 0603635M Project Code: 7400 to allow execution via Office Navy Research (ONR) of GPR development and testing.

2) Increase due to MTT prototype development.

3) Decrease due to the FMPS completion of product development for small unit power and micro power initiatives in support of EABO concepts repository.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206624M / *Marine Corps Cmbt Servic es Supt*	Project (Number/Name) 2316 / *Combat Service Support Eng Equip*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2316: *Combat Service Support Eng Equip*	116.490	6.525	7.734	7.474	-	7.474	5.513	13.846	5.910	6.029	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Engineer Mods and Tool Kits: The Engineer Mods and Tool Kits line funds modifications and initiatives which are required to address operational priorities, engineering change proposals, safety concerns, support equipment inefficiencies, product quality deficiencies, and other issues that affect equipment reliability, availability, and readiness. This approach ensures proper equipment sustainment and life cycle management in response to evolving needs of the Marine Corps fleet. Operational needs to provide personnel survivability on engineer equipment is essential to current and future operations. Research and development funding develops and integrates new lighter, compact armor technology, and supports ballistic testing for applications to existing and future acquisitions.

Corrosion Prevention and Control (CPAC): The useful life of Marine Corps assets will be extended through a comprehensive CPAC RDT&E program aimed at identifying and certifying new corrosion control products, materials, processes, and procedures for legacy and new acquisitions. The CPAC RDT&E Program works to standardize and substantially improve strategies, objectives, and processes to prevent, detect, and treat corrosion and its impacts on Marine Corps ground vehicles and weapons systems. This mission responds to the Congressional directives, DoD, and SECNAV instruction to reduce the negative operational effects of corrosion and reduce associated total ownership cost of Marine Corps ground equipment and weapons systems.

Family of Explosive Ordnance Disposal Equipment (FEOD): Funding supports the Rapid Statement of Need (RSON) development, testing, and evaluation of the Littoral Explosive Ordnance Neutralization (LEON) Payload under-water robot systems to locate, identify, and neutralize those threats.

Explosive Hazard Defeat System (EHDS): Funding supports development, testing, and evaluation USMC Full Force Design Enhancements to locate, avoid, or neutralize explosive threats.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Engineer Mods and Tool Kits	0.521	0.478	0.809	0.000	0.809
Articles:	-	-	-	-	-
FY 2023 Plans:					
- Complete development and testing of Mine Clearing Line Charge (MCLC) replacements.					
FY 2024 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206624M / *Marine Corps Cmbt Servic es Supt*	**Project (Number/Name)** 2316 / *Combat Service Support Eng Equip*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Initiate the testing and integration of modifications for the Engineer Family of Systems. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase of $0.331M from FY 2023 to FY 2024 will initiate identifying the highest priority issues during the testing and integration of modifications for the Engineer Family of Systems.					
Title: Family of EOD Equipment ***Articles:*** ***FY 2023 Plans:*** - Continue testing and development of Amphibious Unmanned Ground Vehicle (AUGV) and Littoral Explosive Ordnance Neutralization (LEON) Payloads. ***FY 2024 Base Plans:*** - Continue testing and development of LEON Payloads. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase of $0.001M from FY 2023 to FY 2024 is due to inflation.	3.169 -	1.026 -	1.027 -	0.000 -	1.027 -
Title: Explosive Hazard Defeat System (EHDS) ***Articles:*** ***FY 2023 Plans:*** -Initiate development and testing of Stand-off Radar Imaging Detection System (SoRIDS) sensing and Automatic Target Recognition integration with air/ground unmanned platforms. ***FY 2024 Base Plans:*** -Continue development and testing of SoRIDS sensing and Automatic Target Recognition integration with air/ ground unmanned platforms. -Initiate testing and development of Future Naval Capabilities (FNC) EHDS Ground Penetrating Radar (GPR) sensing and integration with air/ground unmanned platforms. ***FY 2024 OCO Plans:***	0.000 -	3.300 -	2.625 -	0.000 -	2.625 -

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206624M / *Marine Corps Cmbt Servic es Supt*	**Project (Number/Name)** 2316 / *Combat Service Support Eng Equip*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease of $0.675M is due to re-alignment of funds from BA7 to BA4 to Program Element: 0603635M Project Code: 7400 to allow execution via Office Navy Research (ONR) of GPR development and testing.					
Title: Corrosion Prevention and Control (CPAC)	2.835	2.930	3.013	0.000	3.013
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue research, test, and evaluation of new corrosion control products, materials, processes, and procedures that improve the corrosion condition of Marine Corps ground equipment through corrosion control Research, Development, Testing, Evaluation (RDT&E) initiatives. These initiatives will support and or improve the corrosion condition of equipment such as the Amphibious Combat Vehicle (ACV), Light Armored Vehicle (LAV), Logistics Vehicle System-Replacement (LVSR), study of cost effective CPCs. - Continue stewardship of CPPMs which provides for vendor product submissions, evaluation, and approved use by the Marine Corps. - Continue field evaluations, product test, and environmental monitoring in advance of fielding to determine suitability. - Continue to support field evaluation of equipment and environmental characterization of equipment at geo-locations through the Fleet Marine Force (FMF) and supporting establishment. - Continue to introduce new technologies, processes, and advance materials. - Continue technical publication updates. - Initiate Cooperative Research and Development Agreement (CRADA) with CHEMEON.					
FY 2024 Base Plans: - Complete research, test, and evaluation of new corrosion control products, materials, processes, and procedures that improve the corrosion condition of Marine Corps ground equipment through corrosion control Research, Development, Testing, Evaluation (RDT&E) initiatives. These initiatives will support and or improve the corrosion condition of equipment such as the Amphibious Combat Vehicle (ACV), Light Armored Vehicle (LAV), Logistics Vehicle System-Replacement (LVSR), study of cost effective CPCs. - Initiate corrosion prevention engineering guidance to new and legacy Marine Corps ground equipment programs such as the Ultra-Light Tactical Vehicle (ULTV), Joint Light Tactical Vehicle (JLTV), and Medium Tactical Vehicle Replacement (MTVR).					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206624M / *Marine Corps Cmbt Servic es Supt*	**Project (Number/Name)** 2316 / *Combat Service Support Eng Equip*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Continue research, test, and evaluation of vendor product submissions for new corrosion control products, materials, processes, and procedures that improve the corrosion condition of Marine Corps ground equipment through the Corrosion Preventive Products and Materials (CPPM) program. - Continue field evaluations, product test, and environmental monitoring in advance of implementing new corrosion prevention products to determine suitability. - Continue to support field evaluations of equipment and environmental characterization of equipment at various geo-locations throughout the Fleet Marine Force (FMF) and supporting establishments. - Continue to conduct studies and update corrosion technology roadmap with new technologies, processes, and advanced materials for military utility. - Continue technical publication updates. - Complete Cooperative Research and Development Agreement (CRADA) with CHEMEON. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase of $0.083M from FY 2023 to FY 2024 is due to the projected labor rates to improve corrosion condition of Marine Corps ground equipment.					
Accomplishments/Planned Programs Subtotals	6.525	7.734	7.474	0.000	7.474

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• PMC/6670: *Items Less Than $5 Million*	4.402	3.550	3.875	-	3.875	3.714	4.052	4.141	4.224	Continuing	Continuing
• PMC/6520: *Family of EOD Equipment*	17.192	40.799	41.200	-	41.200	32.453	25.660	22.070	22.437	Continuing	Continuing

Remarks

D. Acquisition Strategy

(U) Engineer Mods and Tool Kits: This is a roll-up line of various engineering efforts, modifications, and other related items less than $5 Million each. This program provides for significant improvements to various pieces of engineering equipment by enhancing their capabilities and improving readiness.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206624M / *Marine Corps Cmbt Services Supt*	**Project (Number/Name)** 2316 / *Combat Service Support Eng Equip*

(U) Corrosion Prevention and Control (CPAC) Program: The Program will execute the RDT&E Program with engineering support and test & evaluation services from the Naval Surface Warfare Center - Carderock Division, Corrosion Research and Engineering Branch for a comprehensive program aimed at identifying, evaluating, and certifying new corrosion control products, materials, processes, and procedures for legacy Marine Corps equipment and new acquisitions.

(U) Family of Explosive Ordnance Disposal Equipment (FEOD): The program will execute the RDT&E with product development and testing and evaluation support with Naval Information Warfare Center Pacific LEON Payload under-water robot systems to locate, identify, and neutralize those threats.

(U) Explosive Hazard Defeat System (EHDS): The program will execute the RDT&E with product development, testing, and evaluation in conjunction with Office of Naval Research (ONR) Future Naval Capabilities (FNC) for USMC Full Force Design Enhancements to conduct stand-off detection, marking, and reporting of buried, on/off -route explosive obstacles (mines, IEDs, and UXOs) from the beach exit zone to the inland objective and in wide area clearance to avoid or neutralize explosive threats.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206624M / *Marine Corps Cmbt Servic es Supt*	Project (Number/Name) 2316 / *Combat Service Support Eng Equip*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
FEOD	C/CPFF	DIU : Arlington, VA	0.000	2.911	May 2022	0.182	May 2023	0.000		-		0.000	0.000	3.093	-
FEOD	WR	various : various	0.000	0.000	Aug 2022	0.000		0.500	Feb 2024	-		0.500	0.000	0.500	-
EHDS	WR	Lawrence Livermore : Livermore, CA	0.000	0.000		3.300	Mar 2023	1.000	Dec 2023	-		1.000	0.000	4.300	-
Prior Year Cumulative Funding	C/BA	Various : Various	77.673	0.000		0.000		0.000		-		0.000	0.000	77.673	-
		Subtotal	77.673	2.911		3.482		1.500		-		1.500	0.000	85.566	N/A

Remarks

Overall decrease is primarily due to re-alignment of funds from BA7 to BA4 to Program Element: 0603635M Project Code: 7400 to allow execution via Office Navy Research (ONR) of GPR development and testing.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CPAC	MIPR	NSWC-CD : Bethesda, MD	0.147	0.062	May 2022	0.072	Feb 2023	0.074	Feb 2024	-		0.074	Continuing	Continuing	Continuing
CPAC	C/FFP	NSWC-CD : Bethseda, MD	6.188	1.060	Apr 2022	1.358	Mar 2023	1.339	Mar 2024	-		1.339	Continuing	Continuing	Continuing
		Subtotal	6.335	1.122		1.430		1.413		-		1.413	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	Various	Various : Various	5.640	0.521	Feb 2022	0.478	Feb 2023	0.809	Feb 2024	-		0.809	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	MIPR	NSWC-CD : Bethseda, MD	17.818	1.713	Apr 2022	1.500	Mar 2023	1.600	Mar 2024	-		1.600	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206624M / *Marine Corps Cmbt Servic es Supt*	Project (Number/Name) 2316 / *Combat Service Support Eng Equip*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	NIWC-PAC : San Diego, CA	0.000	0.192	Aug 2022	0.747	Jan 2023	0.527	Jan 2024	-		0.527	0.000	1.466	-
Developmental Test & Evaluation (DT&E)	WR	NSWC-PCD : Panama City, FL	0.000	0.066	Apr 2022	0.097	Feb 2023	0.000		-		0.000	0.000	0.163	-
Developmental Test & Evaluation (DT&E)	WR	Lawrence Livermore : Livermore, CA	0.000	0.000		0.000		1.625	Jan 2024	-		1.625	0.000	1.625	-
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	C/BA	Various : Various	9.024	0.000		0.000		0.000		-		0.000	0.000	9.024	-
		Subtotal	32.482	2.492		2.822		4.561		-		4.561	Continuing	Continuing	N/A

Remarks

Overall increase is primarily attributed to EHDS continued product development, testing, and evaluation of Automatic Target Recognition integrated with air/ground platforms.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	116.490	6.525		7.734		7.474		-		7.474	Continuing	Continuing	N/A

Remarks

Overall decrease is primarily due to EHDS re-alignment of funds from BA7 to BA4 to Program Element: 0603635M Project Code: 7400 to allow execution via Office Navy Research (ONR) of GPR development and testing.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206624M / *Marine Corps Cmbt Servic es Supt*	**Project (Number/Name)** 2316 / *Combat Service Support Eng Equip*

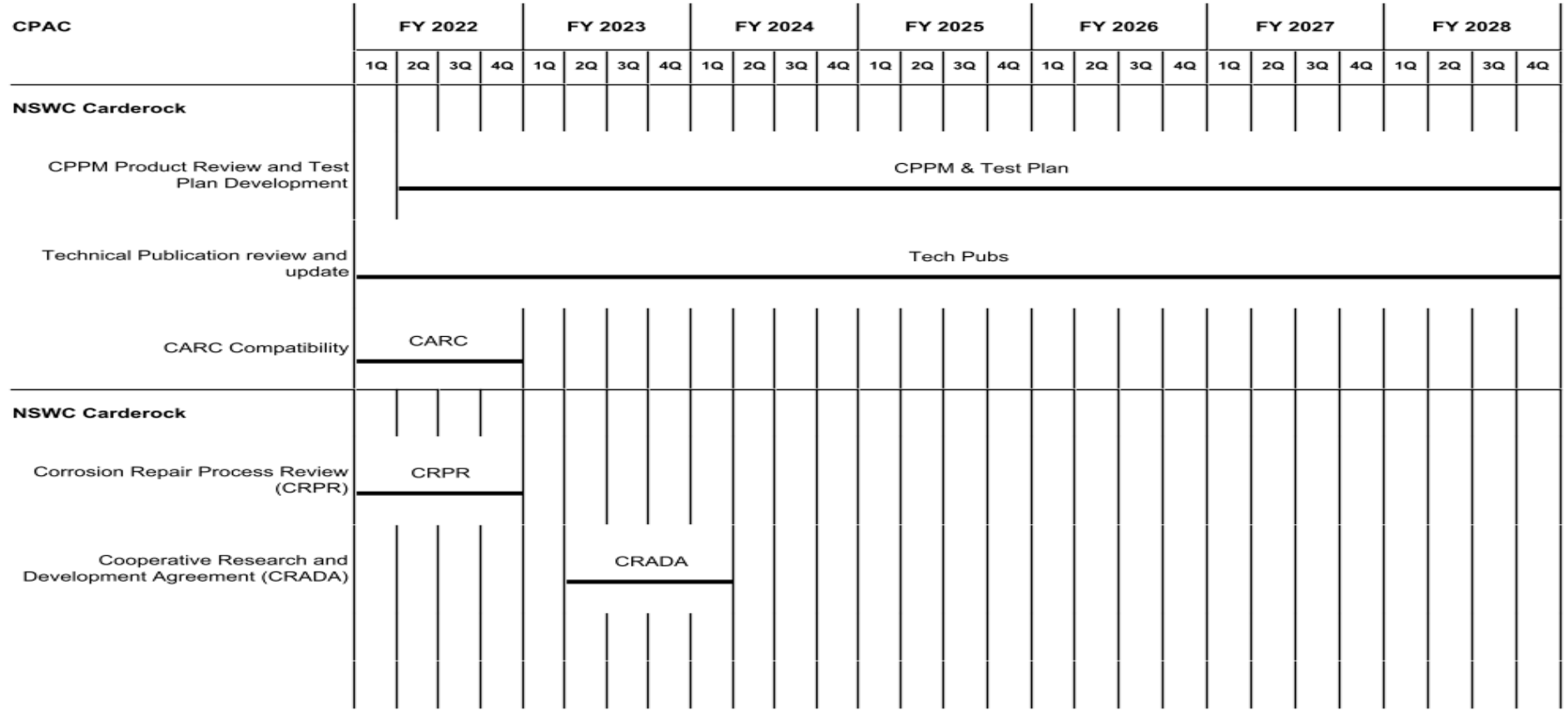

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206624M / *Marine Corps Cmbt Servic es Supt*	**Project (Number/Name)** 2316 / *Combat Service Support Eng Equip*

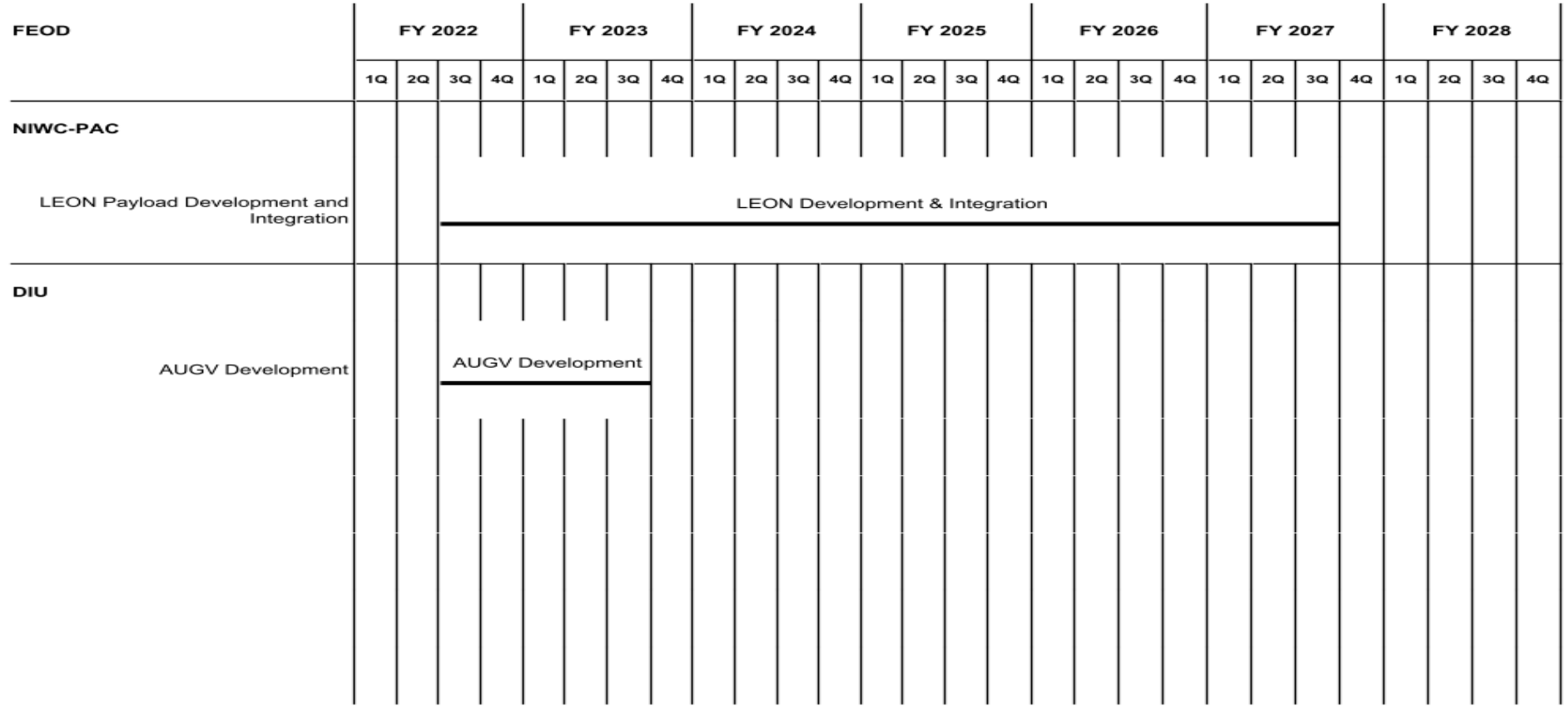

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206624M / *Marine Corps Cmbt Servic es Supt*	**Project (Number/Name)** 2316 / *Combat Service Support Eng Equip*

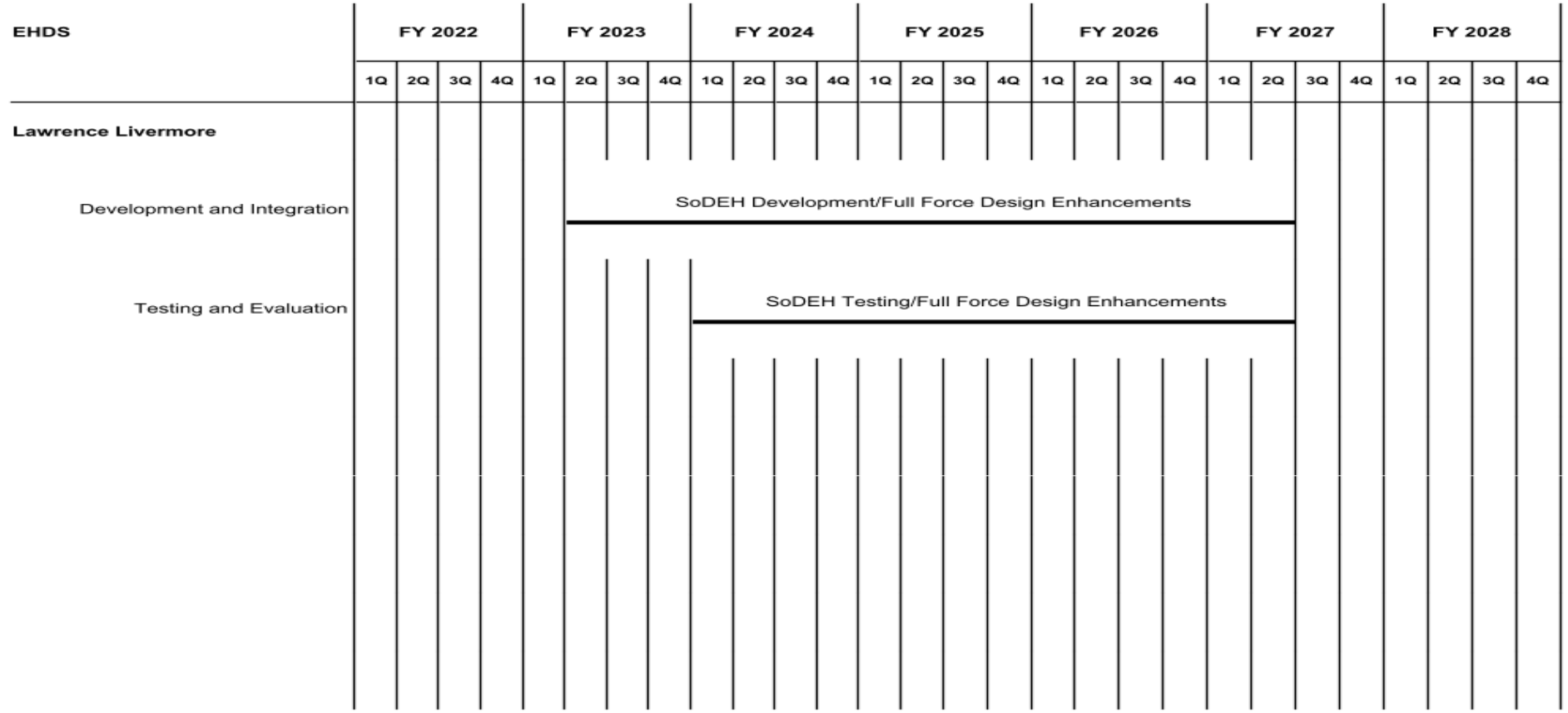

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206624M / *Marine Corps Cmbt Servic es Supt*	**Project (Number/Name)** 2316 / *Combat Service Support Eng Equip*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
CPAC				
NSWC Carderock: CPPM Product Review and Test Plan Development: Schedule Detail	2	2022	4	2028
NSWC Carderock: Technical Publication review and update: Schedule Detail	1	2022	4	2028
NSWC Carderock: CARC Compatibility: Schedule Detail	1	2022	4	2022
NSWC Carderock: Corrosion Repair Process Review (CRPR): Schedule Detail	1	2022	4	2022
NSWC Carderock: Cooperative Research and Development Agreement (CRADA): Schedule Detail	2	2023	1	2024
FEOD				
NIWC-PAC: LEON Payload Development and Integration: Schedule Detail	3	2022	3	2027
DIU: AUGV Development: Schedule Detail	3	2022	3	2023
EHDS				
Lawrence Livermore: Development and Integration: Schedule Detail	2	2023	2	2027
Lawrence Livermore: Testing and Evaluation: Schedule Detail	1	2024	2	2027

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0206624M / *Marine Corps Cmbt Servic es Supt*				Project (Number/Name) 2509 / *Motor Transport Mod*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
2509: *Motor Transport Mod*	56.869	1.089	8.580	11.900	-	11.900	21.463	75.212	84.693	62.938	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Medium Tactical Vehicle Replacement (MTVR) Modification program line funds numerous modifications and initiatives required to address operational priorities, engineering change proposals (ECP), safety concerns, support equipment and other issues that affect vehicle reliability, availability, maintainability, readiness, as well as energy efficiency. A proactive and focused approach ensures proper vehicle sustainment and life-cycle management and allows the program office to develop and implement improvements as required to respond to the evolving needs of the Marine Corps. MTVR funding will support Technology Demonstration (TD) efforts for a Medium Tactical Truck (MTT), previously referenced as Medium Tactical Vehicle (MTV) in budget exhibits, that will determine maturity of technology advancements within the scope of industry production capabilities and address DoD Energy Efficiency goals while maintaining effectiveness and suitability in operational environments. The intended purpose of the TD effort is informing requirements and cost in support of a MTVR replacement program.

The Marine Corps Tactical Motor Transport Modification (MTM) Light Tactical Vehicle Modification (LTVM) project manages life cycle sustainment for the light fleet vehicle and tactical trailer principal end items. A sustained effort is maintained in the Marine Corps for development and testing in support of the light tactical vehicle quality deficiency resolutions, technology and safety initiatives and environmental/state transportation mandated vehicle changes.

The Mine Resistant Ambush Protected (MRAP) Family of Vehicles (FoV) provides tactical mobility for Warfighters with multi-mission vehicles designed to support operational needs and protect personnel from the effects of improvised explosive devices (IEDs), underbody mines and small arms fire threats. Multiple vehicle categories (CATs) have been procured, fielded and sustained: Category I - Urban combat operations, ambulance; Category II - Multi-mission ops-convoy lead, troop transport, ambulance, utility vehicle; and, Category III - Mine/IED clearance ops, explosive ordnance disposal. Operational needs to provide personnel survivability is essential to current and future operations.

The Family of Medium/Heavy Tactical Trailers & Ancillary Equipment (FT&AE) management strategy will use RDT&E funding to explore new technology that can be used to achieve optimum lift within the desired weight and cube constraints in support of the "Lightening the MAGTF" initiative, as well as improving capabilities, to include re-engineering the ground clearance on various trailers to improve off-road mobility. Transportation and expeditionary goals will be considered in the research and development for the medium/heavy trailer fleet to include (but not limited to) the M1076 PLS (Palletized Load System) Trailer, MK1077 Flatrack, MK593 6 Ton Cargo Trailer, M870 40/50 Ton Low Bed, MK970 Tactical Refueler, M149A2 400 Gallon Water Tank Trailer, M353 3.5 Ton General Purpose Trailer, and the Flatrack Refueler Capability (FRC).

The Family of Logistics Vehicle System Replacement (LVSR) is the Marine Air-Ground Task Force (MAGTF) Heavy Lift Capability system. This line funds numerous modifications and initiatives that are required to address operational priorities, engineering change proposals, safety concerns, support equipment and other issues that affect vehicle reliability, availability, maintainability and readiness. A proactive and focused approach ensures proper vehicle sustainment and life-cycle management and allows the flexibility to develop and implement improvements as required to respond to the evolving needs of the Marine Corps.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206624M / *Marine Corps Cmbt Servic es Supt*	**Project (Number/Name)** 2509 / *Motor Transport Mod*

The Family of P-19 Replacement (P-19R) replaced the obsolete A/S32P-19A Crash Fire Rescue fleet in support of expeditionary airfield operations and the supporting establishment. The vehicle is outfitted with advanced fire suppression equipment. It provides rescue and aircraft firefighting capabilities to permanent and expeditionary airfields throughout the Marine Corps. The P-19R is also employed to fight structural fires in support of base camps and as firefighting support to other elements of the Marine Air Ground Task Force (MAGTF), such as ammunition supply points, Petroleum, Oil and Lubricant (POL) distribution points or hazardous material storage facilities.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Medium Tactical Vehicle Replacement (MTVR)	0.102	7.617	11.328	0.000	11.328
Articles:	-	-	-	-	-
FY 2023 Plans: - Initiate Medium Tactical Trucks (MTT) competitive prototype efforts. Award agreement(s) for product development and design efforts with a focus on priorities such as technology maturity, operational effectiveness, and energy efficiency considerations. - Continue Engineering Change Proposals (ECP)/safety mods of the MTVR as required. - Continue Test & Evaluation efforts supporting ECP/safety mods of the MTVR as required to provide survivability upgrades in response to continual changes in the threat environment to protect the warfighter and vehicle from possible catastrophic events, in order to meet current and future operations. - Continue addressing ongoing obsolescence issues related to an aging fleet of vehicles through on-going science and engineering support, to include material characterizations, modeling and simulation, root-cause analyses, and design & process improvement recommendations from the Production Quality Deficiency Reports (PQDR).					
FY 2024 Base Plans: - Continue Medium Tactical Trucks (MTT) competitive prototype efforts, such as awarding competitive prototypes, focusing on areas such as technology maturity, operational effectiveness, and energy efficiency considerations. - Continue ECP/safety mods of the MTVR as required. - Continue Test & Evaluation efforts supporting ECP/safety mods of the MTVR as required to provide survivability upgrades in response to continual changes in the threat environment to protect the warfighter and vehicle from possible catastrophic events, in order to meet current and future operations. - Continue addressing ongoing obsolescence issues related to an aging fleet of vehicles through on-going science and engineering support, to include material characterizations, modeling and simulation, root-cause					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206624M / *Marine Corps Cmbt Servic es Supt*	**Project (Number/Name)** 2509 / *Motor Transport Mod*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
analyses, and design & process improvement recommendations from the Production Quality Deficiency Reports (PQDR). ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The increase from FY 2023 to FY 2024 is primarily due to MTT prototype development.					
Title: Light Tactical Vehicle Modification ***Articles:*** ***FY 2023 Plans:*** Continue to support the development of engineering change proposals ensuring readiness, safety and reliability of the Light Tactical Family of Vehicles. ***FY 2024 Base Plans:*** Continue to support the development of engineering change proposals ensuring readiness, safety and reliability of the Light Tactical Family of Vehicles. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The decrease from FY 2023 to FY 2024 is attributed to the cumulative replacement of over 30% of the HMMWV fleet with Joint Light Tactical Vehicles (JLTVs). HMMWVs are actively being fully divested of with JLTV fielding.	0.015 -	0.186 -	0.017 -	0.000 -	0.017 -
Title: Mine Resistant Ambush Protected (MRAP) Family of Vehicles (FoV) ***Articles:*** ***FY 2023 Plans:*** - Complete research and development of Engineering Change Proposals (ECPs) efforts such as "material improvements" to ballistic glass, other safety issues and new armor ballistic testing in support of survivability and mobility upgrades. ***FY 2024 Base Plans:*** N/A ***FY 2024 OCO Plans:***	0.014 -	0.382 -	0.000 -	0.000 -	0.000 -

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206624M / *Marine Corps Cmbt Servic es Supt*	**Project (Number/Name)** 2509 / *Motor Transport Mod*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The decrease from FY 2023 to FY 2024 is due to program divestment.					
Title: Family of P-19 Replacement (P-19R) ***Articles:*** ***FY 2023 Plans:*** N/A ***FY 2024 Base Plans:*** N/A ***FY 2024 OCO Plans:*** N/A	0.130 -	0.000 -	0.000 -	0.000 -	0.000 -
Title: Family of Medium/Heavy Tactical Trailers & Ancillary Equipment (FT&AE) ***Articles:*** ***FY 2023 Plans:*** - Continue testing and analysis efforts to ensure effectiveness and safety of the Medium/Heavy Tactical Trailers designed for the Medium Tactical Vehicle Replacement (MTVR) and Logistics Vehicle System Replacement (LVSR), enabling the fleet to meet increased mobility requirements. ***FY 2024 Base Plans:*** - Continue testing and analysis efforts to ensure effectiveness and safety of the Medium/Heavy Tactical Trailers designed for the Medium Tactical Vehicle Replacement (MTVR) and Logistics Vehicle System Replacement (LVSR), enabling the fleet to meet increased mobility requirements. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The increase from FY 2023 to FY 2024 is primarily due to fleet mobility requirements.	0.210 -	0.180 -	0.248 -	0.000 -	0.248 -
Title: Logistics Vehicle System Replacement (LVSR) ***Articles:*** ***FY 2023 Plans:***	0.618 -	0.215 -	0.307 -	0.000 -	0.307 -

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206624M / *Marine Corps Cmbt Servic es Supt*	**Project (Number/Name)** 2509 / *Motor Transport Mod*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Continue to support the development of Engineering Change Proposals (ECPs) related to readiness, safety and reliability of the Logistics Vehicle System Replacement (LVSR) Family of Vehicles. ***FY 2024 Base Plans:*** - Continue to support the development of Engineering Change Proposals (ECPs) related to readiness, safety and reliability of the Logistics Vehicle System Replacement (LVSR) Family of Vehicles. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The increase from FY 2023 to FY 2024 is due to the development of ECPs.					
Accomplishments/Planned Programs Subtotals	1.089	8.580	11.900	0.000	11.900

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• PMC/5050-01: *Motor T Mod/MTVR*	9.038	8.662	8.941	-	8.941	8.902	9.063	9.224	9.408	Continuing	Continuing
• PMC/5050-02: *Motor T Mod/LVSR*	0.910	1.071	1.092	-	1.092	1.113	3.187	3.251	3.316	Continuing	Continuing
• PMC/5050-03: *Light Tactical Vehicle Modifications (LTVM)*	1.727	3.495	3.565	-	3.565	3.483	3.398	3.466	3.535	Continuing	Continuing
• PMC/5050-04: *Motor T Mod/MRAP*	0.000	0.991	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	24.795
• PMC/5050-05: *Motor T Mod/P19-R*	0.687	0.403	0.418	-	0.418	11.505	11.955	12.178	12.421	Continuing	Continuing
• PMC/5050-06: *Family of Tactical Trailers*	5.285	3.185	3.283	-	3.283	3.296	3.141	3.199	3.263	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Medium Tactical Vehicle Replacement (MTVR) Modification line in support of Medium Tactical Trucks (MTT), will execute a competitive prototype phase through the use of Other Transaction Authority to award multiple agreements. Agreements will seek an incentivized Independent Research and Development (IRAD) cost structure or significant involvement from non-traditional Contractors to meet OTA requirements. Prototypes will be developed, built, and tested during this phase. Based on competitive prototyping efforts, conditions will be in place to support a FY 2026 Milestone B decision. MTT will then transition to an Engineering Manufacturing & Development Phase (FY 2027-FY 2029) followed by a Production & Deployment Phase (FY 2030-FY 2034).

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206624M / *Marine Corps Cmbt Servic es Supt*	**Project (Number/Name)** 2509 / *Motor Transport Mod*

Light Tactical Vehicle Modification (LTVM) focuses on modifications required to increase fleet readiness and to address, safety and environmental/state transportation mandated vehicle changes. LTVM also focuses on System Technical Support efforts (STS) that are led by the Army.

The Mine Resistant Ambush Protected (MRAP) Family of Vehicles (FoV) program will continue divestment and will execute RDT&E funds to research, develop, and evaluate survivability and mobility upgrade efforts such as ECP's, ballistic glass and other safety issues, new armor technology and ballistic testing if required.

The Family of Medium/Heavy Tactical Trailers & Ancillary Equipment (FT&AE) management strategy will use RDT&E funding to explore current and new technologies options that can be used to achieve optimum lift within the desired weight and cube constraints in support of the "Lightening the MAGTF" initiative, as well as sustaining and/or improving capabilities, such as re-engineering the ground clearance on various trailers. When available, emphasis for executing the efforts maximize the use of existing Commercial Off The Shelf (COTS), Government Off The Shelf (GOTS), Non Developmental Items (NDI) and Government Furnished Equipment (GFE). Transportation and expeditionary goals will be considered in the research and development for the medium/heavy trailer fleet to include (but not limited to) the M1076 PLS (Palletized Load System) Trailer, MK1077 Flatrack, MK593 6 Ton Cargo Trailer, M870 40/50 Ton Low Bed, MK970 Tactical Refueler, M149A2 400 Gallon Water Tank Trailer, M353 3.5 Ton General Purpose Trailer, and the Flatrack Refueler Capability (FRC).

The Family of Logistics Vehicle System Replacement (LVSR) program is currently in sustainment utilizing RDT&E funding to address required Engineering Change Proposals (ECPs) and safety modifications.

The Family of P-19 Replacement (P-19R) leverages COTS and NDI components in an effort to minimize costs, test requirements, and reduce development time. P-19R supplants the aging A/S32P-19A fleet in support of expeditionary airfield operations and the supporting establishment. The vehicle is outfitted with advanced fire suppression equipment. It provides rescue and aircraft firefighting capabilities to permanent and expeditionary airfields throughout the Marine Corps. The P-19R is employed to fight structure fires in support of base camps and as firefighting support to other elements of the MAGTF, such as ammunition supply points, Petroleum, Oil, and Lubricants (POL) distribution points, or hazardous material storage facilities.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206624M / *Marine Corps Cmbt Servic es Supt*	**Project (Number/Name)** 2509 / *Motor Transport Mod*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MRAP Modifications	Various	Various : Various	0.389	0.000		0.145	Apr 2023	0.000		-		0.000	0.000	0.534	-
MRAP Engineering	Various	Various : Various	0.439	0.000		0.115	Apr 2023	0.000		-		0.000	0.000	0.554	-
MTT Technology Demonstration	Various	Various : Various	0.000	0.000		7.500	Apr 2023	11.208	Mar 2024	-		11.208	0.000	18.708	-
LVSR ECP Modifications	Various	Various : Various	0.000	0.618	Jul 2022	0.215	Jan 2023	0.307	Dec 2023	-		0.307	0.000	1.140	-
Prior Years Cumulative Funding	Various	Various : Various	37.026	0.000		0.000		0.000		-		0.000	0.000	37.026	-
		Subtotal	37.854	0.618		7.975		11.515		-		11.515	0.000	57.962	N/A

Remarks

MRAP - decrease from FY 2023 to FY 2024 due to program divestment.
MTT - increase from FY 2023 to FY 2024 due to MTT related efforts that focus on additional competitive prototypes.
LVSR - increase from FY 2023 to FY 2024 due to anti-idle ECP modifications.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Years Cumulative Funding	Various	Various : Various	0.105	0.000		0.000		0.000		-		0.000	0.000	0.105	-
		Subtotal	0.105	0.000		0.000		0.000		-		0.000	0.000	0.105	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation (OT&E)	Various	Various : Various	17.135	0.456	Feb 2022	0.419	Mar 2023	0.368	Dec 2023	-		0.368	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	Various	Various : Various	1.775	0.015	Dec 2021	0.186	Aug 2023	0.017	Dec 2023	-		0.017	Continuing	Continuing	Continuing
		Subtotal	18.910	0.471		0.605		0.385		-		0.385	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206624M / *Marine Corps Cmbt Servic es Supt*	**Project (Number/Name)** 2509 / *Motor Transport Mod*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

OT&E - decrease from FY 2023 to FY 2024 primarily due to MRAP program divestment, while partially offset by increases in FT&AE and MTVR for test and analysis efforts.
DT&E - decrease from FY 2023 to FY 2024 is due to a fewer HMMWVs and light tactical trailers being driven due to the fielding of JLTVs and JLTV-trailers. HMMWVs are actively being fully divested of with JLTV fielding.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	56.869	1.089		8.580		11.900		-		11.900	Continuing	Continuing	N/A

Remarks

Overall increase from FY 2023 to FY 2024 is largely attributed to MTT prototyping efforts.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206624M / *Marine Corps Cmbt Servic es Supt*	**Project (Number/Name)** 2509 / *Motor Transport Mod*

MTVR Integrated Program Plan

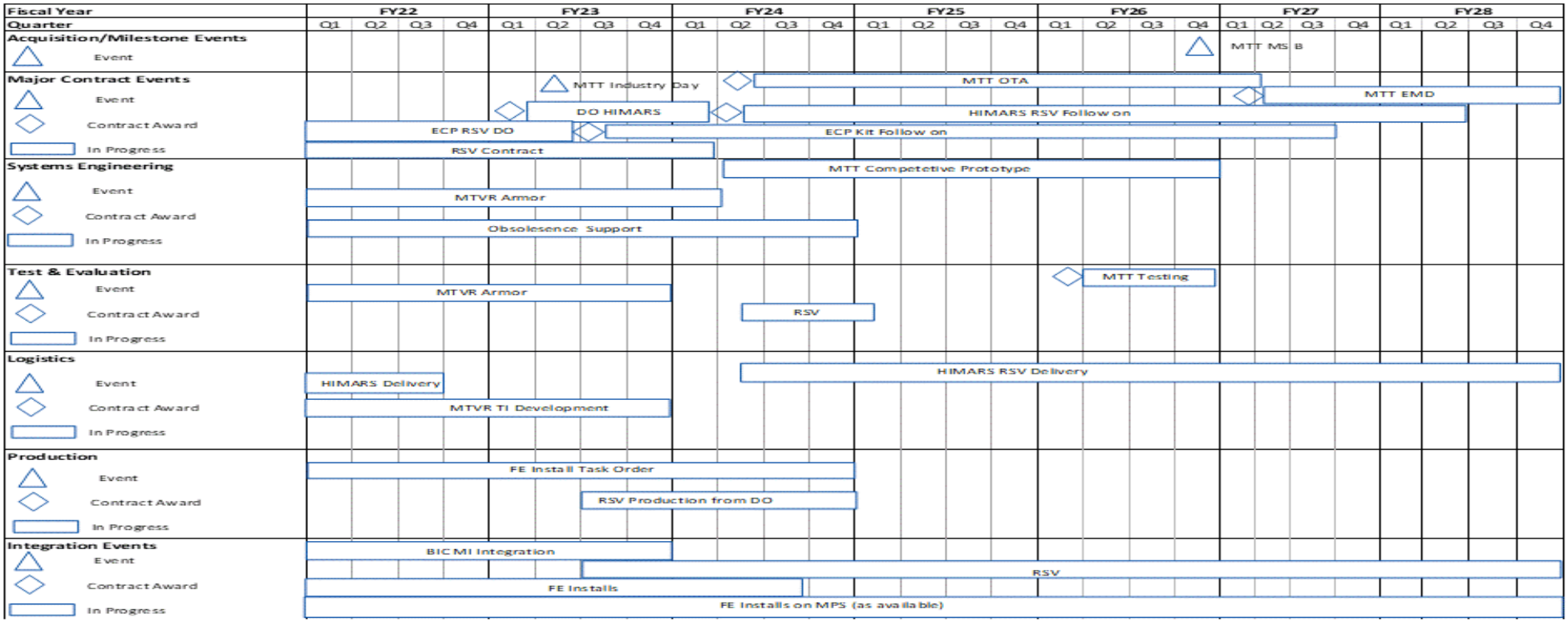


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206624M / *Marine Corps Cmbt Servic es Supt*	**Project (Number/Name)** 2509 / *Motor Transport Mod*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
MTVR				
ECP Safety Mod Testing and Analysis	1	2022	2	2024
MTT - Other Transaction Authority (OTA) / Prototype	2	2024	2	2027
MTT - Milestone B	4	2026	4	2026

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0206624M / *Marine Corps Cmbt Servic es Supt*				Project (Number/Name) 2510 / *MAGTF CSSE & SE*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
2510: *MAGTF CSSE & SE*	44.926	4.276	9.524	7.714	-	7.714	5.343	4.574	9.389	9.578	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

A key enabler in support of Expeditionary Advanced Base Operations, austere base establishment in Littoral Operations in Contested Environments (LOCE), and Indo-Pacific, Environmental Control Equipment, Mobile Power Equipment, and Advanced Power Sources, are a part of Expeditionary Energy Initiatives that will ultimately support Force Design in enabling such systems and operations as Air Defense systems, C2 Degraded environment systems, Close Combat lethality systems, and Information Warfare.

A. Mission Description and Budget Item Justification

Family of Mobile Power Systems

The Family of Mobile Power Systems (MPS) consists of a wide range of current and emerging technologies for mobile power generation, storage, distribution systems, and environmental control equipment necessary to provide continuous, uninterrupted, electrical power and climate control in austere and expeditionary environments. MPS enables the functionality of critical weapons, optics, medical, C5ISR, and life support capabilities required at Advanced Naval and Base sites.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Family of Mobile Power Systems	4.276	9.524	7.714	0.000	7.714
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue technology development and system requirement technical reviews for the Energy Storage Unit (ESU) in support of Intelligent Power Management System (IPMS). - Continue development of small unit/micro power prototypes and concepts. - Continue verification testing of Phase II prototypes for the Small Field Refrigeration System replacements. - Initiate prototype development for Energy Storage Unit (ESU) in support of Intelligent Power Management System (IPMS).					
FY 2024 Base Plans: - Continue technology development and system requirement technical reviews for the Energy Storage Unit (ESU) in support of Intelligent Power Management System (IPMS). - Continue prototype development of the Energy Storage Unit (ESU) in support of Intelligent Power Management System (IPMS).					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206624M / *Marine Corps Cmbt Servic es Supt*	**Project (Number/Name)** 2510 / *MAGTF CSSE & SE*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Initiate developmental effort to produce a new hybrid Environmental Control Unit (ECU) capability that will consolidate two legacy materiel solutions into a single solution, resulting in lower total ownership costs, reduced fuel consumption, smaller logistics footprint, and utilize refrigerants that are less impactful on the environment. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding decrease from FY 2023 to FY 2024 aligns with the completion of product development for small unit power and micro power initiatives in support of EABO concepts.					
Accomplishments/Planned Programs Subtotals	4.276	9.524	7.714	0.000	7.714

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• PMC/6366: *Mobile Power Equipment*	16.040	5.841	28.899	-	28.899	29.487	30.046	30.617	31.230	0.000	638.282

Remarks

D. Acquisition Strategy

Family of Mobile Power Systems

The Family of Mobile Power System (MPS) acquisition strategy is to participate in Small Business Innovation Research and related programs, award procurement contracts through Marine Corps Systems Command contracting office, and secure services through Navy and Army Warfare Centers needed to develop, modify, procure, and provide life cycle sustainment for a portfolio of power generation, storage, and distribution systems, and environmental control equipment. Multiple developmental, procurement, and sustainment efforts are executed from MPS to ensure hybrid, renewable, scalable, and modular power solutions align with Marine Corps Combat Development Command's Force Design 2030 and Force Modernization directives. These efforts include, but are not limited to, the Mobile Electric Hybrid Power System, Intelligent Power Management System, Environmental Control Units, Field Refrigeration Systems, and Small Unit Power/Micro Power programs.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206624M / *Marine Corps Cmbt Servic es Supt*	Project (Number/Name) 2510 / *MAGTF CSSE & SE*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
IPMS Micro Grid Storage	C/FFP	AFLCMC : HANSCOM AFB	5.450	0.320	May 2022	0.538	Jan 2023	0.000		-		0.000	Continuing	Continuing	Continuing
Small Unit Power	MIPR	NSWC-CD : Bethesda, MD	1.654	0.667	Jan 2022	0.000		0.000		-		0.000	0.000	2.321	-
IPMS Energy Storage Unit	C/FFP	DIU : Mountain View, CA	0.000	0.000		7.710	Mar 2023	6.563	Dec 2023	-		6.563	0.000	14.273	-
Hybrid Environmental Control Unit	TBD	TBD : TBD	0.000	0.000		0.000		0.481	Jan 2024	-		0.481	0.000	0.481	-
Small Unit Power - Micro Power Prototype	C/FFP	MCSC : Quantico, VA	0.000	1.274	Feb 2022	0.476	Mar 2023	0.000		-		0.000	0.000	1.750	-
SFRS Replacement	C/FFP	MCSC : Quantico, VA	0.000	0.800	Aug 2022	0.000		0.000		-		0.000	0.000	0.800	-
Prior Years Cumulative Funding	Various	Various : Various	23.534	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	30.638	3.061		8.724		7.044		-		7.044	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
IPMS Energy Storage	MIPR	C5ISR-EIO : Aberdeen, MD	0.282	0.080	Apr 2022	0.150	Nov 2022	0.150	Nov 2023	-		0.150	0.000	0.662	-
IPMS Energy Storage	MIPR	ATC : Aberdeen, MD	0.087	0.080	Apr 2022	0.100	Nov 2022	0.100	Nov 2023	-		0.100	0.000	0.367	-
IPMS Energy Storage	C/BA	NSWC-CD : Bethesda, MD	0.000	0.080	Apr 2022	0.100	Nov 2022	0.100	Nov 2023	-		0.100	0.000	0.280	-
Small Unit Power	C/BA	NSWC-CD : Bethesda, MD	0.000	0.357	Jun 2022	0.100	Jun 2023	0.100	Nov 2023	-		0.100	0.000	0.557	-
Prior Years Cumulative Funding	Various	Various : Various	0.759	0.000		0.000		0.000		-		0.000	0.000	0.759	-
		Subtotal	1.128	0.597		0.450		0.450		-		0.450	0.000	2.625	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206624M / *Marine Corps Cmbt Servic es Supt*	**Project (Number/Name)** 2510 / *MAGTF CSSE & SE*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	MIPR	ABERDEEN TEST CENTER : ABERDEEN MD	0.516	0.050	Aug 2022	0.350	Jun 2023	0.220	Jun 2024	-		0.220	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	MIPR	NSWC CARDEROCK : CARDEROCK MD	0.000	0.453	May 2022	0.000		0.000		-		0.000	0.000	0.453	-
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	Various	Various : Various	10.219	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	10.735	0.503		0.350		0.220		-		0.220	Continuing	Continuing	N/A

Management Services ($ in Millions)

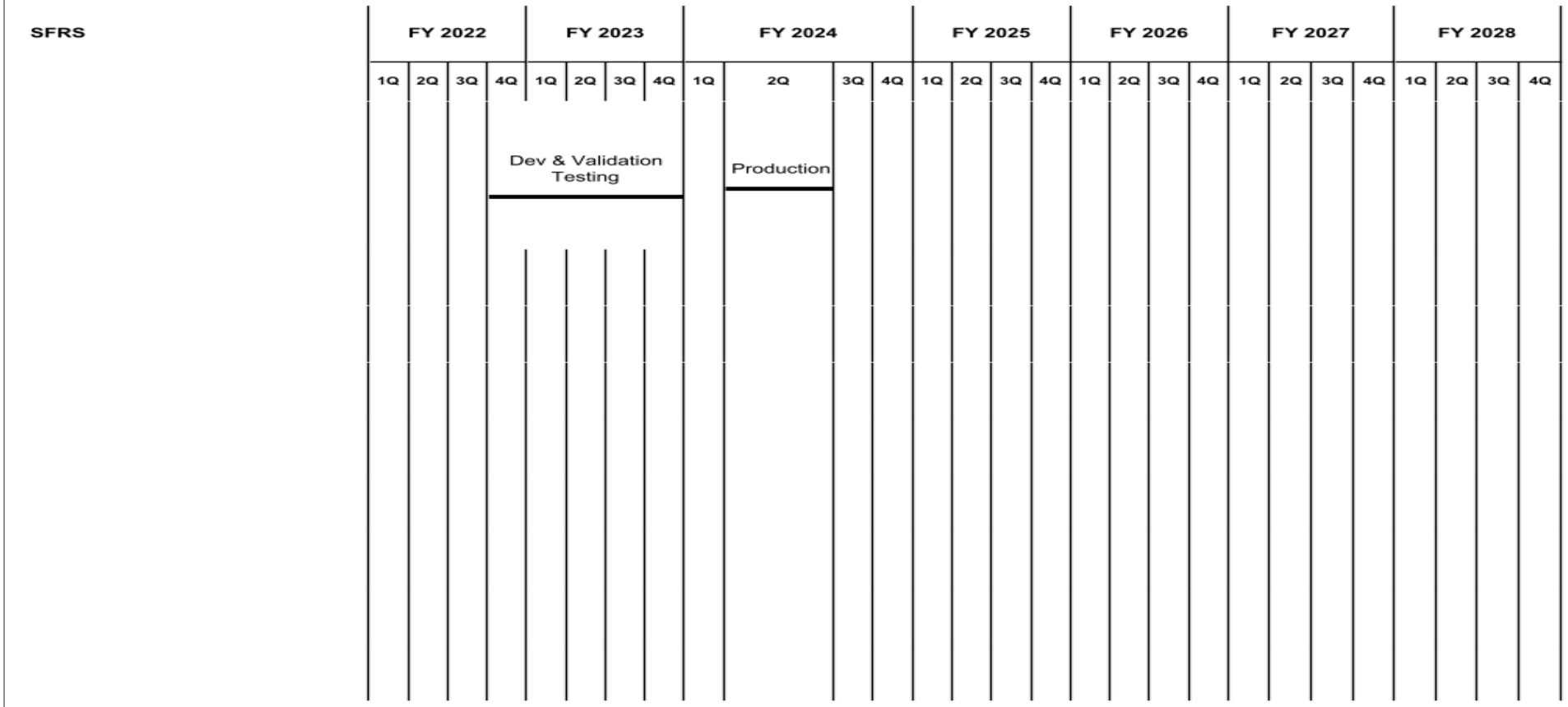
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PM support for development and test mgmt	C/FFP	MCSC : Quantico, VA	2.425	0.115	Sep 2022	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	2.425	0.115		0.000		0.000		-		0.000	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	44.926	4.276		9.524		7.714		-		7.714	Continuing	Continuing	N/A

Remarks

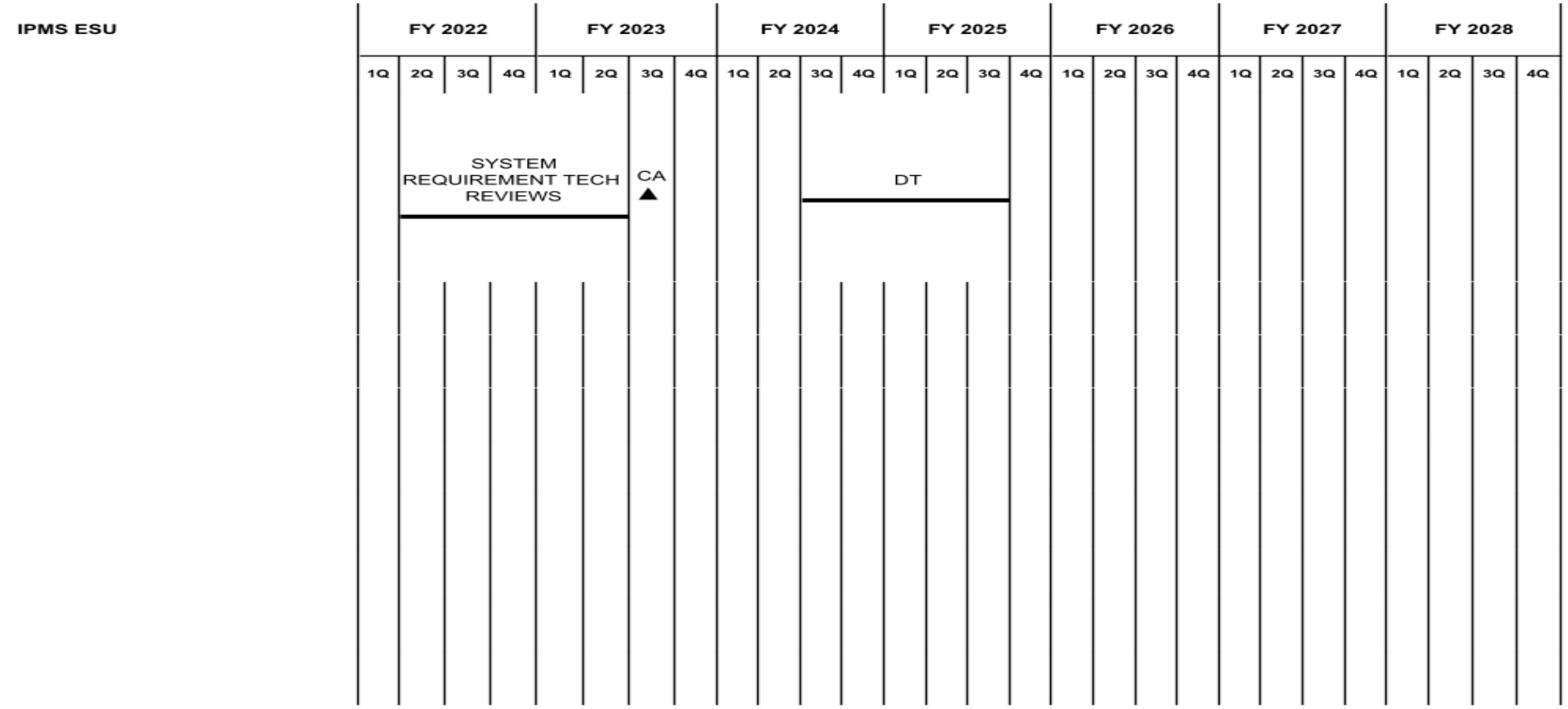
Funding decrease from FY 2023 to FY 2024 is due to the completion of product development for small unit power and micro power initiatives in support of EABO concepts.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206624M / *Marine Corps Cmbt Services Supt*	**Project (Number/Name)** 2510 / *MAGTF CSSE & SE*



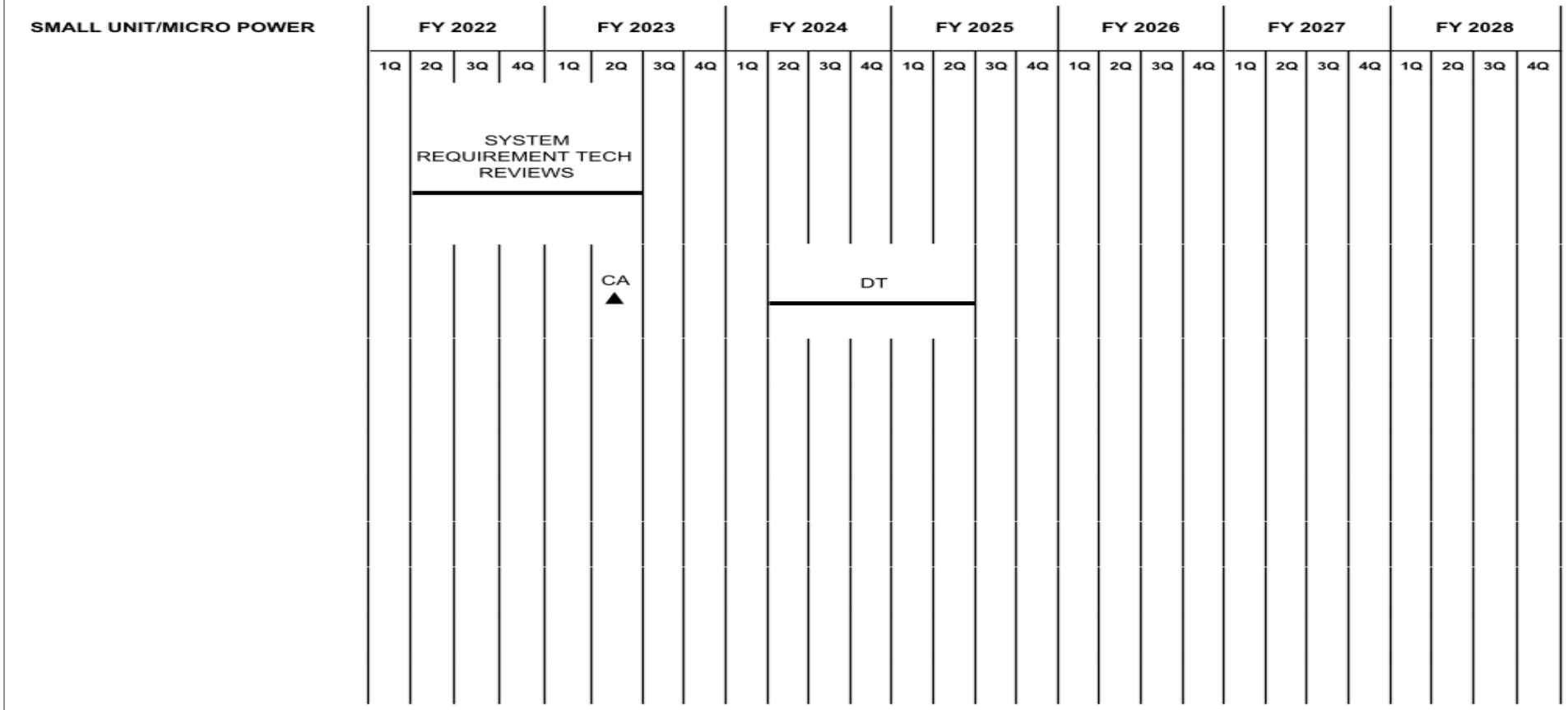
2024DON - 0206624M - 2510

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206624M / *Marine Corps Cmbt Servic es Supt*	**Project (Number/Name)** 2510 / *MAGTF CSSE & SE*



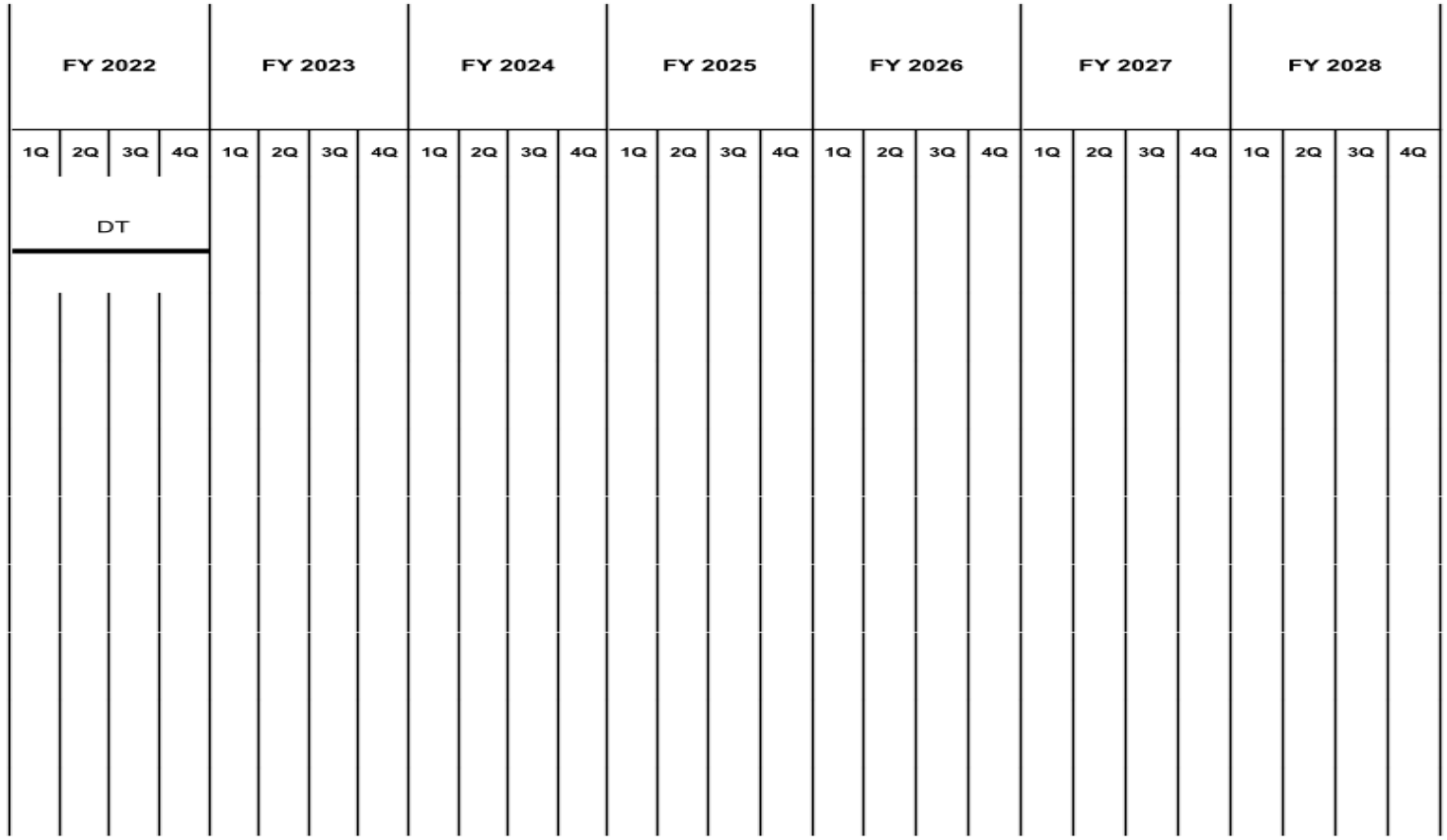
2024DON - 0206624M - 2510

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206624M / *Marine Corps Cmbt Services Supt*	**Project (Number/Name)** 2510 / *MAGTF CSSE & SE*



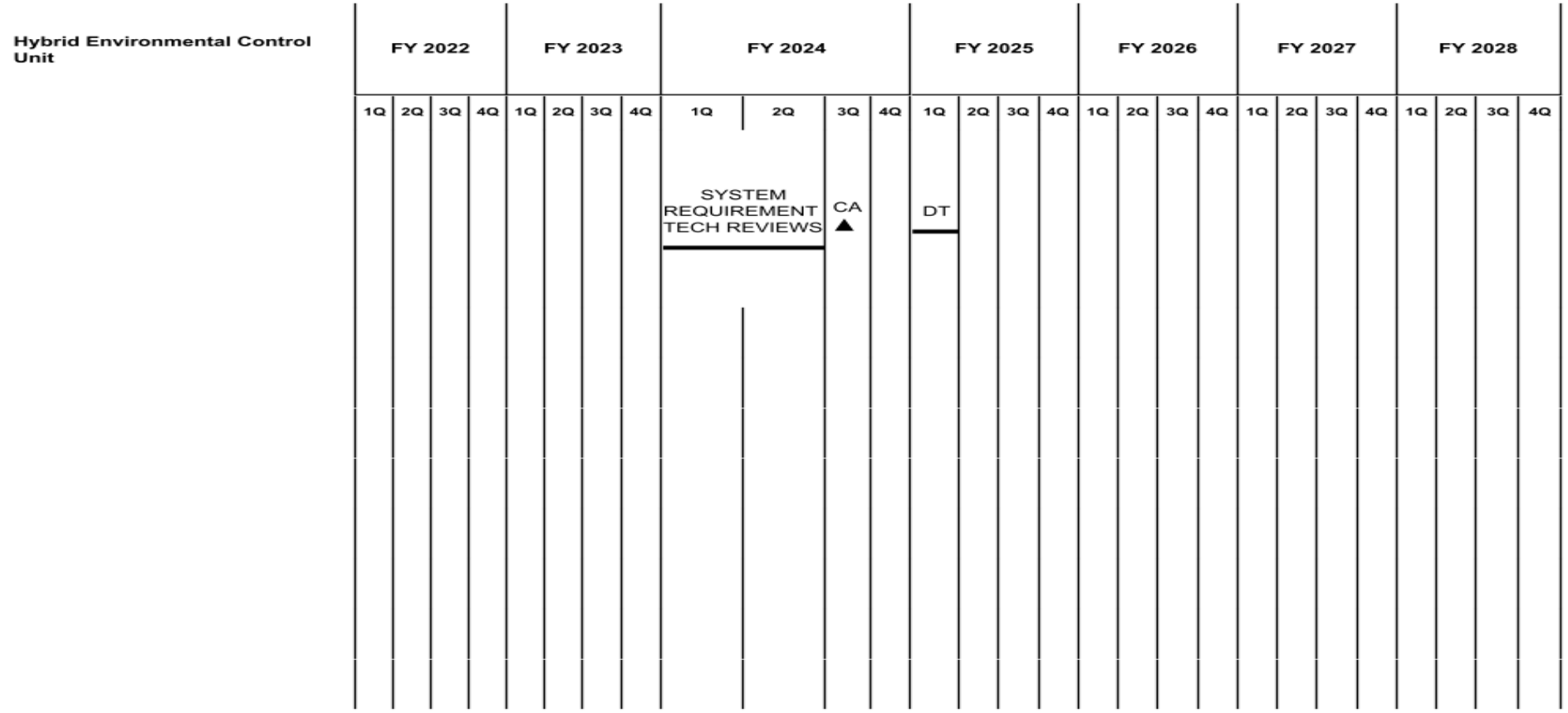
2024DON - 0206624M - 2510

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206624M / *Marine Corps Cmbt Services Supt*	**Project (Number/Name)** 2510 / *MAGTF CSSE & SE*



2024DON - 0206624M - 2510

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206624M / *Marine Corps Cmbt Servic es Supt*	**Project (Number/Name)** 2510 / *MAGTF CSSE & SE*



2024DON - 0206624M - 2510

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206624M / *Marine Corps Cmbt Servic es Supt*	**Project (Number/Name)** 2510 / *MAGTF CSSE & SE*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
SFRS				
TEST & EVALUATION - PHASE II	4	2022	4	2023
MS C	2	2024	2	2024
IPMS ESU				
TECHNICAL REVIEWS	2	2022	2	2023
CONTRACT AWARD (PROTOTYPE)	3	2023	3	2023
DEVELOPMENT TESTING	3	2024	3	2025
SMALL UNIT/MICRO POWER				
TECHNICAL REVIEWS	2	2022	2	2023
CONTRACT AWARD	2	2023	2	2023
DEVELOPMENT TESTING	2	2024	2	2025
Marine Portable Wind Energy System (MPWES)				
DEVELOPMENTAL TESTING	1	2022	4	2022
Hybrid Environmental Control Unit				
TECHNICAL REVIEWS	1	2024	2	2024
CONTRACT AWARD	3	2024	3	2024
DEVELOPMENTAL TESTING	1	2025	1	2025

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0206624M / *Marine Corps Cmbt Servic es Supt*				Project (Number/Name) 2929 / *Testing Measuring Diag Equip & SE*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
2929: *Testing Measuring Diag Equip & SE*	13.321	0.641	0.684	0.706	-	0.706	0.714	0.728	0.740	0.754	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Family of Automatic Test Systems (ATS) provides organic test capabilities for use by Marine Corps maintainers in garrison and deployed environments to support activities aligned to condition/predictive based maintenance, equipment diagnostics, and fault isolation on multiple platforms such as radio test sets that will be employed in the Expeditionary Advanced Base Operations (EABO) and littoral operational environment. ATS funding strategy supports Force Design 2030 initiatives and EABO by providing automatic test capabilities to the lowest level possible in order diagnose/repair as forward as possible.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Automatic Test Systems (ATS)	0.641	0.684	0.706	0.000	0.706
Articles:	-	-	-	-	-
FY 2023 Plans: -Initiate development of self test scripts for Hand-Held Radio Test Sets (HHRTS). The HHRTS supports organic testing of software defined crypto-compliment ground radio platforms. -Initiate artificial intelligence various Automatic Test Equipment (ATE). Artificial Intelligence will eliminate user interaction for running user test scripts, reducing manpower requirements.					
FY 2024 Base Plans: -Continue developmental through phase-approach and testing efforts associated with the General Purpose Automatic Test System Electro Optic Controller. This capability provides Marine Corps maintainers the ability to execute fault diagnostics and test a multitude of ground platforms that contain optics or fiber optic capabilities. -Continue development of self-test scripts for Hand-Held Radio Test Sets (HHRTS). The HHRTS supports organic testing of software defined crypto-compliment ground radio platforms. -Continue artificial intelligence various Automatic Test Equipment (ATE). Artificial Intelligence will eliminate user interaction for running user test scripts, reducing manpower requirements.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206624M / *Marine Corps Cmbt Servic es Supt*	**Project (Number/Name)** 2929 / *Testing Measuring Diag Equip & SE*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
The increase from FY 2023 to FY 2024 supports the continuation of artificial intelligence for various Automatic Test Equipment (ATE).					
Accomplishments/Planned Programs Subtotals	0.641	0.684	0.706	0.000	0.706

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• PMC/4181: *Automatic Test Systems (ATS)*	1.895	12.030	10.537	-	10.537	10.675	11.987	6.423	6.551	0.000	143.687

Remarks

D. Acquisition Strategy

Automatic Test Systems (ATS) acquisition is being done through U.S. Army Armament Research, Development & Engineering Center (ARDEC), Picatinny, NJ both in-house and contracts; In-house at Marine Corps Logistics Command (MCLC), Albany, GA; In-house at Naval Surface Warfare Center, Crane, and through Marine Corps Systems Command contracts.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206624M / *Marine Corps Cmbt Servic es Supt*	**Project (Number/Name)** 2929 / *Testing Measuring Diag Equip & SE*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
OT&E ATS Tech Eval & HW Digital Test	WR	MCLC Albany : Albany, GA	3.350	0.641	Feb 2022	0.684	Feb 2023	0.706	Feb 2024	-		0.706	Continuing	Continuing	Continuing
Prior Years Cumulative Funding	Various	Various : Various	5.993	0.000		0.000		0.000		-		0.000	0.000	5.993	-
		Subtotal	9.343	0.641		0.684		0.706		-		0.706	Continuing	Continuing	N/A

Remarks

The increase from FY 2023 to FY 2024 supports the continuation of artificial intelligence for various Automatic Test Equipment (ATE).

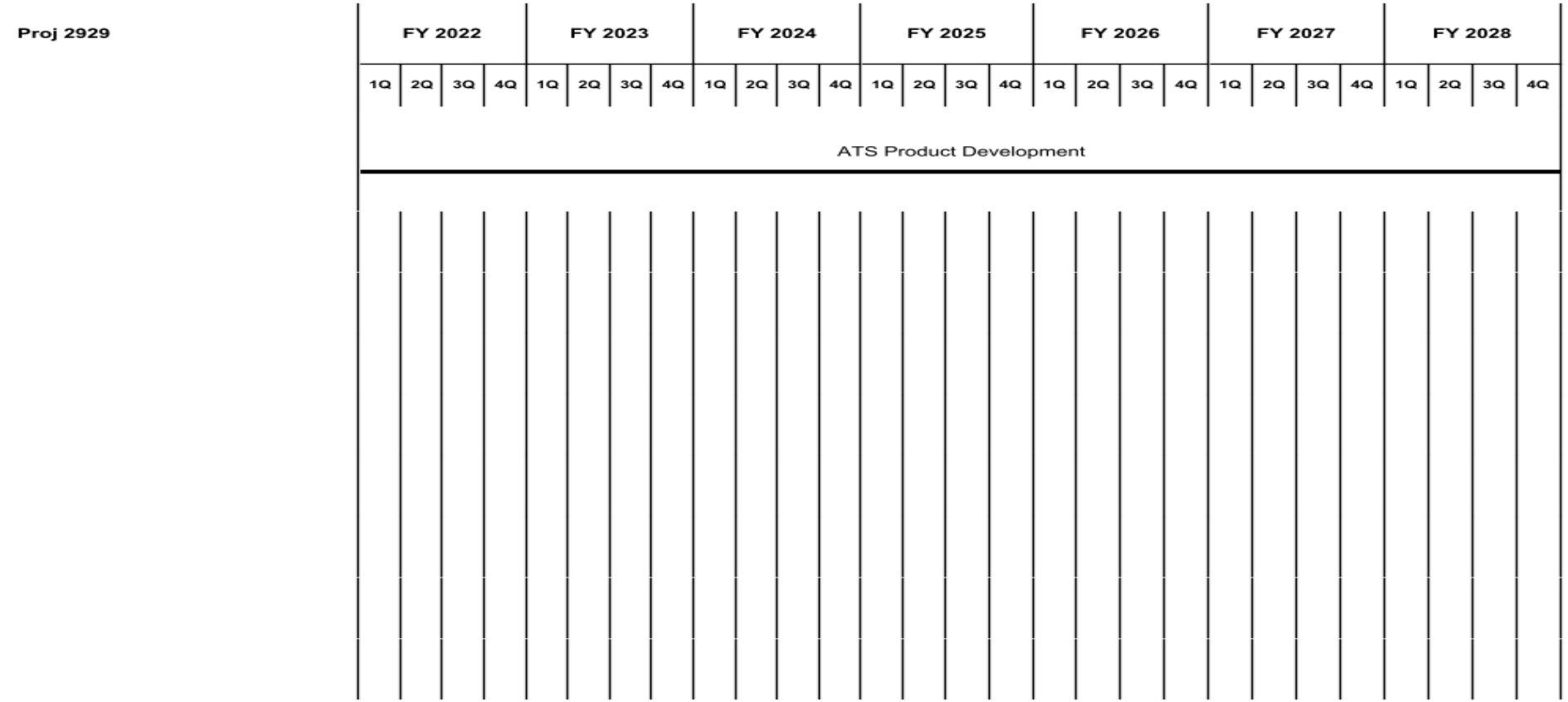
Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Years Cumulative Funding	Various	Various : Various	3.978	0.000		0.000		0.000		-		0.000	0.000	3.978	-
		Subtotal	3.978	0.000		0.000		0.000		-		0.000	0.000	3.978	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	13.321	0.641		0.684		0.706		-		0.706	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206624M / *Marine Corps Cmbt Servic es Supt*	**Project (Number/Name)** 2929 / *Testing Measuring Diag Equip & SE*



2024DON - 0206624M - 2929

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206624M / *Marine Corps Cmbt Servic es Supt*	**Project (Number/Name)** 2929 / *Testing Measuring Diag Equip & SE*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2929				
ATS Product Development	1	2022	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206624M / *Marine Corps Cmbt Servic es Supt*	Project (Number/Name) 9999 / *Congressional Adds*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
9999: *Congressional Adds*	0.000	7.723	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	7.723
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Field-based airborne power generation systems efforts will focus on achieving the Marine Corps goal of lightening the Marine Air-Ground Task Force (MAGTF) through reduced logistical fuel resupply needs. These are Small Business Innovation Research (SBIR) efforts to capture energy at high altitudes utilizing wind energy through unmanned aerial vehicle (UAV) and airborne assets.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023
Congressional Add: Field-based airborne power generation systems	7.723	0.000
FY 2022 Accomplishments: Field-based airborne power generation system technologies - Continue development of Field-based airborne power generation system technologies		
FY 2023 Plans: N/A		
Congressional Adds Subtotals	7.723	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Field-based airborne power generation systems efforts are Small Business Innovation Research (SBIR) efforts and acquisition strategies do not apply to SBIRs.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206624M / *Marine Corps Cmbt Servic es Supt*	**Project (Number/Name)** 9999 / *Congressional Adds*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Field-based airborne power generation systems	TBD	TBD : TBD	0.000	7.723	Sep 2023	0.000		0.000		-		0.000	0.000	7.723	-
		Subtotal	0.000	7.723		0.000		0.000		-		0.000	0.000	7.723	N/A

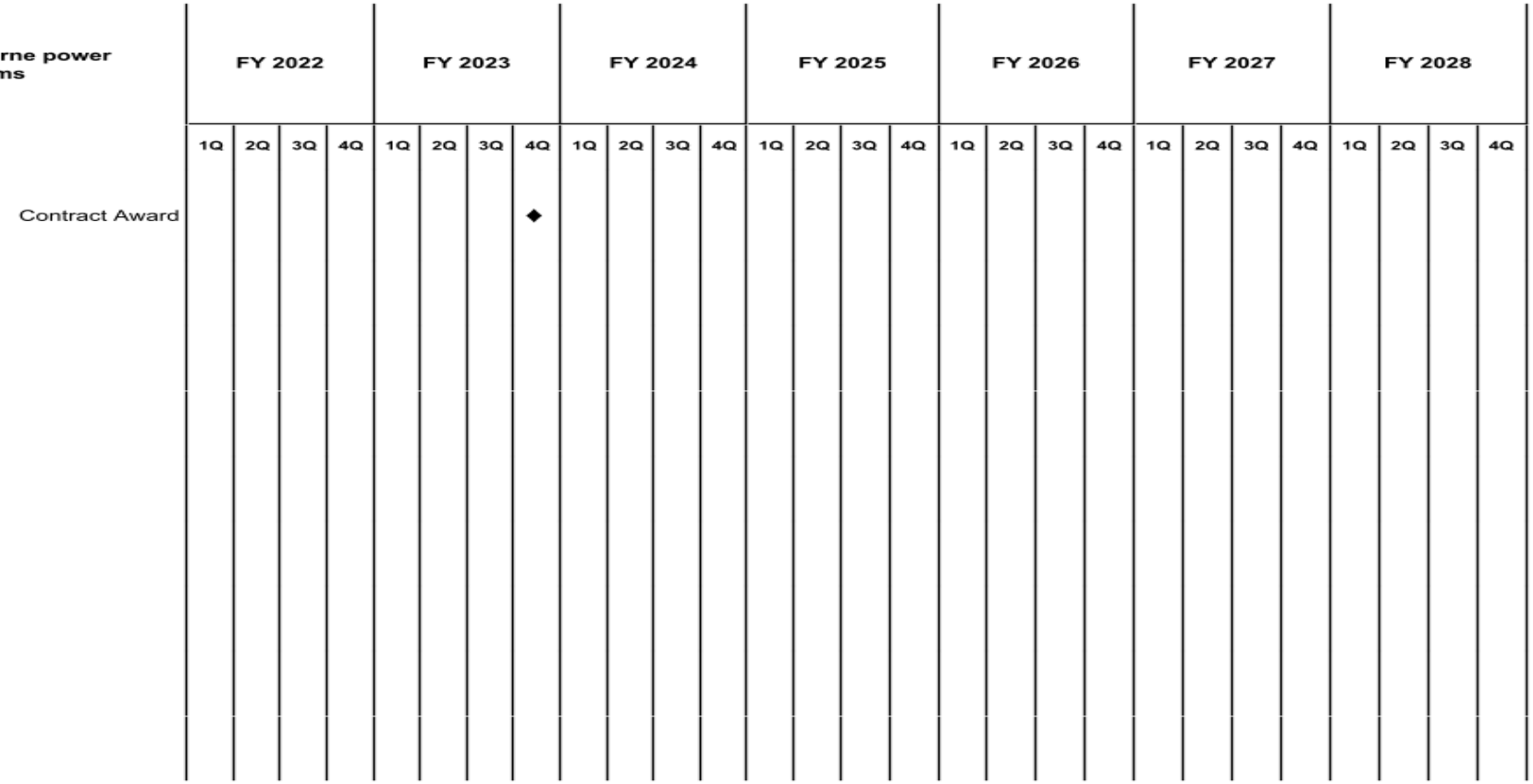
Remarks

Decrease of $7.723M from FY 2022 to FY 2023 is due to the FY 2022 only congressional add for Field-based airborne power generation system technologies.

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	7.723		0.000		0.000		-		0.000	0.000	7.723	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206624M / *Marine Corps Cmbt Services Supt*	**Project (Number/Name)** 9999 / *Congressional Adds*



2024DON - 0206624M - 9999

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206624M / *Marine Corps Cmbt Servic es Supt*	**Project (Number/Name)** 9999 / *Congressional Adds*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Field-based airborne power generation systems				
Contract Award: Contract Award	4	2023	4	2023

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0206625M *I USMC Intelligence/Electronics Warfare Sys*

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	225.905	38.089	51.976	47.762	-	47.762	53.993	46.040	40.862	36.705	Continuing	Continuing
2272: *Intel Command and Control (C2) Sys*	206.357	31.460	44.891	25.810	-	25.810	30.860	25.437	24.356	24.845	Continuing	Continuing
3771: *Tactical Exploitation of National Capabilities (TENCAP)*	19.548	6.629	7.085	21.952	-	21.952	23.133	20.603	16.506	11.860	Continuing	Continuing

A. Mission Description and Budget Item Justification

This Program Element (PE) for Intelligence Command and Control (C2) includes Military Intelligence Program (MIP) funds for Marine Corps Intelligence capabilities necessary to support the employment of intelligence, reconnaissance, surveillance (ISR), and target acquisition resources integral to delivering decision advantage at the speed of operational relevance. Marine Corps intelligence capabilities are divided into three functional areas organized along intelligence processes: Sensing (persistent ISR), Analysis (Distributed Common Ground/Surface System Marine Corps), and Dissemination (intelligence dissemination and utilization). This PE funds the Sensing and Dissemination portfolios while the Analysis portfolio is budgeted under DCGS-MC PE 0305208M.

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	37.695	51.976	45.501	-	45.501
Current President's Budget	38.089	51.976	47.762	-	47.762
Total Adjustments	0.394	0.000	2.261	-	2.261
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.394	0.000			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	0.000	0.000	-12.380	-	-12.380
• Rate/Misc Adjustments	0.000	0.000	14.641	-	14.641

Change Summary Explanation

The FY 2023 to FY 2024 decrease of $4.214M is primarily attributed to the following:
- Mobile All-Domain Observation and Sensing System (MA-DOSS) being transitioned to PE 0206313M, Project 2270 beginning FY 2024.
- Integrated Broadcast Radio end of USMC funding for ENTR V4 modernization and crypto update product development efforts. Test efforts have been moved to IBR Test and Evaluation line item to support follow on test efforts.
-Communication Emitter Sensing and Attacking System (CESAS) completion of Enhanced Electronic Warfare (EW) development.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206625M / *USMC Intelligence/Electronics Warfare Sys*	Project (Number/Name) 2272 / *Intel Command and Control (C2) Sys*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2272: *Intel Command and Control (C2) Sys*	206.357	31.460	44.891	25.810	-	25.810	30.860	25.437	24.356	24.845	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

INTELLIGENCE COMMAND AND CONTROL (C2): includes Military Intelligence Program (MIP) funds for Marine Corps Intelligence capabilities necessary to support the employment of intelligence, reconnaissance, surveillance (ISR), and target acquisition resources integral to delivering decision advantage at the speed of operational relevance outlined in the 2022 National Defense Strategy and integral to Force Design 2030. This equipment will be employed inside the weapons engagement zone (WEZ) and will support the warfighter in populating the kill-web and shortening the kill-chain process. This capability involves sensing the operational environment through a variety of systems, from satellites overhead to reconnaissance Marines on the ground, and providing that information to Marine Corps Intelligence Commanders, Joint Intelligence Centers, and to Five Eyes (FVEY) partners for use in operational planning.

COMMUNICATION EMITTER SENSING and ATTACKING SYSTEM (CESAS). This is a high-power ground electronic attack (EA) system which disrupts, denies, and degrades enemy communications in support of reconnaissance/counter-reconnaissance (RXR) and infantry maneuver. CESAS supports Maritime Domain Awareness (MDA) by contributing sensor data to joint Electromagnetic Battle Management (EMBM) systems to provide decision advantage to commanders. CESAS is employed by trained operators from the Marine Radio Battalions and Marine Forces Special Operations Command (MARFORSOC) to sense and make sense of the electromagnetic spectrum and provide non-kinetic fires tailored to support infantry and maneuver elements. CESAS provides sensing and attacking in the high frequency (HF), very high frequency (VHF), and ultra-high frequency (UHF) ranges against enemy emitters with modern modulation schemes. An increase to the CESAS II FoS Authorized Acquisition Objective (AAO) in support of Force Design 2030 initiatives equips SIEW Teams to the infantry battalion, Radio Reconnaissance Teams (RRTs), Light Armored Vehicle - Electronic Warfare (LAV-EW), MARFORSOC operators, and the Supporting Establishment with modern electronic warfare (EW) systems capable of countering peer threat emitters. CESAS II FoS uses an incremental acquisition strategy, incorporating the Enhanced EW phased approach to integrating new capabilities to maintain pace with adversaries. CESAS includes the Advanced Electronic Warfare Digital Payload (AEWDP) system, which is the entry point for ground electronic attack in the Command, Control, Computers, Communications, Cyber, Intelligence, Surveillance, and Reconnaissance/Electronic Warfare (C5ISR/ EW) Modular Open Suite of Standards (CMOSS) architecture for Sensor Open Systems Architecture (SOSA) compliant operations. AEWDP provides the MAGTF an EW system able to exploit and disrupt enemy command and control (C2), and intelligence surveillance reconnaissance (ISR) using nontraditional attack vectors. Spectrum Services Framework (SSF) enabling the Electromagnetic Operations Cell to perform its mission by providing a critical open backend framework for rapid development of software services and applications across real-time and historical Electromagnetic Spectrum (EMS) data to support mission planning and execution of Electromagnetic Spectrum Operations (EMSO) and Cyberspace Operations across the FMF's Operational Environment utilizing Joint All Domain Command and Control (JADC2) information exchanges. The Constructive Electromagnetic Operating Environment System (CEMOES) provides an organic, unit- employable capability that creates a realistic operational frequency environment for multiple occupational fields to perform full electromagnetic spectrum home station training.

INTEGRATED BROADCAST RADIO (IBR). IBR is a family of tactical terminals that provide direct, over-the-air access to the Integrated Broadcast Service (IBS) and receive and process near-real time (NRT) multi-intelligence data from strategic, theater, and tactical sensors to include: signals intelligence information, target

tracks, Theater Ballistic Missile Defense indications and warnings, and other situational awareness data. IBR supports Expeditionary Advanced Base Operations and Distributed Operations concepts by providing battlespace awareness to commanders at the tactical level via resilient communications pathways designed for disadvantaged or denied users, including intelligence and operations personnel, Marine Corps Infantry, long-range fires weapon systems, and aviation platforms. Marine Corps IBR terminals are employed at all echelons with the MAGTF. Marine Corps IBR tactical terminals conform to the Department of Defense (DoD) objectives of interoperability and commonality to receive and process multi-intelligence data. Able to operate in a receive-only mode for critical emissions control, IBR tactical terminals provide the Marine Corps with low-signature and affordable capabilities that enhance joint and international interoperability, increase maritime domain awareness, and enable a range of operations in the fast paced, widely dispersed, peer-threat operating environment. The U.S. Air Force is the executive agent (EA) for IBS, directing a multiservice and international Architecture designed to keep pace with commanders' targeting and information requirements identified in the Joint Requirements Oversight Counsel (JROC) approved IBS Enterprise Information Systems - Capability Development Document (IS-CDD). Current IBR tactical terminals include the Embedded National Tactical Receiver (ENTR) version 2 (V2) and the ENTR version 4 (V4), which provide connectivity to the IBS Common Interactive Broadcast and IBS Alternative Path via UHF satellite communications (SATCOM) channels. Future plans include Executive Agent mandated modernization requirements, including new standards for Primary, Alternate, Contingency, Emergency (PACE) Plan and joint validation of authorized transmit terminals, enabling USMC organic sensor data to feed the IBS Enterprise.

TACTICAL SIGNALS INTELLIGENCE (SIGINT) COLLECTION SYSTEM (TSCS): TSCS is the primary program of record for the USMC SIGINT/EW community to provide maritime and all domain awareness to the Stand in Force and Joint Force. TSCS provides modular, lightweight, and team portable/body worn systems and components that provide signals intercept, collection, direction-finding (DF) precision geo-location, reporting, and collection management capability in the Marine Air-Ground Task Force (MAGTF). TSCS is employed by trained operators from the Marine Radio Battalions and Marine Forces Special Operations Command (MARFORSOC) to sense and make sense of the electromagnetic spectrum. TSCS contributes to the MAGTF's Intelligence, Surveillance, and Reconnaissance (ISR) capability, enables Electronic Warfare (EW), and lethal strike capabilities; and provides the disruptive and less-lethal capabilities appropriate for countering malign activity by actors pursuing maritime "gray zone" strategies. These capabilities enable Expeditionary Advanced Base Operations (EABO) by supporting operations to both locate and target advanced adversary communications technology. The TSCS Family of Systems (FoS) incorporates the Radio Reconnaissance Equipment Program (RREP) and Team Portable Collection Systems - Multi-Platform Capable (TPCS-MPC) programs into a single program, providing a modular and scalable suite of equipment that exploits information from more technically advanced target sets. Platform Integration Kits (PIK) allow Marines to utilize equipment from the TSCS FoS, on USMC tactical vehicles and the MV-22 to provide Precision Geolocation (PGL) capability which enables Marines to locate specific signal emitters with much higher levels of accuracy and enables precision targeting. TSCS includes the Advanced Signals Processor (ASP) system, which is the entry point for TSCS in the Command, Control, Computers, Communications, Cyber, Intelligence, Surveillance, and Reconnaissance/Electronic Warfare (C5ISR/EW) Modular Open Suite of Standards (CMOSS) architecture for Sensor Open Systems Architecture (SOSA) compliant operations. The TSCS FoS has an incremental acquisition strategy, providing technical refresh for legacy TPCS-MPC and RREP systems as the systems become obsolete and/or require technology insertions to maintain pace with our adversaries. The prioritization of capabilities included in each increment is based on obsolescence and required capability upgrades against advanced target sets. Fluctuations within the funding profile are due to the refresh of different components each year.

MARINE CORPS SENSITIVE COMPARTMENTED INFORMATION NETWORK (SCINet) is the Top Secret/Sensitive Compartmented Information (TS/SCI) portion of the Defense Information System Network and Intelligence Community (IC) Information Technology (IT) Enterprises. SCINet uses advanced networking technologies and associated end user devices that permit point-to-point or multi-point information exchange involving voice, text, graphics, data, and video teleconferencing using

various transport technologies. The program enables Marine Corps intelligence to access national intelligence data, services and assets in support of current and future operations in both garrison and tactical environments (ashore and afloat). The end user equipment consists of garrison desktop, tactical laptops, garrison room-based, desktop and expeditionary video teleconference (VTC) equipment, COMSEC encryption devices for garrison sites, routing/switching premise and back-end garrison connections, local and expeditionary servers, cyber security tools, baseline user workstation software and 24/7 Enterprise operations support. SCINet also provides an SCI platform for data exchange of timely, current, and actionable intelligence from other services and agencies in support of Intelligence, Surveillance, Reconnaissance, and Targeting as well as maneuver and fires capabilities at all echelons. Connectivity through both SCINet and NSANet significantly enhance the detail, timeliness, and quality of intelligence support that intelligence organizations provide to Marine operating forces.

SENSITIVE COMPARTMENTED INFORMATION (SCI) COMMUNICATIONS (SCI Comms) is an Ultra-High Frequency, multi-band satellite communications Family of Systems (FoS), that provides a tactical communications capability at the Top Secret (TS)/SCI level to USMC units in support of Intelligence Operations. The SCI COMMS FoS is the only deployable communications system that is dedicated for TS/SCI data, video and voice communications that can receive and transmit bulk data and imagery products to and from national and tactical intelligence sources. It supports Intelligence Operations by enabling a resilient, federated system of networks to ensure all elements can fight in a degraded command and control environment. The FoS consists of palletized, team level, and man-packable systems - High Bandwidth Special Intelligence-Palletized Terminal (HBSI-PT), Sensitive Compartmented Intelligence Kit (SCIK), and SCI Comms Mobility Pack (SCI Comms MP) - which provide USMC tactical commanders with high-capacity, near-real-time access to intelligence from national agencies, joint intelligence centers, coalition service activities, intelligence producers, and other tactical units via connectivity to Sensitive Compartmented Information Network (SCI NET), National Security Agency (NSA) Network, and Top Secret coalition networks. SCI Comms is employed at multiple levels, to include at the Infantry Battalions for SI/EW operations, as an expeditionary fly-away capability for crisis response and humanitarian and disaster relief, and in support of MAGTF intelligence support to MSE, MEF and MARFOR commanders. SCI Comms coordinates with other Marine Corps C4ISR programs of record to leverage existing capabilities in support of SCI Communications requirements in accordance with NSA and DIA directives.

TERRESTRIAL COLLECTION provides a tactical sensor Family of Systems (FoS) to enable near-real time persistent intelligence, surveillance, and reconnaissance to the Marine Corps and Joint Community. Marine Corps Expeditionary Advanced Base Operations provide Stand-In-Forces placement and access inside an enemy's weapon engagement zone for the emplacement of a network of collection systems that enhance the situational awareness of naval and joint forces operating in the littorals and the wider maritime domain. The Terrestrial Collection System (TCS) FoS equips Reconnaissance Battalions, Marine Littoral Regiments (MLRs), and Littoral Combat Teams (LCTs) with a network of unattended ground and maritime sensors to enhance Ground and Maritime Domain Awareness and support Recon/Counter-Recon operations. Ground sensors include land-based electro optical/infrared (EO/IR), acoustic, magnetic, and seismic sensors for the detection and identification of ground-based targets. Maritime sensors include both land and sea-based sensors. Land-based maritime sensors encompass surface search radar and passive detection of AIS signals for the detection and identification of maritime targets. Sea based maritime sensors are unattended/autonomous surface platform capable of acoustic, EO/IR, and oceanographic/meteorological sensing to detect and identify maritime targets and increase deep maritime domain awareness beyond the range of shore-based sensors. TCS sensors identify location, disposition, movement, and direction of enemy activity using all-weather multi-modal sensor systems to provide indications and warning of enemy activity for dissemination through Joint All Domain Command and Control (JADC2) using DCGS-MC and the Minotaur Ecosystem for ingestion into a Joint Common Intelligence/Operating Picture. In FY 2023 funds related to GBOSS capability were realigned to Mobile All-Domain Observation and Sensing Systems (MA-DOSS).

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MOBILE ALL-DOMAIN OBSERVATION AND SENSING SYSTEM (MA-DOSS) FoS provides persistent, all-domain sensing and surveillance support, tactical early warning, multi-domain intrusion-detection, and forward edge processing/computing of an AI/ML based computer vision capability to the FMF, at the Marine Littoral Regiment (MLR), down to any sized Marine element, in order to support the Naval Expeditionary Force (NEF) in the conduct of Sea Denial and Sea Control operations, and to enable force protection for Expeditionary Advanced Bases (EABs), forward fixed sites, and installations. By providing mobile, expeditionary, amphibious, modular, multi-spectral, and persistent surveillance systems based on sensor agnostic unmanned platforms, the MA-DOSS FoS will provide the ability to observe, collect, detect, classify, identify, track, record, and report on contacts, objects of interest, and assess threats twenty-four hours a day utilizing a fused sensor data display while reducing manpower requirements and the cognitive workload on operators and analysts. MA-DOSS will employ advanced Human Machine Teaming (HMT) and leverage the force-multiplying capabilities of Artificial Intelligence/Machine Learning (AI/ML) to execute tasks that normally require human intelligence/interface. Additionally, increased mobility will be achieved with autonomous robotic platforms, thereby enhancing survivability of the primary system and stand-in forces operating inside adversary Weapon Engagement Zones (WEZ). Beginning FY 2024, MA-DOSS transitions to PE: 0206313M Marine Corps Comms Systems Proj: 2270 Exp Indirect Fire Gen Supt Wpn Sys.

COUNTER INTELLIGENCE AND HUMAN INTELLIGENCE(CI/HUMINT) Equipment Program (CIHEP) provides the Marine Corps Intelligence, Surveillance, and Reconnaissance Enterprise (MCISRE) with an integrated, standardized, and interoperable suite of collection, information, and communication systems. All reported information is disseminated to the greater Intelligence Community (IC) and Joint Force for follow-on analysis and to inform commanders' decision making. The CIHEP program provides CI/HUMINT specialized equipment that is lightweight, modular, and tailorable to conduct full spectrum tactical CI/HUMINT activities, to include technical CIHEP operations, while carrying only those items necessary to accomplish the mission. This allows CI/HUMINT Marines to collect, process, and report from austere or non-permissive environments anywhere in the world without reliance on Marine Corps communications architecture. CI/HUMINT elements are task-organized to rapidly collect, process, and disseminate counterintelligence and human intelligence information in support of joint military planning and operations. CI/HUMINT Marines have unique placement and access by virtue of the Marine Corps' expeditionary nature, enabling the collection, processing, and dissemination of human derived information not accessible by other collection assets, and allows for the satisfying of both service and Joint Intelligence Requirements. The CIHEP Technical Surveillance and Countermeasures (TSCM) capability is designed to detect, locate, identify, neutralize and exploit a wide variety of adversarial penetration surveillance technologies or vulnerabilities that are used to obtain unauthorized access to classified and sensitive information and counters technical threats to SCIF spaces, sensitive technology, facilities, and vehicles. TSCM consists of electronic equipment, computer/software tools, signal acquisition/waveform, and audio/visual evidence collection assets and allows TSCM practitioners to support both service and Joint missions. Marine Corps TSCM equipment is purchased from a Director, National Security Agency/Chief, Central Security Service (DIRNSA/CHCSS) approved equipment list to maintain pace with current and emerging threat technology.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: *Communication Emitter Sensing and Attacking System (CESAS): Product Development	12.413	6.468	5.126	0.000	5.126
Articles:	-	-	-	-	-
FY 2023 Plans: - Complete development of CESAS Family of Systems (FoS) Enhanced Electronic Warfare (EW) for platform integration kits for the HMMWV and LAV-EW, enhanced software baselines, and upgraded antennas to enhance					

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
techniques and frequency range of Core Systems and Back-Packable Kits; hardware/software modifications will be implemented via Engineering Change Proposals (ECPs). - Continue development of CESAS Family of Systems (FoS) Enhanced Electronic Warfare (EW) for platform integration kits for the JTLV and NTV, enhanced software baselines, and additional antennas to enhance techniques and frequency range; hardware/software modifications will be implemented via Engineering Change Proposals (ECPs). - Continue development of Advanced Electronic Warfare Digital Payload (AEWDP) scalable effort to provide a modular system capable of integration into USMC vehicles. - Continue development of Constructive Electromagnetic Operational Environment System (CEMOES) to generate a contested Electromagnetic Spectrum (EMS) environment to provide the Operating Forces (OPFOR) the ability to conduct realistic spectrum training. ***FY 2024 Base Plans:*** - Complete development of CESAS Family of Systems (FoS) Enhanced Electronic Warfare (EW) for platform integration kits for the JTLV and NTV, enhanced software baselines, and additional antennas to enhance techniques and frequency range; hardware/software modifications will be implemented via Engineering Change Proposals (ECPs). - Continue development of CESAS II Inc II program software baseline; software modifications for high speed threat analysis and plugins for the RaptorX user interface will be implemented via Engineering Change Proposals (ECPs). - Initiate development of Advanced Electronic Warfare Digital Payload (AEWDP) mission payloads, processor cards, and antennas scalable effort to provide a modular system capable of integration into USMC vehicles. - Continue development of Constructive Electromagnetic Operational Environment System (CEMOES) to generate a contested Electromagnetic Spectrum (EMS) environment to provide the Operating Forces (OPFOR) the ability to conduct realistic spectrum training. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease from FY 2023 to FY 2024 is due to the completion of the development of CESAS Family of Systems (FoS) Enhanced Electronic Warfare (EW) integration kits for the HMMWV and LAV-EW, and upgraded antennas to enhance techniques and frequency range of Core Systems and Back-Packable Kits					
Title: *Communication Emitter Sensing and Attacking System (CESAS): Test and Evaluation	0.500	0.710	0.341	0.000	0.341

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue building of System Engineering artifacts, system design, test plans and reports, and requirements analysis for the CESAS II FoS Increment II Enhanced Electronic Warfare(EW). - Conduct test and evaluation to include Hazards of Electromagnetic Radiation to Ordinance, Personnel, and Fuel (HERO/HERP/HERF), Antenna Pattern, Direction Finding (DF) Manifold Generation, Co- Site, Aberdeen PIK testing and Component Electromagnetic Interference (EMI) and Environmental Testing. - Initiate development testing of mission payloads, processor cards, and antennas, and CEMOES. ***FY 2024 Base Plans:*** - Complete building of System Engineering artifacts, system design, test plans and reports, and requirements analysis for the CESAS II FoS Increment II Enhanced Electronic Warfare(EW). - Continue test and evaluation to include Hazards of Electromagnetic Radiation to Ordinance, Personnel, and Fuel (HERO/ HERP/HERF), Antenna Pattern, Direction Finding (DF) Manifold Generation, Co- Site, Aberdeen PIK testing and Component Electromagnetic Interference (EMI) and Environmental Testing. - Continue developmental testing of mission payloads, processor cards, and antennas. - Continue developmental testing of CEMOES. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The decrease from FY 2023 to FY 2024 aligns with the decrease and completion of System Engineering artifacts, system design, test plans and reports, and requirements analysis for CESAS II FoS Increment II Enhanced Electronic Warfare (EW).					
Title: *Communication Emitter Sensing and Attacking System (CESAS): Support	0.075	7.633	5.326	0.000	5.326
Articles:	-	-	-	-	-
FY 2023 Plans: - Complete support for Spectrum Services Framework (SSF) software development efforts Graphic User Interface (GUI), integration tools, and visualization tools. - Continue to provide program support for Communications Emitter Sensing and Attacking System (CESAS) II Family of Systems (FoS). - Continue program support for AEWDP.					

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Continue program support for CEMOES. - Continue the migration support of the SSF into the Common Hosting Environment in order to reside on currently existing program of record hardware, thus reducing the logistical footprint of the units. - Initiate support for development of Spectrum Services Framework (SSF) sensor integration with Intrepid Tiger II (IT-II). - Initiate support for code development efforts of Spectrum Services Framework (SSF) in conjunction with cloud hybridization efforts. - Continue support of new services onto the SSF, allowing users to ingest critical spectrum information to increase Unit Commanders' situational awareness of the battlefield.					
FY 2024 Base Plans: - Continue to provide program support for Communications Emitter Sensing and Attacking System (CESAS) II Family of Systems (FoS). - Continue program support for AEWDP. - Continue the migration support of the SSF into the Common Hosting Environment in order to reside on currently existing program of record hardware, thus reducing the logistical footprint of the units. - Continue support of Spectrum Services Framework (SSF) initiatives towards Capability Drop (CD)2 & (CD) 3. - Continue program support for CEMOES. - Continue support of new services onto the SSF, allowing users to ingest critical spectrum information to increase Unit Commanders' situational awareness of the battlefield. - Continue support for sensor integration of Spectrum Services Framework (SSF) with Intrepid Tiger II (IT-II), MAGTF Electronic Warfare Ground Family of Systems (MEGFoS), Multi-Function Electronic Warfare (MFEW) system, and Communication Emitter Sensing and Attacking System (CESAS) Family of System (FoS). - Continue support for code development efforts of Spectrum Services Framework (SSF) in conjunction with cloud hybridization efforts. - Initiate support for the instantiation of SSF on hybrid cloud solution; specifically the DCGS-MC All Source Enterprise Hub. - Initiate support for SSF interfaces with MEGFoS IT II, CESAS II, TCAC, and GCCS-J.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement:					

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
The decrease from FY 2023 to FY 2024 due to reduced SSF level of effort associated with software development towards the Graphic User Interface (GUI), integration tools, and visualization tools.					
Title: *Integrated Broadcast Radio (IBR): Product Development ***Articles:***	4.586 -	3.200 -	0.000 -	0.000 -	0.000 -
FY 2023 Plans: - Complete ENTR system integration and test support, common integrated broadcast (CIB) upgrade and system optimization support, and CIB operational testing. - Continue research, testing, and development for system updates to ENTR Version 4 in order to maintain compatibility with modernization plans identified in the Integrated Broadcast Services (IBS) Enterprise Information Systems - Capability Development Document (IS-CDD) - Continue testing and integration efforts for resilient waveform and cryptographic technologies. ***FY 2024 Base Plans:*** N/A ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease from FY 2023 to FY 2024 reflects completion of ENTR V4 modernization and crypto update product development efforts. Test efforts have been moved to IBR Test and Evaluation (below) to support follow on test efforts.					
Title: *Integrated Broadcast Radio (IBR) Test and Evaluation ***Articles:***	0.000 -	0.000 -	0.510 -	0.000 -	0.510 -
FY 2023 Plans: N/A ***FY 2024 Base Plans:*** - Initiate test efforts for resilient waveform and cryptographic technologies. - Initiate testing on IBR Transmit prototype solution. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:***					

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Increase from FY 2023 to FY 2024 reflects IBR test efforts supporting cryptographic updates and participation in USAF led resilient wave form testing. Test and Evaluation efforts have been moved from IBR Product Development (above) IBR Test and Evaluation.					
Title: *Tactical Signal Intelligence (SIGINT) Collection System (TSCS): Product Development ***Articles:***	6.974 -	5.676 -	3.176 -	0.000 -	3.176 -
FY 2023 Plans: - Complete development and integration of Advanced Signal Processor (ASP) (Formerly advanced digital payload/electronic warfare technology) (Increment 4). - Continue development of required software capability to the TSCS baseline in order to counter emerging near peer asymmetric adversary threats. - Initiate development of Tethered Antenna to allow signals collection above triple canopy providing detection, identification, and location of adversary signals of interest. - Complete development of Precision Geolocation (PGL). The PGL capability allows Marines to locate specific signal emitters with more accuracy. The fielded PGL capability is outdated and incapable of operating against modern communications technology. - Complete development of the MV-22 Platform Integration Kit (PIK) to allow Marines to use TSCS equipment on the MV-22 Osprey to conduct Aerial Signal Research and Target Development (A-SRTD) operations to locate specific signal emitters. The current MV-22 PIK relies on outdated receiver technology and is incapable of operations against near-peer communications technology. ***FY 2024 Base Plans:*** - Continue development of required software capability to the TSCS baseline in order to counter emerging near peer asymmetric adversary threats. - Complete development of Tethered Antenna to allow signals collection above triple canopy providing detection, identification, and location of adversary signals of interest. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease from FY 2023 to FY 2024 reflects the completion of development efforts associated with the TSCS PGL and MV-22 PIK.					
Title: *Tactical Signal Intelligence (SIGINT) Collection System (TSCS): Test and Evaluation	1.850	1.557	1.750	0.000	1.750

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue testing of the TSCS software baseline updates. - Continue testing of the Advanced Signal Processor (ASP) (Formerly advanced digital payload/electronic warfare technology). - Initiate and complete testing of the Precision Geolocation (PGL) and MV-22 Platform Integration Kit (PIK) ***FY 2024 Base Plans:*** - Continue testing of the TSCS software baseline updates. - Continue and complete testing of Advanced Signal Processor (ASP) delayed due to prototype delivery delays resulting from supply chain issues. - Initiate testing of Tethered Antenna (drone and motorized generator) to include full integration testing with all TSCS Increment I, II, and III components. - Initiate testing of AI/ML software prototypes. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY 2023 to FY 2024 reflects the initiation of testing of Tethered Antennas and AI/ML prototypes.					
Title: *SCI COMMS: Product Development	0.714	0.730	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2023 Plans: - Complete development of the High Bandwidth Special Intelligence-Palletized Terminal (HBSI-PT) replacement. ***FY 2024 Base Plans:*** N/A ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease from FY 2023 to FY 2024 reflects the transition of the HBSI-PT replacement effort to developmental integration testing of the identified material solutions.					
Title: *SCI COMMS: Test and Evalution	0.394	0.000	0.444	0.000	0.444

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Articles:	-	-	-	-	-
FY 2023 Plans: N/A ***FY 2024 Base Plans:*** - Initiate integration testing of High Bandwidth Special Intelligence Palletized Terminal (HBSI-PT) Network and Radio Frequency Packages. - Initiate test and evaluation of new modification kits for SCI Comms Mobility Pack to include vehicle mounts, aircraft mounts, and LEO/MEO antennas, as well as upgrades to existing equipment in line with MCWS-X. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY 2023 to FY 2024 reflects the initial integration test of the HBSI-PT Network and Radio Frequency Packages as well as test and evaluation of new modification kits.					
Title: *SCI COMMS: Support	0.000	0.000	0.300	0.000	0.300
Articles:	-	-	-	-	-
FY 2023 Plans: N/A ***FY 2024 Base Plans:*** - Provides support for the integration of the HBSI-PT replacement system. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY 2023 to FY 2024 reflects initial support for the integration of the HBSI-PT replacement system.					
Title: *USMC Sensitive Compartmented Information (SCI) Network	0.000	0.000	5.800	0.000	5.800
Articles:	-	-	-	-	-
FY 2023 Plans: N/A. SCINET did not have any RDTE funding in FY23 ***FY 2024 Base Plans:***					

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Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206625M / *USMC Intelligence/Electronics Warfare Sys*	**Project (Number/Name)** 2272 / *Intel Command and Control (C2) Sys*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Initiate development of a tactical redesign integrating the use of Cloud for cloud to the edge ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The increase from FY 2023 to FY 2024 is due to approved initiative for SCINET DevSecOps Enclave					
Title: *Terrestrial Collection: Product Development ***Articles:***	3.604 -	1.269 -	1.319 -	0.000 -	1.319 -
FY 2023 Plans: - Continue engineering, integration, and technical support required for planned Terrestrial Collection modernization. - Continue product development and integration of Artificial Intelligence/Machine Learning hardware and software within Sensor Family of Systems which will provide object detection capabilities resulting in decreased time required to conduct Indications and Warnings (I&W). ***FY 2024 Base Plans:*** - Continue engineering, integration, and technical development required for Terrestrial Collection modernization including integration of ground based sensors with maritime sensors. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY 2023 to FY 2024 reflects integration with maritime sensors.					
Title: *Terrestrial Collection : Test and Evaluation ***Articles:***	0.000 -	0.000 -	0.700 -	0.000 -	0.700 -
FY 2023 Plans: N/A ***FY 2024 Base Plans:*** Initiate testing and evaluation of maritime sensors. ***FY 2024 OCO Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206625M / *USMC Intelligence/Electronics Warfare Sys*	**Project (Number/Name)** 2272 / *Intel Command and Control (C2) Sys*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY 2023 to FY 2024 reflects initiating maritime sensor testing and evaluation.					
Title: *Mobile All-Domain Observation and Sensing System (MA-DOSS) : Product Development	0.000	17.290	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2023 Plans: - Conduct product development and integration of GBOSS Artificial Intelligence/Machine Learning hardware and software within Sensor Family of Systems which will provide object detection capabilities resulting in decreased time required to conduct Indications and Warnings (I&W). - Initiate product development efforts in support of the Mobile All-Domain Observation and Sensing System (MA-DOSS) FoS The MA-DOSS Fos will provide the ability to observe, collect, detect, classify, identify, track, record, and report on contacts, objects of interest, and assess threats twenty-four hours a day utilizing a fused sensor data display while reducing manpower requirements and the cognitive workload on operators and analysts. ***FY 2024 Base Plans:*** Beginning FY 2024 MA-DOSS funding is realigned to PE 0206313M Marine Corps Communication Systems, Project 2270 Exp Indirect Fire Gen Support Weapon Systems. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** MA-DOSS was transitioned to PE: 0206313M Marine Corps Comms Systems Proj: 2270 Exp Indirect Fire Gen Supt Wpn Sys. Decrease from FY 2023 to FY 2024 reflects the continuation of efforts in FY 2024 under PE 0206313M Marine Corps Communication Systems, Project 2270 Exp Indirect Fire Gen Support Weapon Systems.					
Title: *Counterintel and Human Intel Equip (CIHEP): Test and Evaluation	0.350	0.358	1.018	0.000	1.018
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue to provide engineering, integration and technical support required for planned CIHEP modernization of the TSCM (Technical Surveillance Countermeasures) equipment and CIHEP Family of Systems (FOS). Acquiring test artifacts to integrate modernized proof of concept equipment for CIHEP next generation					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206625M / *USMC Intelligence/Electronics Warfare Sys*	**Project (Number/Name)** 2272 / *Intel Command and Control (C2) Sys*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Commercial Handheld Satellite Communications Set (CHSCS), verification testing, Expeditionary Office Module - Mobile (EOM-M). (CHSCS Smartphone as EOM-Mobile), and CIHEP FoS Validation testing using use cases and test scenarios. ***FY 2024 Base Plans:*** - Continue evaluation of End User Device (EUD) prototypes for CIHEP-MC program for surveillance. - Initiate test and evaluation of Cloud/Commercial Hosted server capabilities for CIHEP-MC surveillance assets. - Initiate Expeditionary Office Communications Module (EOCM) and Commercial Solutions for Classified (CSfC) engineering, integration and technical support required for capability testing for the CIHEP-MC. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY 2023 to FY 2024 reflects test and evaluation of Cloud and server capabilities.					
Accomplishments/Planned Programs Subtotals	31.460	44.891	25.810	0.000	25.810

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• PMC/4747/CESAS: *CESAS*	35.772	55.847	46.625	-	46.625	21.390	18.530	18.731	19.106	Continuing	Continuing
• PMC/4747/IBR: *IBR*	1.503	1.559	4.491	-	4.491	2.583	2.273	1.660	1.693	Continuing	Continuing
• PMC/4747/TSCS: *TSCS*	6.584	32.633	48.327	-	48.327	49.942	10.083	10.285	10.491	Continuing	Continuing
• PMC/4747/ SCICOMMS: *SCI COMMS*	0.249	12.729	24.557	-	24.557	17.525	25.250	18.232	18.597	Continuing	Continuing
• PMC/4747/TC: *TERRESTRIAL COLLECTION*	0.888	22.491	8.025	-	8.025	13.377	13.603	13.835	14.112	Continuing	Continuing
• PMC/4747/CIHEP: *CIHEP*	2.871	7.395	7.153	-	7.153	6.515	6.647	6.780	6.916	Continuing	Continuing
• PMC/4747/MADOSS: *Mobile All-Domain Observation and Sensing Systems*	0.000	1.270	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• PMC/4747/SCINET: *SCINET*	13.993	7.935	9.537	-	9.537	8.006	8.456	8.255	8.343	0.000	64.525

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206625M / *USMC Intelligence/Electronics Warfare Sys*	**Project (Number/Name)** 2272 / *Intel Command and Control (C2) Sys*

D. Acquisition Strategy

CESAS: CESAS II FoS production will consist of COTS and NDI integration into an existing GOTS architecture. Production efforts will be conducted at Naval laboratories. AEWDP production will consist of COTS and NDI integration into an existing GOTS architecture. Production efforts will be conducted by a designated Lead System Integrator. CEMOES production will consist of COTS and NDI integration into GOTS architecture. CEMOES production efforts will be conducted by a designated Lead System Integrator. CEMOES shall be fielded to each Marine Expeditionary Force (MEF) to provide tailorable, realistic, mission-oriented, electromagnetic operational environment to support training and rehearsal at home stations.

IBR: IBR will support requirements for access to the Integrated Broadcast Service (IBS) broadcast by satisfying joint requirements as directed by United States Air Force (USAF) as the IBS Executive agent (EA). IBR will procure the ENTR V4 as GOTS equipment via contracts approved through the ENTR Program Management Office (PMO). Sustainment will leverage contract logistics support and U.S. Air Force depot maintenance. IBR will procure the Universal Accessory Kit (UAK) as GOTS and COTS through the Lead System Integrator (LSI) Naval Surface Warfare Dahlgren Division Dam Neck Activity (NSWCDD-DNA). IBR will leverage engineering support from IBS-EA, ENTR PMO, and the LSI. IBR will employ software as directed by IBS-EA and developed at Naval laboratories. IBR will make maximum use of COTS, GOTS and NDI with Firm Fixed Price Production.

TSCS: The TSCS FoS has an incremental acquisition strategy, providing technical refresh for legacy TPCS-MPC and RREP systems as the systems become obsolete and/or require technology insertions to maintain pace with our adversaries. Software upgrades are developed at Naval laboratories and integrated into the system. TSCS makes maximum use of COTS, GOTS, and NDI with Firm Fixed Price Production through the Lead System Integrator (LSI).

MARINE CORPS SENSITIVE COMPARTMENTED INFORMATION NETWORK (SCINet) will leverage Marine Corps Systems Command contracting office and the Regional contracting office for contractor support to develop the new prototypes with delivery to the govt of selected prototypes with all documentation for building, fielding , engineering and architecture.

SCI COMMS: SCI COMMS leverages NIWC-LANT support as the Lead System Engineer (LSE), LSI, as well as for Program Management, Technical and Systems Engineering, Test and Evaluation, System Integration and Training, Cyber Security, and Life-cycle Logistics Support. SCI COMMS plans to use existing contracts within Marine Corps Systems Command, Defense Logistics Agency, and NIWC-Atlantic to procure hardware solutions.

Terrestrial Collection: Tech refresh for sustainability to ensure operational readiness of the assets, assumes required engineering and logistics refresh funded per additional capability initiative. Makes maximum use of COTS, GOTS and NDI with Firm Fixed Price Production.

Mobile All-Domain Observation and Sensing System (MA-DOSS): Starting in FY 2024, MA-DOSS is moving from PE 0206625M/Project 2272 to PE 0206313M/Project 2270.

CIHEP: CIHEP makes maximum use of COTS, GOTS and NDI with Firm Fixed Price Production.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206625M / *USMC Intelligence/Electronics Warfare Sys*	Project (Number/Name) 2272 / *Intel Command and Control (C2) Sys*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CESAS	WR	NIWC-LANT : CHARLESTON, SC	15.034	6.906	Dec 2021	2.670	Dec 2022	5.126	Dec 2023	-		5.126	Continuing	Continuing	Continuing
CESAS	C/FFP	MCSC : Quantico, VA	6.413	5.507	Apr 2022	3.798	Dec 2022	0.000		-		0.000	Continuing	Continuing	Continuing
IBR	MIPR	VARIOUS : VARIOUS	4.727	4.586	Mar 2022	3.200	Mar 2023	0.000		-		0.000	Continuing	Continuing	Continuing
SCI COMMS	WR	NIWC-Lant : Charleston, SC	0.000	0.714	Jan 2022	0.730	Jan 2023	0.000		-		0.000	Continuing	Continuing	Continuing
Terrestrial Collection	WR	NIWC-LANT : CHARLESTON, SC	4.081	1.604	Nov 2021	1.269	Nov 2022	1.319	Nov 2023	-		1.319	Continuing	Continuing	Continuing
Terrestrial Collection AI/ML	C/FFP	NIWC-LANT : CHARLESTON, SC	2.000	1.500	Mar 2022	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Terrestrial Collection AI/ML	WR	NSWC-CRANE : CRANE,IN	0.222	0.150	Mar 2022	0.000	Nov 2022	0.000		-		0.000	Continuing	Continuing	Continuing
Terrestrial Collection AI/ML	C/CPFF	NSWC-CRANE CTR : CRANE,IN	0.277	0.350	Mar 2022	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
MA-DOSS	WR	NSWC CRANE : CRANE,IN	0.000	0.000		3.000	Dec 2022	0.000		-		0.000	Continuing	Continuing	Continuing
MA-DOSS	C/CPFF	NSWC-CRANE : CRANE,IN	0.000	0.000		14.290	Mar 2023	0.000		-		0.000	Continuing	Continuing	Continuing
Prior Years Cumulative Funding	Various	Various : Various	96.458	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
SCINET	C/CPFF	MCSC : Quantico, VA	0.000	0.000		0.000		5.800	May 2024	-		5.800	0.000	5.800	-
TSCS	WR	NIWC-LANT : Charleston, SC	13.403	3.476	Jan 2022	4.483	Jan 2023	1.220	Dec 2023	-		1.220	0.000	22.582	-
TSCS	C/CPFF	NSMA : Charleston, SC	3.871	0.498	Jun 2022	1.193	Jun 2023	0.000		-		0.000	0.000	5.562	-
TSCS	C/CPFF	NIWC-LANT CTR : Charleston, SC	0.000	0.000		0.000		1.956	Dec 2023	-		1.956	0.000	1.956	-
TSCS	C/FFP	MCSC : Quantico, VA	7.294	3.000	Feb 2022	0.000		0.000		-		0.000	0.000	10.294	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206625M / *USMC Intelligence/Electronics Warfare Sys*	Project (Number/Name) 2272 / *Intel Command and Control (C2) Sys*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	153.780	28.291		34.633		15.421		-		15.421	Continuing	Continuing	N/A

Remarks

Decrease from FY 2023 to FY 2024 is primarily attributed to the following:
MA-DOSS was transitioned to PE: 0206313M Marine Corps Comms Systems Proj: 2270 Exp Indirect Fire Gen Supt Wpn Sys.
IBR completion of ENTR V4 modernization and crypto update product development efforts.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CESAS	WR	NIWC-LANT : Charleston, SC	0.125	0.075	Dec 2021	4.180	Dec 2022	2.884	Dec 2023	-		2.884	Continuing	Continuing	Continuing
CESAS	WR	PT MUGU : PT MUGU, CA	0.000	0.000		3.453	Jan 2023	2.442	Dec 2023	-		2.442	0.000	5.895	-
SCI COMMS	WR	NIWC-LANT : Charleston, SC	0.306	0.000		0.000		0.300	Dec 2023	-		0.300	Continuing	Continuing	Continuing
Prior Years Cumulative Funding	Various	Various : Various	15.066	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	15.497	0.075		7.633		5.626		-		5.626	Continuing	Continuing	N/A

Remarks

Increase from FY 2023 to FY 2024 is primarily attributed to the following:
SCI COMMS initial support for the integration of the HBSI-PT Replacement System.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	CESAS NIWC-LANT : CHARLESTON, SC	1.200	0.500	Dec 2021	0.710	Dec 2022	0.341	Dec 2023	-		0.341	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206625M / *USMC Intelligence/Electronics Warfare Sys*	Project (Number/Name) 2272 / *Intel Command and Control (C2) Sys*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	TSCS NIWC-LANT : CHARLESTON, SC	6.440	1.570	Jan 2022	1.257	Jan 2023	0.854	Dec 2023	-		0.854	Continuing	Continuing	Continuing
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	C/IDIQ	TSCS NSMA : BOLLING AFB	0.755	0.280	Mar 2022	0.300	Mar 2023	0.000		-		0.000	0.000	1.335	-
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	C/CPFF	TSCS MCSC : Quantico, VA	0.350	0.000		0.000		0.000		-		0.000	0.000	0.350	-
Developmental Test & Evaluation (DT&E)	C/CPFF	TSCS NIWC-LANT CTR : CHARLESTON, SC	0.000	0.000		0.000		0.896	Dec 2023	-		0.896	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	SCI COMMS NIWC-LANT : CHARLESTON, SC	0.682	0.000		0.000		0.444	Dec 2023	-		0.444	Continuing	Continuing	Continuing
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	C/FFP	SCI COMMS MCSC : Quantico, VA	0.000	0.394	Aug 2022	0.000		0.000		-		0.000	0.000	0.394	-
Developmental Test & Evaluation (DT&E)	WR	CIHEP NIWC-LANT : CHARLESTON, SC	0.982	0.350	Mar 2022	0.358	Nov 2022	1.018	Nov 2023	-		1.018	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	WR	TCS NIWC-LANT : CHARLESTON, SC	0.000	0.000		0.000		0.700	Nov 2023	-		0.700	0.000	0.700	-
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	Various	Various : Various	26.671	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	MIPR	IBR-VARIOUS : VARIOUS	0.000	0.000		0.000		0.510	Mar 2024	-		0.510	0.000	0.510	-
		Subtotal	37.080	3.094		2.625		4.763		-		4.763	Continuing	Continuing	N/A

Remarks

Increase from FY 2023 to FY 2024 is primarily attributed to the following:
IBR test efforts supporting cryptographic updates and initial testing of resilient waveform for IBR Transmit capability.
SCI COMMS initial integration test of the HBSI-PT Replacement System Network and Radio Frequency Packages.
Terrestrial Collection initiating maritime sensor testing and evaluation.
TSCS initiation of testing of Tethered Antennas and AI/ML prototypes.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206625M / *USMC Intelligence/Electronics Warfare Sys*	Project (Number/Name) 2272 / *Intel Command and Control (C2) Sys*	

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	206.357	31.460		44.891		25.810		-		25.810	Continuing	Continuing	N/A

Remarks

Overall decrease from FY 2023 to FY 2024 is primarily attributed to MA-DOSS PE/PRJ transfer and IBR completion of ENTR V4 modernization and crypto update product development efforts.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206625M / *USMC Intelligence/Electronics Warfare Sys*	**Project (Number/Name)** 2272 / *Intel Command and Control (C2) Sys*

CESAS MCPC Schedule

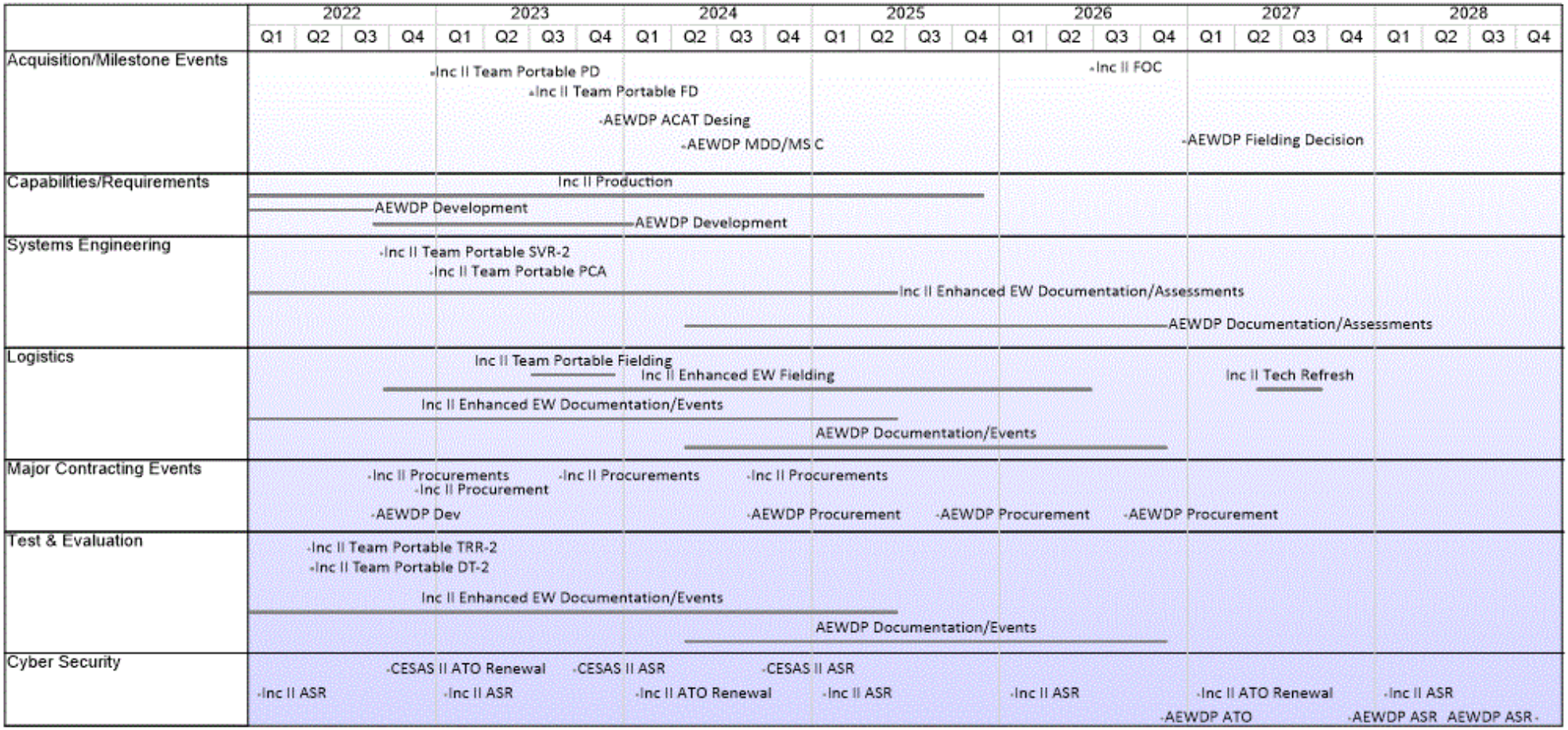

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206625M / *USMC Intelligence/Electronics Warfare Sys*	**Project (Number/Name)** 2272 / *Intel Command and Control (C2) Sys*

TSCS

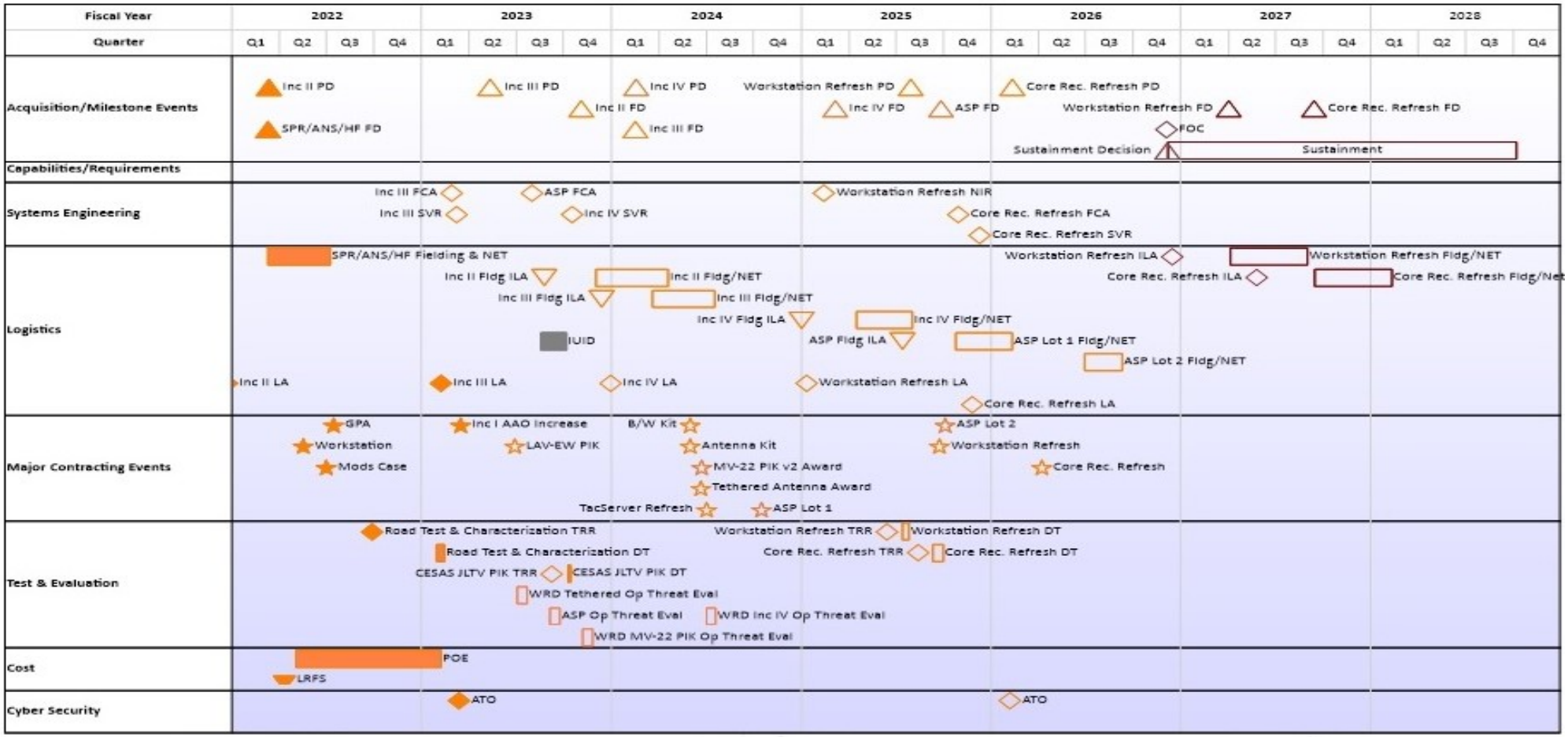

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206625M / *USMC Intelligence/Electronics Warfare Sys*	**Project (Number/Name)** 2272 / *Intel Command and Control (C2) Sys*

SCI Comms Family of Systems (FoS)

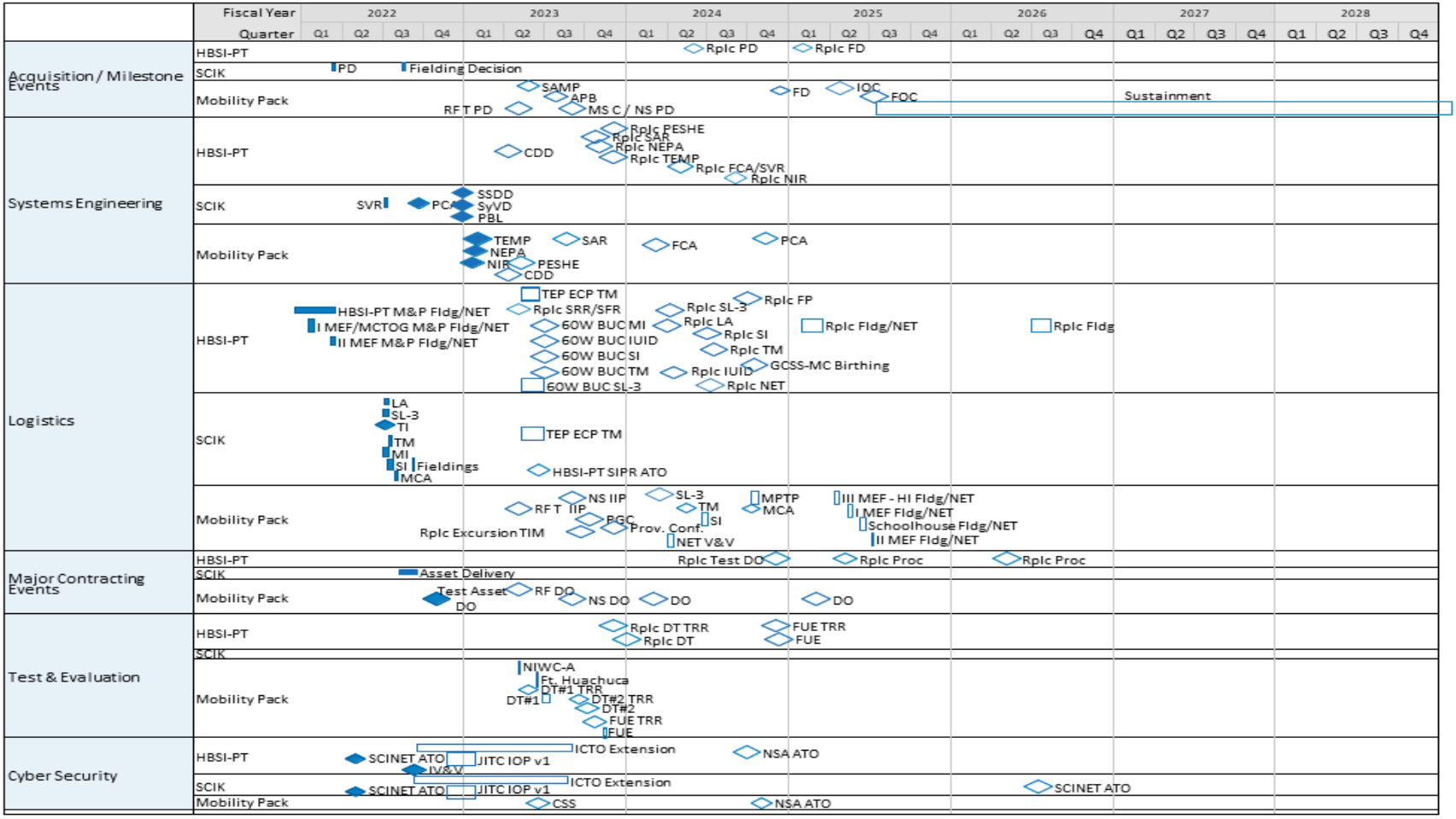

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206625M / *USMC Intelligence/Electronics Warfare Sys*	**Project (Number/Name)** 2272 / *Intel Command and Control (C2) Sys*

Terrestrial Collection Systems (TCS) Schedule

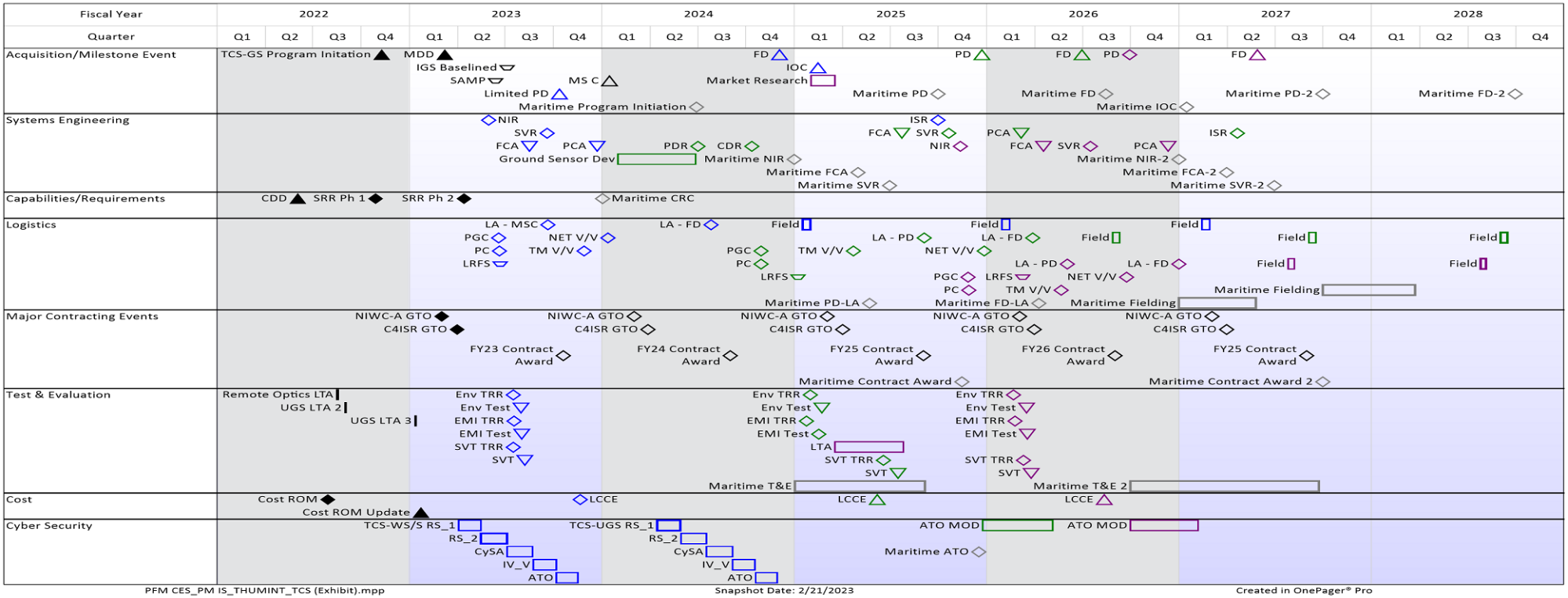

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206625M / *USMC Intelligence/Electronics Warfare Sys*	**Project (Number/Name)** 2272 / *Intel Command and Control (C2) Sys*

MA-DOSS Schedule

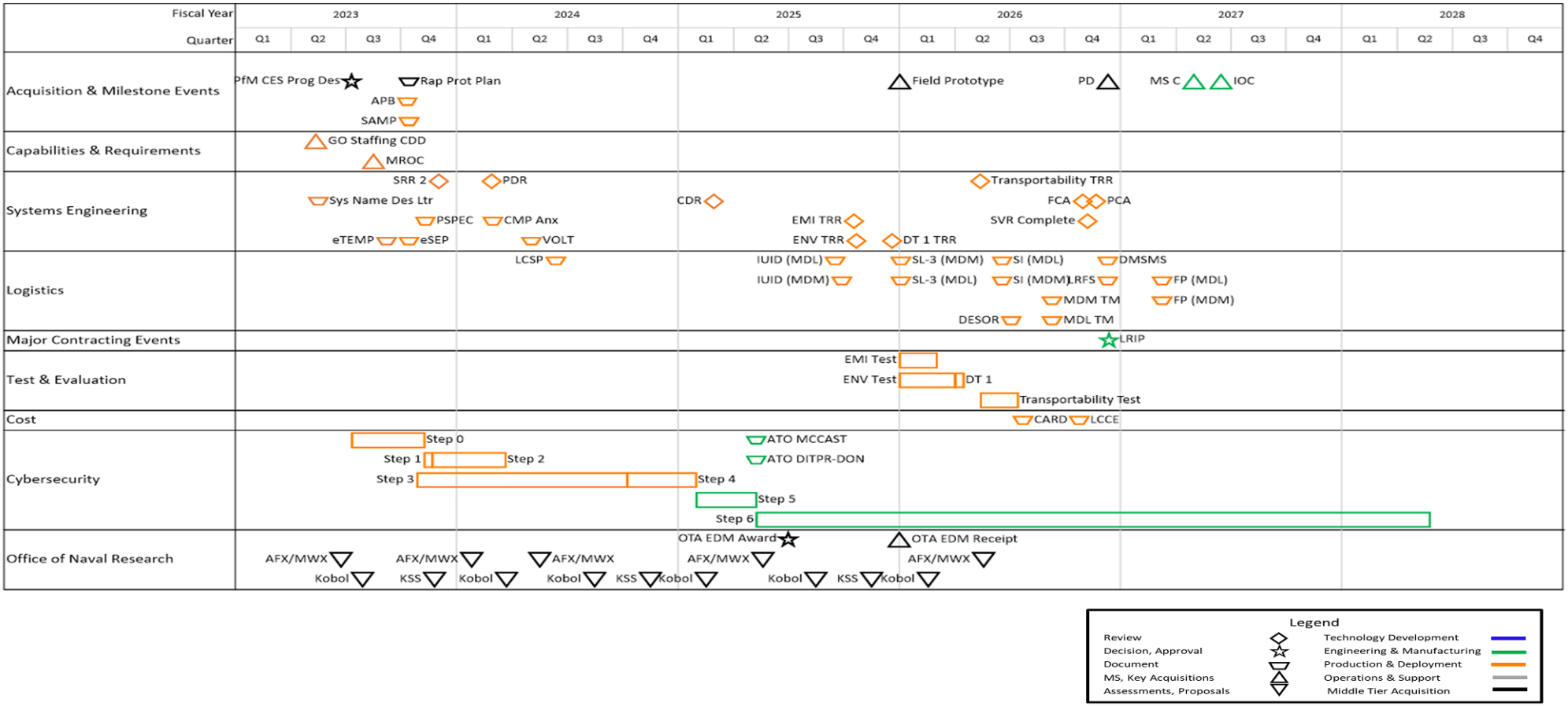

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206625M / *USMC Intelligence/Electronics Warfare Sys*	**Project (Number/Name)** 2272 / *Intel Command and Control (C2) Sys*

CIHEP Program Schedule FY22-FY28

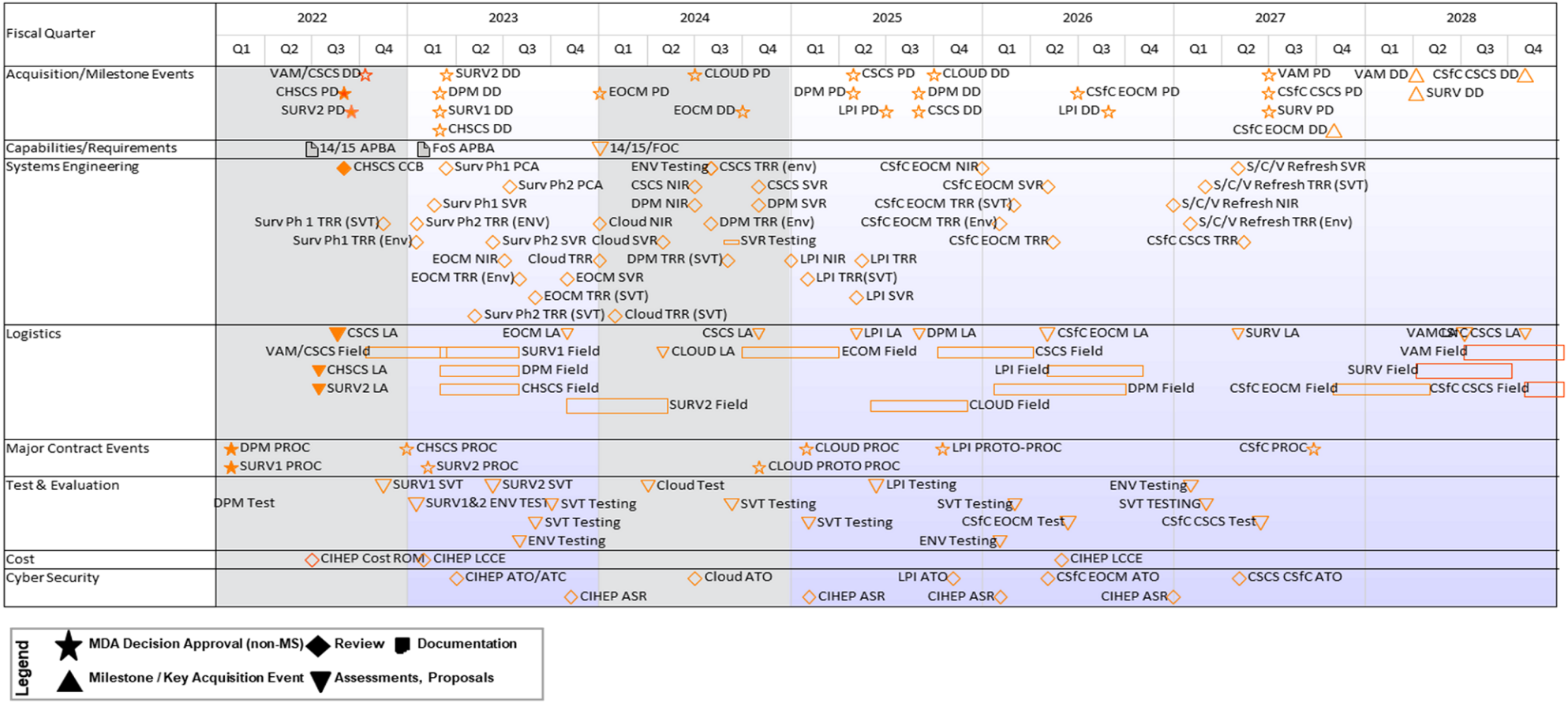

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206625M / *USMC Intelligence/Electronics Warfare Sys*	**Project (Number/Name)** 2272 / *Intel Command and Control (C2) Sys*

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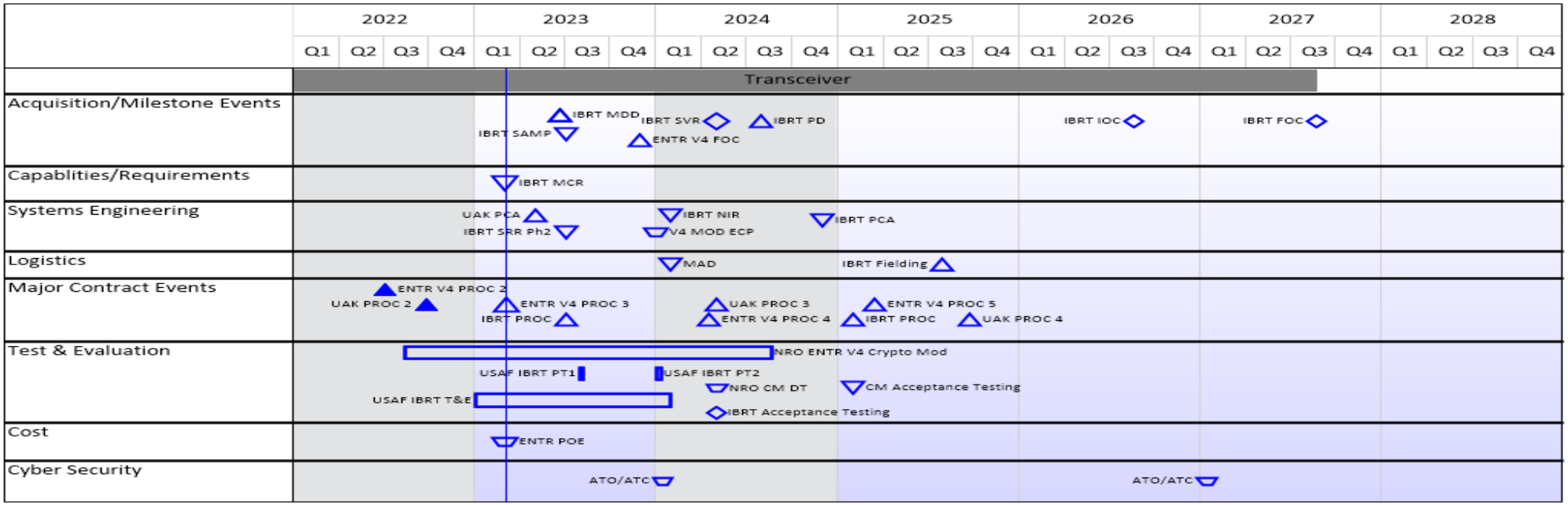

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206625M / *USMC Intelligence/Electronics Warfare Sys*	**Project (Number/Name)** 2272 / *Intel Command and Control (C2) Sys*

SCINet Program Schedule

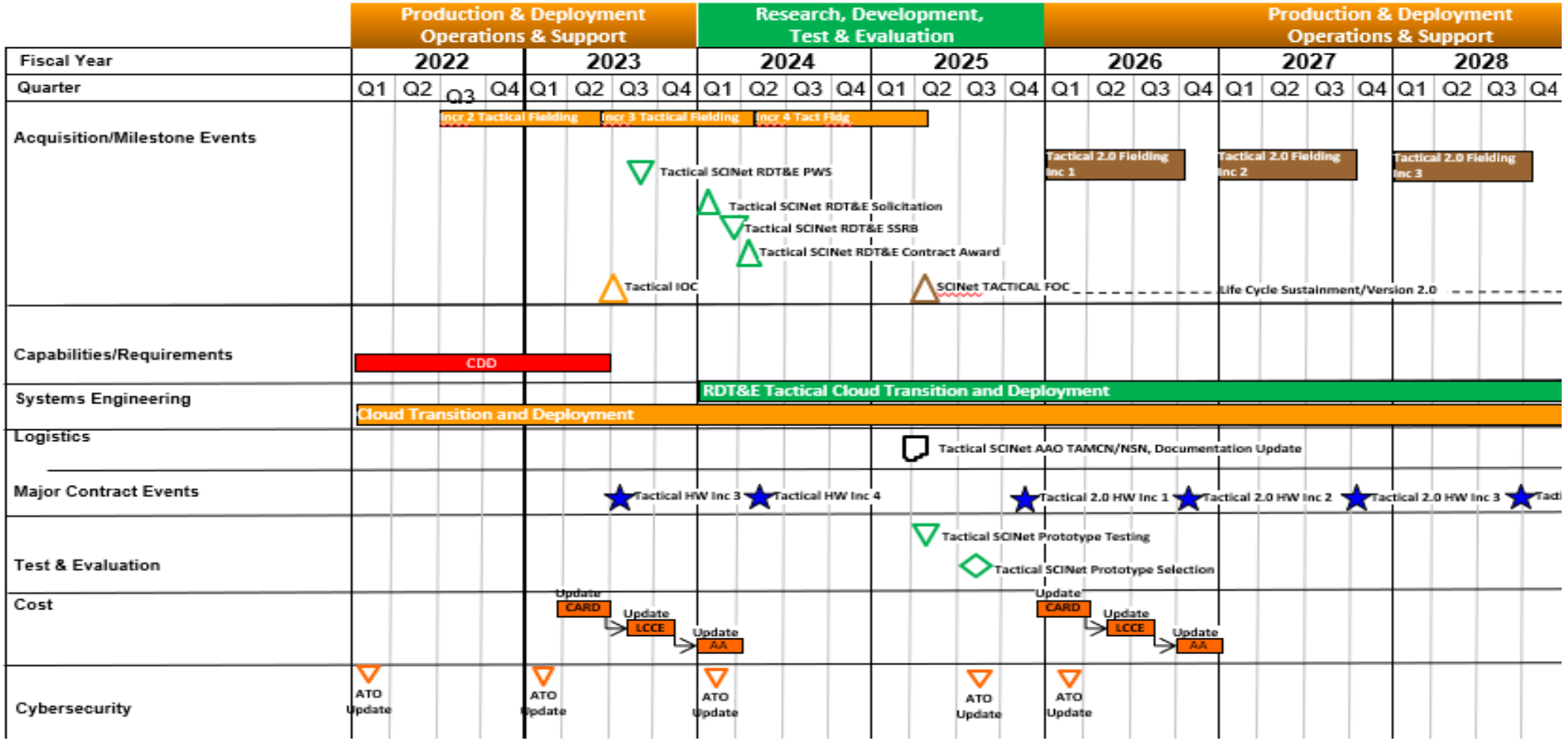


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206625M / *USMC Intelligence/Electronics Warfare Sys*	**Project (Number/Name)** 2272 / *Intel Command and Control (C2) Sys*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2272				
CESAS: CESAS II Inc II FoS Production	3	2022	2	2026
CESAS: AEWDP MDD/MS C	2	2024	2	2024
CESAS: SSF Limited Deployment Decision	1	2022	1	2022
IBR Transceiver MDD	3	2023	3	2023
IBR Transceiver Procurement Decision	3	2024	3	2024
IBR ENTR V4 FOC	3	2027	3	2027
TSCS Production Contract Award (Increment 2)	2	2022	2	2022
TSCS Procurement Decision (Increment 2)	1	2022	1	2022
TSCS Procurement Decision (Increment 3)	2	2023	2	2023
TSCS Fielding Decision (Increment 2)	4	2023	4	2023
TSCS Fielding Decision (Increment 3)	1	2024	1	2024
TSCS Procurement Decision (Increment 4)	1	2024	1	2024
SCI COMM Mobility Pack (MP) Network Stack Procurement Decision	3	2023	3	2023
SCI COMM Mobility Pack (MP) Fielding Decision	4	2024	4	2024
SCI COMM Mobility Pack Radio Frequency Delivery Order Award	2	2023	2	2023
SCI COMM Mobility Pack Network Stack Delivery Order Award	3	2023	3	2023
SCI COMM Mobility Pack Combined Delivery Order Award	1	2024	1	2024
Terrestrial Collection: Terrestrial Collection System Ground Sensor (TCS-GS) Program Initiation	4	2022	4	2022
Terrestrial Collection: Terrestrial Collection System Ground Sensor (TCS-GS) MDD	1	2023	1	2023
Terrestrial Collection: Terrestrial Collection System Ground Sensor (TCS-GS) Limited Procurement Decision	4	2023	4	2023

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206625M / *USMC Intelligence/Electronics Warfare Sys*	**Project (Number/Name)** 2272 / *Intel Command and Control (C2) Sys*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Terrestrial Collection: Terrestrial Collection System Ground Sensor (TCS-GS) MS C	1	2024	1	2024
Terrestrial Collection: Maritime Program Initiation	2	2024	2	2024
Terrestrial Collection: Terrestrial Collection System Ground Sensor (TCS-GS) Fielding Decision	4	2024	4	2024
MADOSS Program Initiation MA-DOSS Medium (MDM) MA-DOSS Light (MDL)	2	2023	2	2023
CIHEP Commercial Handheld Satellite Communication Set (CHSCS) Procurement Decision	3	2022	3	2022
CIHEP Surveillance/CI Event Kit Procurement Decision (Phase 2)	3	2022	3	2022
CIHEP Vehicle Accessory Module (VAM)/Commercial Satellite Communications Set (CSCS) Delivery Decision	4	2022	4	2022
CIHEP Surveillance/CI Event Kit Delivery Decision (Phase 1)	1	2023	1	2023
CIHEP Data Processing Module (DPM) Delivery Decision	1	2023	1	2023
CIHEP Commercial Handheld Satellite Communication Set (CHSCS) Delivery Decision	1	2023	1	2023
CIHEP Surveillance/CI Event Kit Delivery Decision (Phase 2)	3	2023	3	2023
CIHEP Expeditionary Office Communication Module (EOCM) Procurement Decision	1	2024	1	2024
CIHEP CLOUD Procurement Decision	2	2024	2	2024
CIHEP Expeditionary Office Communication Module (EOCM) Delivery Decision	3	2024	3	2024
SCINET	3	2024	3	2026

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206625M / *USMC Intelligence/Electronics Warfare Sys*	Project (Number/Name) 3771 / *Tactical Exploitation of National Capabilities (TENCAP)*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
3771: *Tactical Exploitation of National Capabilities (TENCAP)*	19.548	6.629	7.085	21.952	-	21.952	23.133	20.603	16.506	11.860	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Tactical Exploitation of National Capabilities (TENCAP) programs provides the innovation and adaptability necessary for the Marine Corps Intelligence Enterprise to support MAGTF operations in increasingly complex environments against technologically savvy adversaries. TENCAP exploits current national reconnaissance systems and programs by examining both technical and operational capabilities, implementing training, and sponsoring concept demonstrations to directly support Marine Corps operating forces. The goal is to pursue technologies which exploit data from national systems to enhance intelligence support to the Marine Air-Ground Task Force (MAGTF) and/or the supported Joint Task Force commander. Additionally, TENCAP supports a persistent, distributed, development, test, and certification environment that addresses critical tactical intelligence capability gaps and delivers sustainable solutions to the operating forces and Marine Corps Systems Command (MSCS) through rapid delivery of emerging technologies.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Tactical Exploitation of National Capabilities (TENCAP): Product Development & Technical Assessments	6.629	7.085	21.952	0.000	21.952
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue to conduct research and development, advanced technology demonstrations, and integration of emerging technologies into the Marine Corps Information Environment Enterprise (MCIEE). - Continue to support the Congressionally mandated TENCAP office and all associated ongoing activities, to include the coordination with national agencies, the intelligence community, research laboratories, private industry, and academia, for exploration of collaborative Research and Development (R&D) efforts to bring evolutionary MCIEE capabilities to the operating forces. - Continue to support operational planning and enhance operating force capabilities through the identification and development of advanced technologies for the MCIEE architecture. - Continue training and education efforts by providing the operating forces with supported simulation, visualization, and improved mission planning capabilities. - Continue development, integration, and FUE of innovative national data receive and dissemination capabilities for					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206625M / *USMC Intelligence/Electronics Warfare Sys*	**Project (Number/Name)** 3771 / *Tactical Exploitation of National Capabilities (TENCAP)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
insertion into MCIEE ***FY 2024 Base Plans:*** - Continue to conduct research and development, advanced technology demonstrations, and integration of emerging technologies into the Marine Corps Information Environment Enterprise (MCIEE). - Continue to support the Congressionally mandated TENCAP office and all associated ongoing activities, to include the coordination with national agencies, the intelligence community, research laboratories, private industry, and academia, for exploration of collaborative Research and Development (R&D) efforts to bring evolutionary MCIEE capabilities to the operating forces. - Continue to support operational planning and enhance operating force capabilities through the identification and development of advanced technologies for the MCIEE architecture. - Continue training and education efforts by providing the operating forces with supported simulation, visualization, and improved mission planning capabilities. - Continue development, integration, and FUE of innovative national data receive and dissemination capabilities for insertion into MCIEE ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The increase in funding from FY 2023 to FY 2024 supports technical development associated with Joint priorities within the TENCAP program. Specific details are available at a higher classification level.					
Accomplishments/Planned Programs Subtotals	6.629	7.085	21.952	0.000	21.952

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

(U) TENCAP: All work will be led in-house and necessary contractor support will be acquired using existing contracts. Research, test and integrate new technology and conduct advanced technology demonstrations to identify the most appropriate, mature programs for the integration of emerging technologies into the Marine Corps Information Environment Enterprise (MCIEE).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206625M / *USMC Intelligence/Electronics Warfare Sys*	Project (Number/Name) 3771 / *Tactical Exploitation of National Capabilities (TENCAP)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
TENCAP	C/CPFF	DTIC : FT BELVOIR, VA	13.092	0.000		3.740	Feb 2023	0.000		-		0.000	Continuing	Continuing	Continuing
TENCAP	WR	NIWC-LANT : CHARLESTON, SC	0.512	0.000		0.528	Apr 2023	0.000		-		0.000	Continuing	Continuing	Continuing
TENCAP	WR	NRL : WASHINGTON, DC	1.605	0.870	Apr 2022	0.850	Jan 2023	0.000		-		0.000	0.000	3.325	-
TENCAP	C/CPFF	NSWC-CRANT : CRANE, IN	0.000	0.000		0.239	Feb 2023	0.000		-		0.000	0.000	0.239	-
TENCAP	C/CPFF	DLA TLS : TBD	0.000	0.000		0.416	Apr 2023	0.000		-		0.000	0.000	0.416	-
TENCAP	C/CPFF	DISA/DITCO : TBD	0.000	0.000		0.256	Apr 2023	0.000		-		0.000	0.000	0.256	-
TENCAP	C/CPFF	NAVSEA : TBD	0.000	0.000		1.056	Mar 2023	0.000		-		0.000	0.000	1.056	-
TENCAP	MIPR	AFRL : ROME, NY	0.867	5.759	May 2022	0.000		21.952	Jul 2024	-		21.952	0.000	28.578	-
TENCAP	WR	NIWC-PAC : SAN DIEGO, CA	0.885	0.000		0.000		0.000		-		0.000	0.000	0.885	-
TENCAP	C/CPFF	HQ USSOCOM : TAMPA, FL	0.594	0.000		0.000		0.000		-		0.000	0.000	0.594	-
TENCAP	C/FFP	NSMA : JBAB, DC	0.880	0.000		0.000		0.000		-		0.000	0.000	0.880	-
		Subtotal	18.435	6.629		7.085		21.952		-		21.952	Continuing	Continuing	N/A

Remarks

The increase from FY 2023 to FY 2024 is primarily due to a focus on Group 5 UAS ISR Capabilities and payloads.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
TENCAP	FFRDC	US ARMY CECOM : ABERDEEN PROVING GROUND, MD	1.113	0.000		0.000		0.000		-		0.000	0.000	1.113	-
		Subtotal	1.113	0.000		0.000		0.000		-		0.000	0.000	1.113	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206625M / *USMC Intelligence/Electronics Warfare Sys*	Project (Number/Name) 3771 / *Tactical Exploitation of National Capabilities (TENCAP)*	

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	19.548	6.629		7.085		21.952		-		21.952	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206625M / *USMC Intelligence/Electronics Warfare Sys*	**Project (Number/Name)** 3771 / *Tactical Exploitation of National Capabilities (TENCAP)*

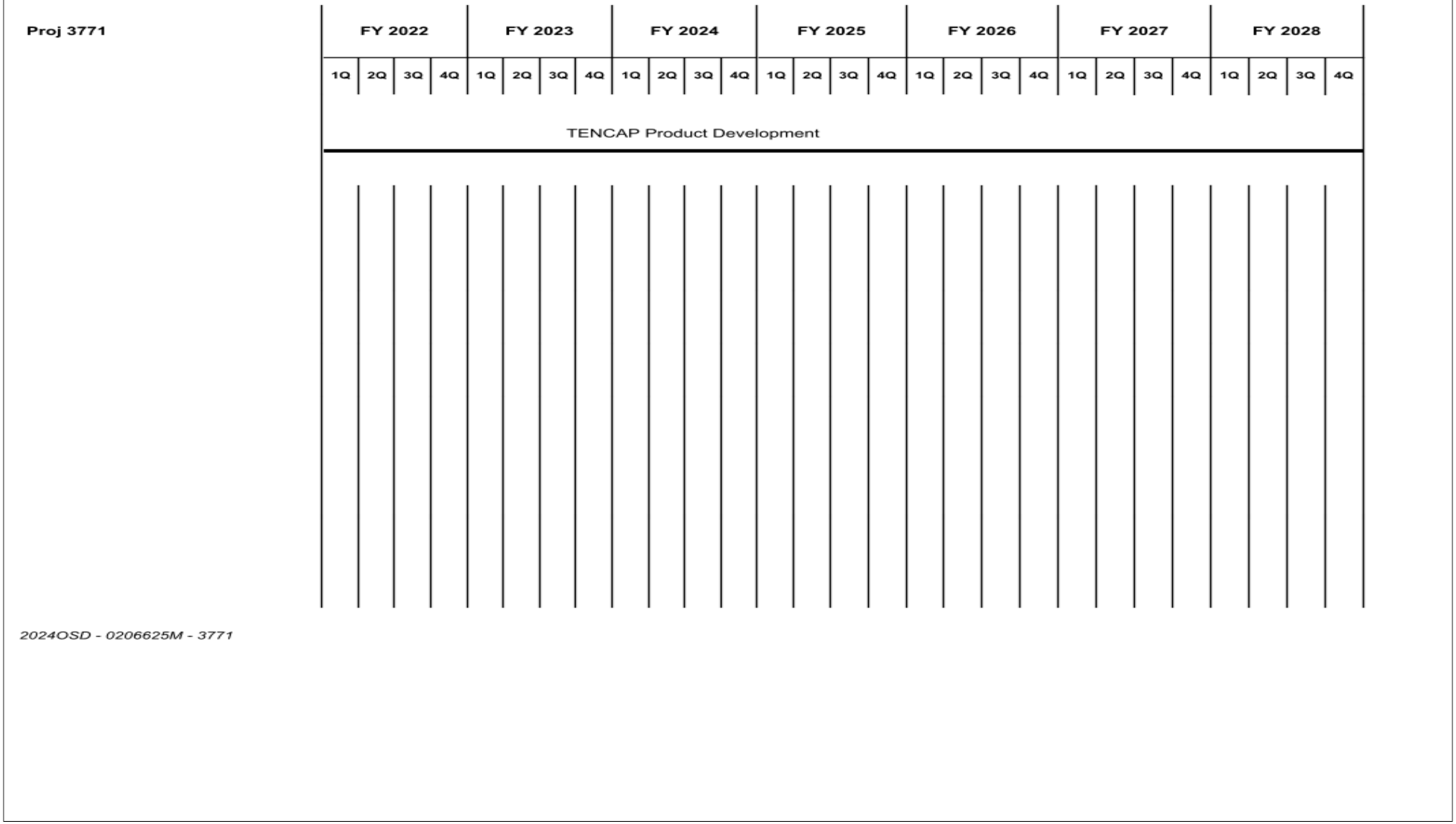


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206625M / *USMC Intelligence/Electronics Warfare Sys*	**Project (Number/Name)** 3771 / *Tactical Exploitation of National Capabilities (TENCAP)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3771				
Continued RDTEN of new and emerging tech into MCIEE	1	2022	4	2028

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy												Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0206629M / *Amphibious Assault Vehicle*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	248.425	7.475	8.246	0.373	-	0.373	0.000	0.000	0.000	0.000	0.000	264.519
2938: *Amphibious Assault Vehicle*	248.425	7.475	8.246	0.373	-	0.373	0.000	0.000	0.000	0.000	0.000	264.519

Note

Prior funding is reflected in PE 0206623M/Project 0021.

A. Mission Description and Budget Item Justification

The Assault Amphibious Vehicle (AAV) program provides life-cycle support to ensure cost-effective combat readiness for the AAV Family of Vehicles (FOV). This is accomplished through engineering changes resulting from continuous review of sub-systems to maintain system supportability, safety, reduce total ownership costs, improve fleet readiness, address obsolescence issues, and improve vehicle performance. The Recovery variant will provide recovery support for the ACV until an ACV Recovery variant is fielded. Improvements to the fleet reduce total ownership costs and improve sustainability. The AAV Modifications Line procures modernized components and subsystems that impact safe and reliable use of the AAV such as the Water Egress Capability (WEC), Tactical Communication Modernization (TCM) to meet NSA's cryptographic modernization mandates, quarterly software refresh of servers and laptops for Command-variant (C-Variant), and associated production support for the AAV FOV. Funding for the AAV FOV is critical to maintaining the amphibious capability of the USMC until the Amphibious Combat Vehicle (ACV) is fully fielded and operational.

In accordance with CMC Force Design, the order and testing of preplanned product improvements for the AAV program has come to an end; the program will continue to support the fleet of AAVs for emerging issues pertaining to design/redesign of parts and components for obsolescence, supportability, and safety issues through system retirement of the AAV-Ps and AAV-Cs in FY 2027 and the AAV-Rs in FY 2029.

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	7.551	8.246	6.921	-	6.921
Current President's Budget	7.475	8.246	0.373	-	0.373
Total Adjustments	-0.076	0.000	-6.548	-	-6.548
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.076	0.000			
• Program Adjustments	0.000	0.000	-6.610	-	-6.610

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy					Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*		R-1 Program Element (Number/Name) PE 0206629M *I Amphibious Assault Vehicle*			
• Rate/Misc Adjustments	0.000	0.000	0.062	-	0.062

Change Summary Explanation

The decrease from FY 2023 to FY 2024 of $7.873M is primarily attributed to reduced System Design and Development for AAV modifications, reduced Engineering and Technical Services, and reduced In-house Technical Support as AAVs are retired early from the fleet.

Full funding in FY 2024 supports the programs ability to provide reverse engineering efforts of critical parts shortages prior to system retirement.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206629M / *Amphibious Assault Vehicle*	Project (Number/Name) 2938 / *Amphibious Assault Vehicle*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2938: *Amphibious Assault Vehicle*	248.425	7.475	8.246	0.373	-	0.373	0.000	0.000	0.000	0.000	0.000	264.519
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Assault Amphibious Vehicle (AAV) program provides life-cycle support to ensure cost-effective combat readiness for the AAV Family of Vehicles (FOV). This is accomplished through engineering changes resulting from continuous review of sub-systems to maintain system supportability, safety, reduce total ownership costs, improve fleet readiness, address obsolescence issues, and improve vehicle performance. The Recovery variant will provide recovery support for the Amphibious Combat Vehicle (ACV) until an ACV Recovery variant is fielded.

In accordance with CMC Force Design, the order and testing of preplanned product improvements for the AAV program has come to an end; the program will continue to support the fleet of AAVs for emerging issues pertaining to design/redesign of parts and components for obsolescence, supportability, and safety issues through system retirement of the AAV-Ps and AAV-Cs in FY 2027 and the AAV-Rs in FY 2029.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Product Development	1.930	2.477	0.373	0.000	0.373
Articles:	-	-	-	-	-
Description: This cost element provides funding for design and development engineering for the AAV Modifications Line. The AAV Modifications Line provides Nonrecurring Engineering (NRE) and design for AAV safety, obsolescence, and performance improvement engineering for the AAV Family of Vehicles (FOV).					
FY 2023 Plans: -Complete legacy Platform Command and Control (C2) design and integration efforts to include AAV-C software production kits, Cyber Security initiatives, Intercom and TCM Integration, and firmware updates at reduced levels as the C2 requirement transitions from the AAV program to the ACV program as a result of AAVs retiring from the fleet. -Continue reverse engineering efforts of critical parts shortages prior to system retirement.					
FY 2024 Base Plans: -Continue reverse engineering efforts of critical parts shortages prior to system retirement.					
FY 2024 OCO Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206629M / *Amphibious Assault Vehicle*	**Project (Number/Name)** 2938 / *Amphibious Assault Vehicle*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The decrease in System Design and Development from FY 2023 to FY 2024 is attributed to a reduced requirement for AAV modifications design and development activities as AAVs are retired from the fleet.					
Title: Support ***Articles:*** ***Description:*** Provide government engineering and technical support for AAV safety, obsolescence, and performance modifications. ***FY 2023 Plans:*** - Complete Assault Amphibious Vehicle (AAV) C7 Software updates at reduced levels using government engineering support subject matter experts (SMEs). ***FY 2024 Base Plans:*** N/A ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The decrease in In-House Technical Support from FY 2023 to FY 2024 is a result of the program's support requirement ending in FY 2023.	2.674 -	4.083 -	0.000 -	0.000 -	0.000 -
Title: Test and Evaluation ***Articles:*** ***Description:*** Developmental, Operational, and Live Fire Test and Evaluation of safety improvements, upgrades, modifications, and fact of life changes to ensure operational suitability and effectiveness of the AAV family of vehicles. ***FY 2023 Plans:*** -N/A ***FY 2024 Base Plans:*** -N/A ***FY 2024 OCO Plans:***	1.047 -	0.000 -	0.000 -	0.000 -	0.000 -

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206629M / *Amphibious Assault Vehicle*	**Project (Number/Name)** 2938 / *Amphibious Assault Vehicle*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A					
Title: Management and Engineering Technical Services	1.824	1.686	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: Contract Management Support Services (MSS) and Engineering and Technical Services (ETS) for program office and field activities. ***FY 2023 Plans:*** -Complete support of ECP development, trade studies and analyses, supply chain, and government property management in support of AAV sustainment modification efforts. -Continue logistic support for systems integration efforts. ***FY 2024 Base Plans:*** N/A ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The decrease in Engineering and Technical Services from FY 2023 to FY 2024 is a result of the programs technical support requirement ending in FY 2023.					
Accomplishments/Planned Programs Subtotals	7.475	8.246	0.373	0.000	0.373

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• PMC/2021: *AAV Product Improvement Program*	20.105	5.653	3.353	-	3.353	2.750	0.006	0.006	0.006	Continuing	Continuing

Remarks

D. Acquisition Strategy

The AAV Modifications Line includes government and contractor life-cycle support to ensure cost-effective combat readiness for the AAV Family of Vehicles (FOV). This is accomplished through continuous review of sub-systems to maintain system supportability and safety, procurement of replacement systems for obsolescence, and fielding of Engineering Change Proposals (ECP). The improvements to the fleet reduce total ownership costs and improve sustainability. The AAV Modifications Line procures modernized components and subsystems that impact safe and reliable use of the AAV such as Tactical Communication Modernization (TCM) to meet NSA's

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206629M / *Amphibious Assault Vehicle*	**Project (Number/Name)** 2938 / *Amphibious Assault Vehicle*

cryptographic modernization mandates, quarterly software refresh of servers and laptops for Command-variant (C-Variant), and associated production support for the AAV FOV. The AAV-Ps and AAV-Cs are expected to continue to be in service until 2027 and the AAV-Rs through FY 2029 as the system is replaced by the ACV.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206629M / *Amphibious Assault Vehicle*	Project (Number/Name) 2938 / *Amphibious Assault Vehicle*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Syst Design & Dev / EMD	C/FFP	MCSC/SAIC : Charleston, SC	138.072	0.000		0.000		0.000		-		0.000	0.000	138.072	-
Syst Design & Dev	C/FFP	Various : Various	13.008	1.930	Feb 2022	2.477	Feb 2023	0.373	Feb 2024	-		0.373	0.000	17.788	-
Other Product Development	C/BA	Various : Various	6.514	0.000		0.000		0.000		-		0.000	0.000	6.514	-
		Subtotal	157.594	1.930		2.477		0.373		-		0.373	0.000	162.374	N/A

Remarks

The decrease in System Design and Development from FY 2023 to FY 2024 is attributed to a reduced requirement for AAV modifications design and development activities as AAVs are retired from the fleet.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
In-House Technical Support	Various	Various : Various	28.842	2.674	Feb 2022	4.083	Feb 2023	0.000		-		0.000	0.000	35.599	-
Program Management Support	Various	Various : Various	0.000	0.000	Feb 2022	0.000		0.000		-		0.000	0.000	0.000	-
Travel	Various	Various : Various	1.251	0.000		0.000		0.000		-		0.000	0.000	1.251	-
		Subtotal	30.093	2.674		4.083		0.000		-		0.000	0.000	36.850	N/A

Remarks

The decrease in In-House Technical Support from FY 2023 to FY 2024 is a result of the program's support requirement ending in FY 2023.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	Various	Various : Various	18.490	1.047	Apr 2022	0.000		0.000		-		0.000	0.000	19.537	-
Operational Test & Evaluation (OT&E)	WR	MCOTEA : Quantico, VA	1.022	0.000		0.000		0.000		-		0.000	0.000	1.022	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0206629M / *Amphibious Assault Vehicle*	Project (Number/Name) 2938 / *Amphibious Assault Vehicle*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Live Fire Test & Evaluation (LFT&E)	Various	Various : Various	8.639	0.000		0.000		0.000		-		0.000	0.000	8.639	-
		Subtotal	28.151	1.047		0.000		0.000		-		0.000	0.000	29.198	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering and Technical Services	Various	Various : Various	18.615	1.824	Mar 2022	1.686	Mar 2023	0.000		-		0.000	0.000	22.125	-
Management Support Svcs	C/FFP	MCSC : Quantico, VA	13.972	0.000		0.000		0.000		-		0.000	0.000	13.972	-
		Subtotal	32.587	1.824		1.686		0.000		-		0.000	0.000	36.097	N/A

Remarks

The decrease in Engineering and Technical Services from FY 2023 to FY 2024 is a result of the program's technical support requirement ending in FY 2023.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	248.425	7.475		8.246		0.373		-		0.373	0.000	264.519	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206629M / *Amphibious Assault Vehicle*	**Project (Number/Name)** 2938 / *Amphibious Assault Vehicle*

AAV MODIFICATIONS PB-24 PROGRAM SCHEDULE

As of: Nov 22

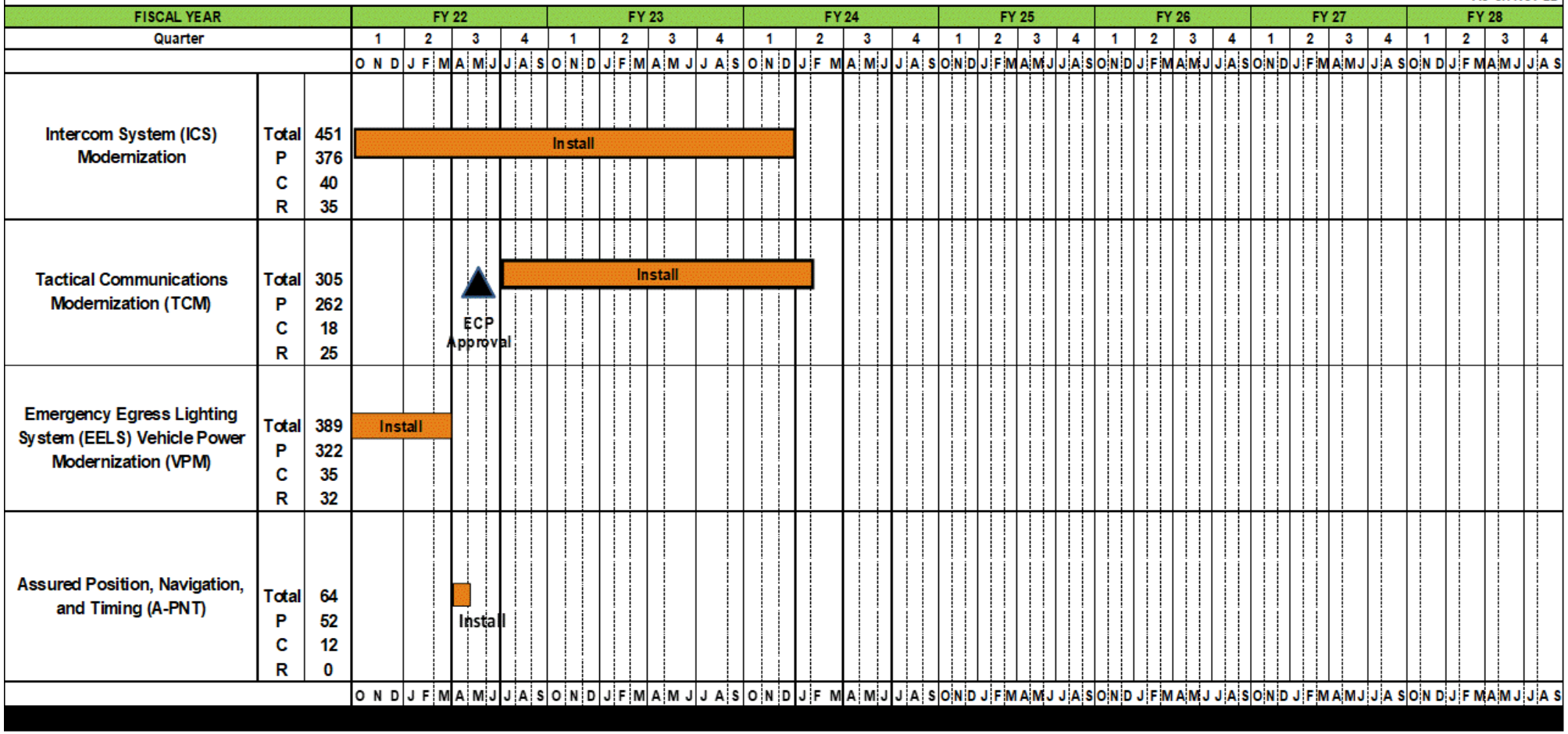


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0206629M / *Amphibious Assault Vehicle*	**Project (Number/Name)** 2938 / *Amphibious Assault Vehicle*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2938				
TCM - ECP Approval	3	2022	3	2022

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy												Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0207161N *I Tactical Aim Missiles*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	574.109	23.273	29.236	36.439	-	36.439	32.968	13.289	12.670	12.996	0.000	734.980
0457: *AIM-9X*	574.109	23.273	29.236	36.439	-	36.439	32.968	13.289	12.670	12.996	0.000	734.980
Program MDAP/MAIS Code: **Project MDAP/MAIS Code(s):** 442												

A. Mission Description and Budget Item Justification

The AIM-9X Block II/II+ Sidewinder (AIM-9X Blk II/II+) continues the evolution of the AIM-9 series of missiles. This missile program delivers a launch and leave, air combat munition that uses passive Infrared (IR) energy to acquire and track enemy air targets and complements the radar guided Advanced Medium Range Air-to-Air Missile (AMRAAM). The missile provides fighter aircrew with the first shot, first kill opportunities that are essential for survival during air combat maneuvering in the visual arena. The AIM-9X delivers these opportunities with unmatched offensive and defensive capabilities against threats Within Visual Range, even when IR countermeasures are employed.

The AIM-9X also supports air superiority in the Beyond Visual Range air-to-air battle. Anti-tamper features have been incorporated to protect improvements inherent in this design. The AIM-9X Block II missile provides the Joint Force with fighter aircraft lethality and survivability necessary to counter threats identified in the Chief of Naval Operations Guidance and the National Defense Strategy.

AIM-9X is a Post Milestone C, Acquisition Category IC joint service program led by the Department of the Navy. The Block II program has completed independent operational testing and was found to be operationally effective and suitable. The program achieved Navy Initial Operational Capability in March 2015 and received Full Rate Production decision in August 2015.

In December 2017, the program began to procure a third variant of the missile labeled the AIM-9X Block II PLUS (Block II+) to satisfy the requirements of the Joint Strike Fighter platform. For contracting purposes, the nomenclature of the AIM-9X Block II missile is identified as AIM-9X-2 or AIM-9X-4 and the AIM-9X Block II+ missile is identified as AIM-9X-3 or AIM-9X-5. The AIM-9X-4/5 variant are the Systems Improvement Program (SIP) III configuration with upgraded hardware for obsolescence that cut into Lot 21.

This budget line item continues technical refresh of hardware and software and develops advanced capabilities to meet requirements of the Capability Production Document against evolving threat aircraft countermeasures.

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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207161N *I Tactical Aim Missiles*

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	23.881	29.236	33.470	-	33.470
Current President's Budget	23.273	29.236	36.439	-	36.439
Total Adjustments	-0.608	0.000	2.969	-	2.969
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.608	0.000			
• Program Adjustments	0.000	0.000	2.798	-	2.798
• Rate/Misc Adjustments	0.000	0.000	0.171	-	0.171

Change Summary Explanation

Financial: The FY 2024 funding request was adjusted by $2.969 million for higher priority efforts and rate adjustments.

Technical: The OFS 10.5X performance requirements were updated to align with an earlier delivery and fielding as indicated in the schedule. The software development associated with delta performance requirements, which were originally planned for OFS 10.5X, are still being developed on the same timeline; however that capability will be incorporated and fielded as part of OFS 11.5X.

Schedule: The SIP III Phase II Hardware ECP shifted from Q3 FY 2022 to Q3 FY 2023 in order to align with completion of the Application-Specific Integrated Circuit (ASIC) processor development. Software (v10.4) Development will transition from Operational Flight Software (OFS) 10.4X to OFS 10.5X in Q4 FY 2023. The OFS 10.5X development completion timeline, as well as the 10.5X OFS, has shifted left from Q3 2025 and Q4 2025, respectively, to Q4 2024. As a result of the shift in the OFS 10.5X timeline, there is no longer a need for a formal OFS 10.4X release, which has been removed from the schedule. SIP IV Risk Reduction was extended to facilitate transition to the SIP IV contract. The SIP IV contract was awarded in September 2022 which baselined the schedule and resulted in updates to the SIP IV HW ECP completion date from Q2 2026 to Q4 2026 and OFS 11.5X Release date from Q2 2027 to Q4 2027.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0207161N / *Tactical Aim Missiles*				Project (Number/Name) 0457 / *AIM-9X*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
0457: *AIM-9X*	574.109	23.273	29.236	36.439	-	36.439	32.968	13.289	12.670	12.996	0.000	734.980
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 442

A. Mission Description and Budget Item Justification

The AIM-9X Block II/II+ Sidewinder (AIM-9X Blk II/II+) delivers a launch and leave, air combat munition that uses passive Infrared energy to acquire and track enemy air targets that employ advanced infrared countermeasures and is a critical component of fighter aircraft loadout required by the Chief of Naval Operations Guidance and the National Defense Strategy.

This line item continues technical refresh of hardware and software and develops advanced capabilities to maintain threshold requirements. Primarily, the program will develop new hardware and software solutions to pace evolutions in threat aircraft countermeasure technology and redesign, develop, and integrate components facing obsolescence. Additionally, the program will investigate energetics improvements, enhanced anti-tamper and cyber security, and future platform integration. The program will deliver increased capability to the warfighter by incrementally fielding missile software updates to optimize hardware and incorporate capabilities based on updated intelligence of threat countermeasures.

In FY 2024, the program will execute engineering, manufacturing, and development for the SIP IV hardware and software development effort. The FY 2024 hardware effort will include design and development of the advanced sensor and electronics unit. FY 2024 software efforts will include completion of development and fielding of OFS 10.5X, and continued development of OFS 11.5X. In addition, the program will assess integration on 5th generation+ systems.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**
Title: Product Development	17.321	26.532	34.062	0.000	34.062
Articles:	-	-	-	-	-
Description: Continuation of Primary Hardware Development/Pre-Planned Product Improvement (technical refresh) efforts for the AIM-9X weapon system. This includes systems engineering and program management, as well as support required to ensure AIM-9X missile integration with US Navy aircraft platforms. This also includes efforts to redesign Block II missile components to resolve obsolescence, ensure producibility and increase reliability. It will incorporate anti-tamper and cyber security technology improvements, and implement cost reduction initiatives. In addition, the program will execute efforts that address hardware and software improvements to facilitate follow-on capability and mitigate obsolescence.					
FY 2023 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0207161N / *Tactical Aim Missiles*	**Project (Number/Name)** 0457 / *AIM-9X*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Software development and test efforts, including OFS 9.5X, OFS 10.4X and 10.5X, will continue in support of existing AIM-9X Block II systems in order to ensure fielded assets continue to evolve to support required performance against increasingly challenging threat platforms. AIM-9X SIP-IV hardware efforts to develop an advanced sensor and upgrade the Electronics Unit will continue. Preliminary Design Review (PDR) for the SIP IV hardware is planned for FY 2023. In addition, development of OFS 11.5X will continue in order to facilitate the use of the updated SIP IV hardware. ***FY 2024 Base Plans:*** OFS 10.5X will be released to the fleet, re-hosting existing software for use in hardware replaced for obsolescence. SIP IV sensor hardware efforts will continue to support required tracking performance against threat countermeasures. Software OFS 11.5X will continue development to take advantage of advanced sensor technology as part of the SIP IV program. Risk reduction efforts to address integration on 5th and 6th generation platforms as well as manned unmanned teaming will continue. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding increase in FY 2024 due to ramp up in development and integration efforts of the SIP IV hardware and software improvements to counter advanced threats. More specifically, detailed design of the sensor and Electronics Unit Circuit Card Assemblies will be performed as well as execution of preliminary software development builds of OFS 11.5X.					
Title: Test and Evaluation Activities and Support	5.682	2.487	2.155	0.000	2.155
Articles:	-	-	-	-	-
Description: Test and Evaluation (T&E) and associated governmental support required to ensure AIM-9X missile integration with threshold US Naval aircraft platforms (F/A-18A+/C/D/E/F). Conduct Developmental Testing (DT), Integration Testing (IT) and Operational Testing (OT) of OFS. ***FY 2023 Plans:*** Flight test in FY 2023 will focus on completion of OFS 10.4 SW. In addition, program will conduct DT and IT of OFS 9.5X. ***FY 2024 Base Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0207161N / *Tactical Aim Missiles*	**Project (Number/Name)** 0457 / *AIM-9X*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
FY 2024 Flight test will focus on DT/IT flight test of OFS 10.5X as well as initial DT flight test of SIP IV hardware for verification and model development. OFS 9.5X Flight Test will also be completed in FY 2024. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding decrease is due to a reduction in the number of flight tests associated with OFS 9.5 and OFS 10.5.					
Title: Management Services ***Articles:*** ***Description:*** Transportation and travel for AIM-9X efforts in support of the major test events and program decisions identified in the Product Development and Test and Evaluation sections above. ***FY 2023 Plans:*** Continue funding transportation and travel costs associated with AIM-9X missile program efforts supporting the major test events and program decisions identified in the Product Development and Test and Evaluation sections above. ***FY 2024 Base Plans:*** Continue funding transportation and travel costs associated with AIM-9X missile program efforts supporting the major test events and program decisions identified in the Product Development and Test and Evaluation sections above. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding increases due to inflation.	0.270 -	0.217 -	0.222 -	0.000 -	0.222 -
Accomplishments/Planned Programs Subtotals	23.273	29.236	36.439	0.000	36.439

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• WPN 2209: *Sidewinder*	78.606	62.288	78.165	-	78.165	85.997	107.953	109.709	113.460	1,189.132	3,136.056
• MPAF 3479: *Sidewinder*	102.507	111.855	95,643.000	-	95,643.000	106.898	127.649	129.845	132.615	990.700	98,657.775
• RDTE, AF 41: *Sidewinder*	32.974	34.536	43.079	-	43.079	34.667	15.963	16.318	16.889	67.931	514.813

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0207161N / *Tactical Aim Missiles*	**Project (Number/Name)** 0457 / *AIM-9X*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost

Remarks

D. Acquisition Strategy

Milestone C decision for LRIP was held June 24, 2011. The program received DON Initial Operational Capability in March 2015 and Full Rate Production (FRP) approval in August 2015. The program awarded FRP-8 in March 2022 with FRP-9 scheduled to award in March 2023.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0207161N / *Tactical Aim Missiles*	**Project (Number/Name)** 0457 / *AIM-9X*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware & Software Development	SS/CPFF	Raytheon Missile Systems : Tucson, AZ	161.595	15.686	Feb 2022	24.708	Feb 2023	32.203	Feb 2024	-		32.203	186.399	420.591	160.725
Aircraft Integration - USG	WR	NAWCWD : China Lake, CA	24.968	0.960	Feb 2022	0.261	Feb 2023	0.261	Feb 2024	-		0.261	2.304	28.754	-
USG Systems Engineering & Project Management Support	WR	NAWC AD : Patuxent River, MD	2.849	0.275	Feb 2022	0.537	Feb 2023	0.549	Feb 2024	-		0.549	4.734	8.944	-
USG Systems Engineering & Project Management Support	WR	NAWCWD : China Lake, CA	23.592	0.400	Feb 2022	1.026	Feb 2023	1.049	Feb 2024	-		1.049	18.008	44.075	-
Prior Year Prod Dev cost no longer funded in the FYDP	Various	Various : Various	267.484	0.000		0.000		0.000		-		0.000	0.000	267.484	-
		Subtotal	480.488	17.321		26.532		34.062		-		34.062	211.445	769.848	N/A

Remarks

The Primary Hardware & Software Development funding in FY 2024 reflects the reprograming of procurement funding to incrementally fund the AIM-9X development activities associated with Systems Improvement Program (SIP) IV. FY 2024 funding increase reflects the ramp up of development and integration efforts of the SIP IV sensor and electronics unit. The increase in FY 2024 USG Systems Engineering & Project Management support reflects 2.2% inflation.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Tech Support	Various	Various : Various	0.450	0.065	May 2022	0.162	May 2023	0.166	May 2024	-		0.166	1.440	2.283	-
Support	WR	NAWCWD : China Lake, CA	0.000	1.871	May 2022	0.000		0.000		-		0.000	0.000	1.871	-
Support	WR	NSWCIH : Indian Head, MD	0.000	0.035	May 2022	0.000		0.000		-		0.000	0.000	0.035	-
Support	C/CPFF	Raytheon : Tucson, AZ	0.000	0.605	May 2022	0.000		0.000		-		0.000	0.000	0.605	-
Prior Year Support Costs	C/CPFF	Various : Various	2.374	0.000		0.000		0.000		-		0.000	0.000	2.374	-
		Subtotal	2.824	2.576		0.162		0.166		-		0.166	1.440	7.168	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0207161N / *Tactical Aim Missiles*	Project (Number/Name) 0457 / *AIM-9X*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

The increase in FY 2024 Support funding reflects 2.2% inflation.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation (OT&E)	WR	COMOPTEVFOR : Norfolk, VA	15.765	0.000	Mar 2022	0.452	Mar 2023	0.075	Mar 2024	-		0.075	3.951	20.243	-
Operational Test & Evaluation (OT&E)	WR	NAWCWD : China Lake, CA	21.966	2.660	Mar 2022	1.873	Mar 2023	1.914	Mar 2024	-		1.914	13.500	41.913	-
Operational Test & Evaluation (OT&E)	WR	NAWCAD : Patuxent River, MD	0.000	0.446	Mar 2022	0.000		0.000		-		0.000	0.000	0.446	-
Operational Test & Evaluation (OT&E)	WR	NSWCIH : Indian Head, MD	0.035	0.000		0.000		0.000		-		0.000	0.000	0.035	-
Prior Year Operational Test & Evaluation Not Funded FYDP (PYOT&E)	Various	Various : Various	40.382	0.000		0.000		0.000		-		0.000	0.000	40.382	-
		Subtotal	78.148	3.106		2.325		1.989		-		1.989	17.451	103.019	N/A

Remarks

FY 2024 Decrease in COMOPTEVFOR funding is due to decrease in required contractor support.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Transportation - Material	WR	NAVAIR : Patuxent River, MD	0.928	0.120	Oct 2021	0.081	Oct 2022	0.083	Oct 2023	-		0.083	0.720	1.932	-
Travel - Obligation throughout the year	WR	NAWCAD : Patuxent River, MD	3.688	0.150	Oct 2021	0.136	Oct 2022	0.139	Oct 2023	-		0.139	1.206	5.319	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0207161N / *Tactical Aim Missiles*	Project (Number/Name) 0457 / *AIM-9X*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Mgmt cost no longer funded in the FYDP	Various	Various : Various	8.033	0.000		0.000		0.000	Oct 2023	-		0.000	0.000	8.033	-
		Subtotal	12.649	0.270		0.217		0.222		-		0.222	1.926	15.284	N/A

Remarks

The increase in FY 2024 management support funding reflects 2.2% inflation.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	574.109	23.273		29.236		36.439		-		36.439	232.262	895.319	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0207161N / *Tactical Aim Missiles*	**Project (Number/Name)** 0457 / *AIM-9X*

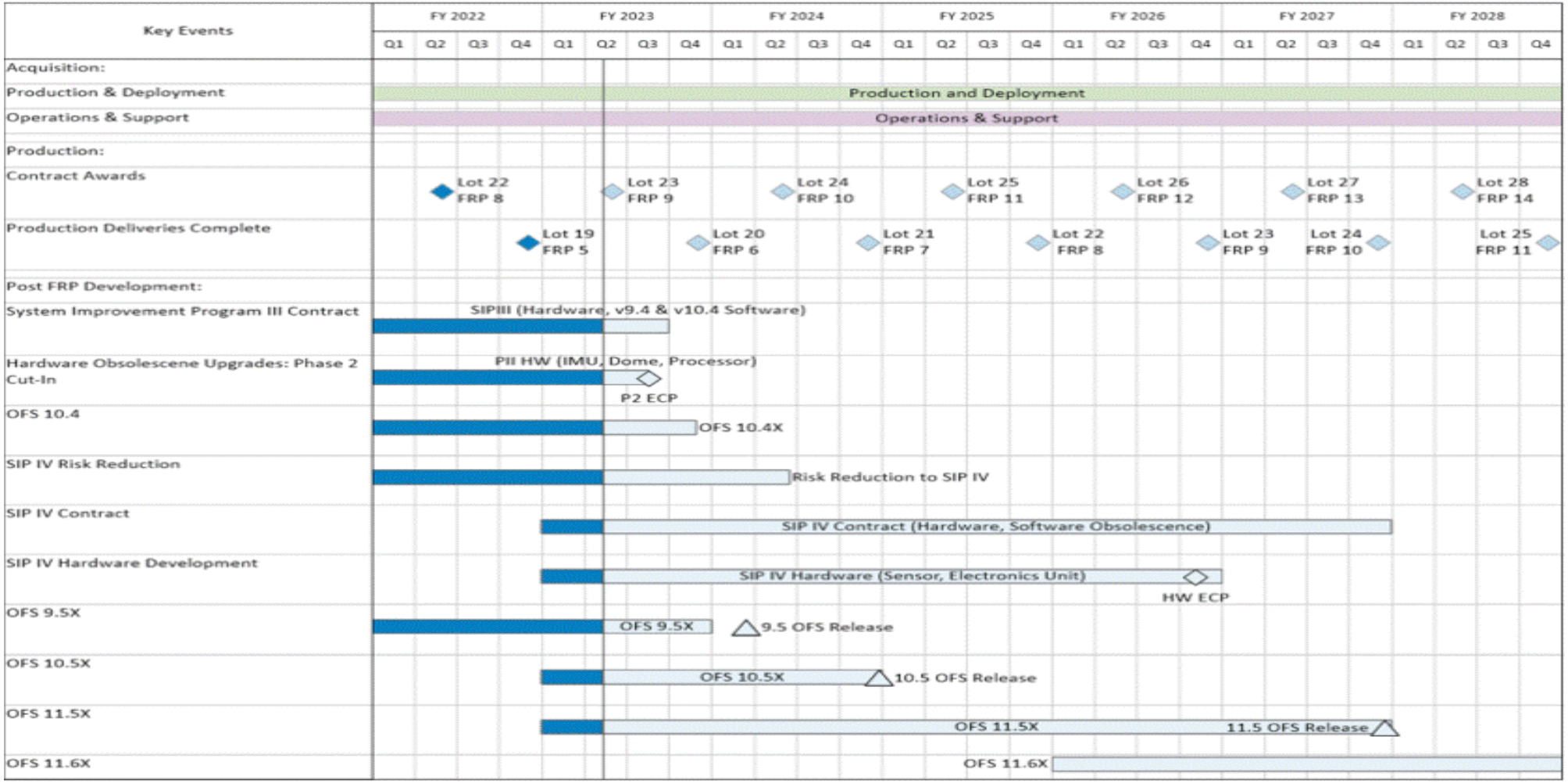


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0207161N / *Tactical Aim Missiles*	**Project (Number/Name)** 0457 / *AIM-9X*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
TACTICAL AIM MISSILES				
Production Milestones - Block II: Contract Awards: Lot 22 (FRP 8)	2	2022	2	2022
Production Milestones - Block II: Contract Awards: Lot 23 (FRP 9)	2	2023	2	2023
Production Milestones - Block II: Contract Awards: Lot 24 (FRP 10)	2	2024	2	2024
Production Milestones - Block II: Contract Awards: Lot 25 (FRP 11)	2	2025	2	2025
Production Milestones - Block II: Contract Awards: Lot 26 (FRP 12)	2	2026	2	2026
Production Milestones - Block II: Contract Awards: Lot 27 (FRP 13)	2	2027	2	2027
Production Milestones - Block II: Contract Awards: Lot 28 (FRP 14)	2	2028	2	2028
Production Milestones - Block II: Production Deliveries Complete: Lot 19 (FRP 5)	4	2022	4	2022
Production Milestones - Block II: Production Deliveries Complete: Lot 20 (FRP 6)	4	2023	4	2023
Production Milestones - Block II: Production Deliveries Complete: Lot 21 (FRP 7)	4	2024	4	2024
Production Milestones - Block II: Production Deliveries Complete: Lot 22 (FRP 8)	4	2025	4	2025
Production Milestones - Block II: Production Deliveries Complete: Lot 23 (FRP 9)	4	2026	4	2026
Production Milestones - Block II: Production Deliveries Complete: Lot 24 (FRP 10)	4	2027	4	2027
Production Milestones - Block II: Production Deliveries Complete: Lot 25 (FRP 11)	4	2028	4	2028
AIM-9X Block II Tech Refresh: System Improvement Program Contract: SIPIII (Hardware, v9.4 & v10.4 Software)	1	2022	3	2023
AIM-9X Block II Tech Refresh: Hardware Obsolescence Redesign: Lot 21 Cut In: PII HW (IMU, Dome, Processor)	1	2022	3	2023
AIM-9X Block II Tech Refresh: Hardware Obsolescence Redesign: Lot 21 Cut In: Phase 2 ECP	3	2023	3	2023
AIM-9X Block II Tech Refresh: Test and Evaluation: Software (v10.4) Rehost: Software v10.4 Development Testing	1	2022	4	2023

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0207161N / *Tactical Aim Missiles*	**Project (Number/Name)** 0457 / *AIM-9X*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
AIM-9X Block II Tech Refresh: Systems Improvement Program IV: Risk Reduction to SIP IV	1	2022	2	2024
AIM-9X Block II Tech Refresh: Systems Improvement Program IV: SIP IV Contract (Hardware, Software Obsolescence)	1	2023	4	2027
AIM-9X Block II Tech Refresh: Systems Improvement Program IV: SIP IV Hardware (Sensor, Electronics Unit)	1	2023	4	2026
AIM-9X Block II Tech Refresh: Systems Improvement Program IV: HW ECP	4	2026	4	2026
AIM-9X Block II Tech Refresh: OFS 9.5X: OFS 9.5X	1	2022	4	2023
AIM-9X Block II Tech Refresh: OFS 9.5X: 9.5 OFS Release	1	2024	1	2024
AIM-9X Block II Tech Refresh: OFS 10.5X: OFS 10.5X	1	2023	4	2024
AIM-9X Block II Tech Refresh: OFS 10.5X: 10.5 OFS Release	4	2024	4	2024
AIM-9X Block II Tech Refresh: OFS 11.5X: OFS 11.5X	1	2023	4	2027
AIM-9X Block II Tech Refresh: OFS 11.5X: 11.5 OFS Release	4	2027	4	2027
AIM-9X Block II Tech Refresh: OFS 11.6X: OFS 11.6X	1	2026	4	2028

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207163N *I AMRAAM*

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	323.023	31.776	30.898	29.198	-	29.198	29.795	27.663	27.023	27.570	84.591	611.537
0981: *AMRAAM*	323.023	31.776	30.898	29.198	-	29.198	29.795	27.663	27.023	27.570	84.591	611.537

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): 185

A. Mission Description and Budget Item Justification

The Advanced Medium Range Air-to-Air Missile (AMRAAM) is a joint Air Force/Navy, Acquisition Category 1D program with Air Force as lead service. AMRAAM is the premier all-weather, all-environment, radar guided missile with improved capabilities against very low and high-altitude targets in an electronic attack environment. The current AMRAAM variant, the AIM-120D, delivers improved performance via Global Positioning System (GPS) aided navigation; two way datalink capability for enhanced aircrew survivability and improved network compatibility; and incorporates new guidance software that improves kinematic performance and weapon effectiveness.

This Air Force/Navy program is structured in response to the Joint Service Operational Requirement Document and Mission Element Need Statement to develop an air superiority air-to-air missile with significant improvements in operational utility and combat effectiveness. The development program enhances AMRAAM capability and operational flexibility against current and projected threats, incorporates high payoff technology development, performs risk reduction activities, and investigates new variants and/or alternate missions that may use AMRAAM attributes. To maximize effectiveness of existing inventory and address findings from the field, the Navy and Air Force also develop, test, and field improvements via software upgrades into fielded missiles, and/or hardware upgrades inserted into the production line.

This program supports the integration of the Advanced Medium Range Air-to-Air Missile (AMRAAM) into Navy aircraft with analysis of Navy unique applications, aircraft missile integration tasks, product improvement efforts including missile software upgrade development and procurement of hardware to support Navy test and evaluation tasks. Funding in FY 2024 through FY 2028 supports System Improvement Program (SIP) and Navy unique Test & Evaluation (T&E) for software fielding.

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.

Cost to Complete should be $85.893M for FY 2029 - FY 2031.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0207163N *I AMRAAM*

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	32.564	30.898	31.786	-	31.786
Current President's Budget	31.776	30.898	29.198	-	29.198
Total Adjustments	-0.788	0.000	-2.588	-	-2.588
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.788	0.000			
• Program Adjustments	0.000	0.000	-2.707	-	-2.707
• Rate/Misc Adjustments	0.000	0.000	0.119	-	0.119

Change Summary Explanation

Financial: The FY 2024 funding request was adjusted by $2.588M for higher priority programs and rate adjustments.

Technical: Not Applicable

Schedule: Counter Emerging Threats (CET) fielding shifted from 3Q FY 2022 to 1Q FY 2023 due to repair required for test equipment failure. All CET test requirements are complete and fielding will coincide with the Sufficiency of Test Review release in 1Q FY 2023.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319 / 7				R-1 Program Element (Number/Name) PE 0207163N / *AMRAAM*				Project (Number/Name) 0981 / *AMRAAM*				
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
0981: *AMRAAM*	323.023	31.776	30.898	29.198	-	29.198	29.795	27.663	27.023	27.570	84.591	611.537
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 185

A. Mission Description and Budget Item Justification

This Air Force/Navy program is structured in response to the Joint Service Operational Requirement Document and Mission Element Need Statement to develop an air superiority air-to- air missile with significant improvements in operational utility and combat effectiveness. This program supports the integration of AMRAAM into Navy aircraft with analysis of Navy unique applications, aircraft missile integration tasks, product improvement efforts including missile software upgrade development and procurement of hardware to support Navy test and evaluation tasks. Funding in FY 2024 through FY 2028 supports System Improvement Program (SIP) and Navy unique Test & Evaluation (T&E) for software fielding.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**
Title: Test and Evaluation	11.296	9.847	10.177	0.000	10.177
Articles:	-	-	-	-	-
Description: Test and Evaluation and associated government support required to ensure AIM-120 missile integration with Department of the Navy aircraft platforms (F/A-18 C/D/E/F/G, AV-8B and F-35), hardware-in-the loop facility operations.					
FY 2023 Plans: Continue to develop and procure test resources required to meet test requirements and provide support personnel to complete AIM-120 Developmental Test (DT) and Operational Test (OT) events. Complete efforts to address 5th generation aerial target emulation.					
FY 2024 Base Plans: Continue to develop and procure test resources required to meet test requirements and provide support personnel to complete AIM-120 DT and OT events. Continue hardware-in-the-loop facility operations.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: FY 2024 funding request increased by $0.330M due to additional test requirements.					
Title: System Improvement Program (SIP) Efforts	20.480	21.051	19.021	0.000	19.021
Articles:	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0207163N / *AMRAAM*	**Project (Number/Name)** 0981 / *AMRAAM*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Description: Continuation SIP Risk Reduction efforts for the AMRAAM weapons system. Efforts include systems engineering, program management, missile software and/or hardware upgrades to increase capability, survivability, lethality, as well as aircraft Operational Flight Profile updates on a recurring basis. SIP-3F will host AIM-120D SIP-3 software on AIM-120D3 hardware. AIM-120D3 SIP-4 will exploit new Form, Fit, Function Refresh (F3R) hardware to maximize missile performance. AIM-120D SIP 3 Tape 2 will address newly matured capabilities, emerging threats, and OT deficiencies. AIM-120D3 SIP-5 will increase heart of the envelope performance and address an expanded threat space. Candidate Selection Process (CSP) analyzes warfighter priority deficiencies and enhancements to feed risk reduction efforts and future SIP efforts. ***FY 2023 Plans:*** Complete SIP-3F Functional Configuration Audit and flight test requirements. Field SIP-3F with F3R hardware to maximize missile performance. Continue CSP. Continue SIP-4 software development and complete Minimum Viable Product (MVP) milestone demonstrating software maturity. Continue SIP-3 Tape 2 software development. ***FY 2024 Base Plans:*** Continue CSP. Complete SIP-4 software development with Minimum Viability Capability Release (MVCR) and enter integrated test. Complete SIP-3 Tape 2 software development with MVCR and enter integrated test. Begin SIP-5 software development. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY 2024 funding request decreased by $2.030M due to re-phase of SIP-4 requirements.					
Accomplishments/Planned Programs Subtotals	31.776	30.898	29.198	0.000	29.198

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• WPN/ 2206: *AMRAAM*	74.264	335.900	439.153	-	439.153	279.715	69.591	69.699	17.109	0.000	4,616.460
• MPAF/3479: *AMRAAM*	214.002	320.560	231.473	-	231.473	330.822	462.367	306.098	75.220	1,040.926	13,549.277
• RDTE,AF/673777: *AMRAAM*	51.288	52.704	33.557	-	33.557	53.724	51.403	52.547	54.386	380.611	1,493.275

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0207163N / *AMRAAM*	**Project (Number/Name)** 0981 / *AMRAAM*

D. Acquisition Strategy

AMRAAM production procurements will continue across the Future Years Defense Program with periodic pre-planned technical design refreshes and value engineering change proposals.

AMRAAM's Acquisition Program Baseline was updated on 28 Oct 2015.

AMRAAM's Acquisition Strategy Report was updated 16 May 2018.

SIP development efforts continually mature capabilities through software and/or hardware upgrades to maximize missile performance to address current and emerging threats. These missile performance improvements are incrementally fielded ensuring inventory viability into the future. SIP development contracts are cost type efforts.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0207163N / *AMRAAM*	Project (Number/Name) 0981 / *AMRAAM*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hdw Development (EGLIN)	SS/CPAF	RAYTHEON COMPANY : Tucson AZ	148.765	17.272	Jan 2022	17.749	Jan 2023	16.022	Jan 2024	-		16.022	115.013	314.821	314.839
Award Fees (EGLIN)	SS/CPAF	RAYTHEON COMPANY : Tucson AZ	24.757	3.048	Jan 2022	3.132	Jan 2023	2.827	Jan 2024	-		2.827	20.296	54.060	54.064
Primary Hdw Development (NAWCAD)	WR	NAWCAD : Patuxent River MD	5.436	0.100	Nov 2021	0.102	Nov 2022	0.106	Nov 2023	-		0.106	0.798	6.542	-
Prior Years Dev Cost no longer funded in the FYDP	Various	Various : Various	32.477	0.000		0.000		0.000		-		0.000	0.000	32.477	-
		Subtotal	211.435	20.420		20.983		18.955		-		18.955	136.107	407.900	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Years Support costs no longer funded in the FYDP	Various	Various : Various	23.795	0.000		0.000		0.000		-		0.000	0.000	23.795	-
		Subtotal	23.795	0.000		0.000		0.000		-		0.000	0.000	23.795	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	NAWCWD : China Lake CA	73.375	10.678	Nov 2021	8.673	Nov 2022	8.935	Nov 2023	-		8.935	51.952	153.613	-
Operational Test & Evaluation (OT&E)	WR	COMOPTEVFOR : Norfolk, VA	5.518	0.618	Mar 2022	1.174	Mar 2023	1.242	Mar 2024	-		1.242	9.447	17.999	-
		Subtotal	78.893	11.296		9.847		10.177		-		10.177	61.399	171.612	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0207163N / *AMRAAM*	**Project (Number/Name)** 0981 / *AMRAAM*

Management Services ($ in Millions)

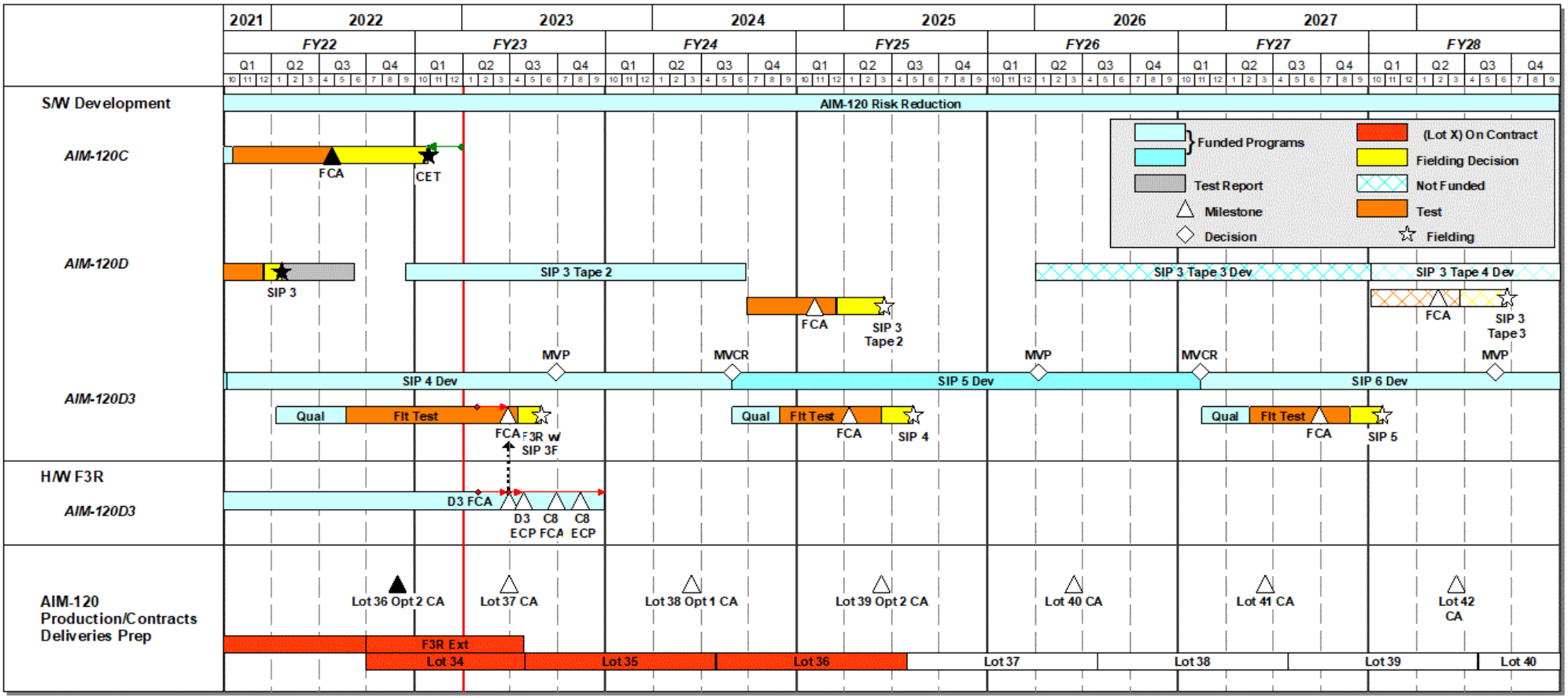
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPFF	PMA-259 : Patuxent River, MD	1.297	0.000	Mar 2022	0.000		0.000		-		0.000	0.000	1.297	1.297
Travel	MIPR	PMA-259 : Eglin AFB FL	3.601	0.060	Oct 2021	0.068	Oct 2022	0.066	Oct 2023	-		0.066	0.437	4.232	-
Prior Years Mgmt Costs no longer funded in the FYDP	Various	Various : Various	4.002	0.000		0.000		0.000		-		0.000	0.000	4.002	-
		Subtotal	8.900	0.060		0.068		0.066		-		0.066	0.437	9.531	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	323.023	31.776		30.898		29.198		-		29.198	197.943	612.838	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0207163N / *AMRAAM*	**Project (Number/Name)** 0981 / *AMRAAM*

AMRAAM Program Schedule



Agile Terminology IAW DODI 5000.02: MVP = Minimum Viable Product
MVCR = Minimum Viable Capability Release

Baseline: 1 Oct 2022
Approved: 1 Jan 2023

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0207163N / *AMRAAM*	**Project (Number/Name)** 0981 / *AMRAAM*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
AMRAAM				
Acquisition Milestones: Milestones: CET FCA	3	2022	3	2022
Acquisition Milestones: Milestones: CET Fielding	1	2023	1	2023
Acquisition Milestones: Milestones: SIP3F AIM-120D3 FCA	2	2023	2	2023
Acquisition Milestones: Milestones: SIP3F AIM-120D3 Fielding	3	2023	3	2023
Acquisition Milestones: Milestones: SIP 3 Tape 2 FCA	1	2025	1	2025
Acquisition Milestones: Milestones: SIP 3 Tape 2 Fielding	2	2025	2	2025
Acquisition Milestones: Milestones: SIP 4 FCA	2	2025	2	2025
Acquisition Milestones: Milestones: SIP 4 Fielding	3	2025	3	2025
Systems Development: Software Development: SIP-3F Development	1	2022	3	2023
Systems Development: Software Development: CET Development	1	2022	1	2023
Systems Development: Software Development: SIP-4 Development	1	2022	3	2025
Systems Development: Software Development: SIP 3 Tape 2 Development	4	2022	1	2025
Systems Development: Software Development: SIP-5 Development	3	2024	4	2027
Test and Evaluation: SIP 3F	2	2022	3	2023
Test and Evaluation: CET	1	2022	4	2022
Test and Evaluation: SIP-4	3	2024	3	2025
Test and Evaluation: SIP 3 Tape 2	4	2024	1	2025
Test and Evaluation: SIP 5	1	2027	4	2027
Production Contract Awards: Production Lot 36 Contract Award	4	2022	4	2022
Production Contract Awards: Production Lot 37 Contract Award	3	2023	3	2023
Production Contract Awards: Production Lot 38 Contract Award	2	2024	2	2024
Production Contract Awards: Production Lot 39 Contract Award	2	2025	2	2025

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0207163N / *AMRAAM*	**Project (Number/Name)** 0981 / *AMRAAM*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Production Contract Awards: Production Lot 40 Contract Award	2	2026	2	2026
Production Contract Awards: Production Lot 41 Contract Award	2	2027	2	2027
Production Contract Awards: Production Lot 42 Contract Award	2	2028	2	2028
Production Deliveries: Production Lot 33 AUR	1	2022	2	2023
Production Deliveries: Production Lot 34 AUR	4	2022	3	2023
Production Deliveries: Production Lot 34 CATM	4	2022	3	2023
Production Deliveries: Production Lot 35 AUR	3	2023	3	2024
Production Deliveries: Production Lot 35 CATM	3	2023	3	2024
Production Deliveries: Production Lot 36 AUR	3	2024	3	2025
Production Deliveries: Production Lot 37 AUR	3	2025	3	2026
Production Deliveries: Production Lot 38 AUR	3	2026	3	2027
Production Deliveries: Production Lot 39 AUR	3	2027	3	2028
Production Deliveries: Production Lot 40 AUR	3	2028	4	2028

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0208043N *I PLANNING AND DECISION AID SYSTEM (PDAS)*

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	0.000	2.982	3.609	3.565	-	3.565	3.674	3.715	3.733	3.809	Continuing	Continuing
3081: *Planning and Decision Aid System*	0.000	2.982	3.609	3.565	-	3.565	3.674	3.715	3.733	3.809	Continuing	Continuing

A. Mission Description and Budget Item Justification

Planning and Decision Aid System (PDAS): PDAS is a classified, protected program operated by the Navy. PDAS is a command and control system that provides capabilities to Office of the Secretary of Defense, services, Unified Combatant Commanders (CCMD), Intelligence Community and Coalition partners for operational planning/coordination of special access programs (SAPs). PDAS enables Integrated Joint Special Technical Operations (IJSTO) to incorporate SAPs into operational planning and execution from battlefield operators through the Commander-in-Chief in support of national security objectives. PDAS is the system for the Chairman of the Joint Chiefs of Staff (CJCS) for IJSTO.

PDAS is a worldwide network protecting sensitive information that meets the Intelligence Community Directive 503 security requirements. PDAS provides office automation packages, document and information management tools; collaboration, voice, and video tools in a secure, flexible architecture that promotes a distributed enterprise. Within the enterprise, PDAS users have access to their data regardless of log-on location, secure data exchange, conferencing and planning sessions among physically distributed continental United States and outside continental United States locations. PDAS provides users with access to a Help Desk and remote troubleshooting within the PDAS enterprise.

As the number of capabilities increase and threats evolve, the need for development of innovative and efficient planning and collaboration tools necessitates the use of research and development for future implementation.

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	3.101	3.609	3.628	-	3.628
Current President's Budget	2.982	3.609	3.565	-	3.565
Total Adjustments	-0.119	0.000	-0.063	-	-0.063
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.119	0.000			
• Rate/Misc Adjustments	0.000	0.000	-0.063	-	-0.063

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0208043N *I PLANNING AND DECISION AID SYSTEM (PDAS)*

Change Summary Explanation

Funding: FY24 funding decrease from FY23 is $0.044M reflects minimal impact.
Technical: Not applicable.
Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0208043N / *PLANNING AND DECISION AID SYSTEM (PDAS)*	Project (Number/Name) 3081 / *Planning and Decision Aid System*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
3081: *Planning and Decision Aid System*	0.000	2.982	3.609	3.565	-	3.565	3.674	3.715	3.733	3.809	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Planning and Decision Aid System (PDAS): PDAS is a classified, protected program operated by the Navy. PDAS is a command and control system that provides capabilities to Office of the Secretary of Defense, services, Unified Combatant Commanders (CCMD), Intelligence Community and Coalition partners for operational planning/coordination of special access programs (SAPs). PDAS enables Integrated Joint Special Technical operations (IJSTO) to incorporate SAPs into operational planning and execution from battlefield operators through the Commander-in-Chief in support of national security objectives. PDAS is the system for the Chairman of the Joint Chiefs of Staff (CJCS) for IJSTO.

PDAS is a worldwide network protecting sensitive information that meets the Intelligence Community Directive 503 security requirements. PDAS provides office automation packages, document and information management tools; collaboration, voice, and video tools in a secure, flexible architecture that promotes a distributed enterprise. Within the enterprise, PDAS users have access to their data regardless of log-on location, secure data exchange, conferencing and planning sessions among physically distributed continental United States and outside continental United States locations. PDAS provides users with access to a Help Desk and remote troubleshooting within the PDAS enterprise.

As the number of capabilities increase and threats evolve, the need for development of innovative and efficient planning and collaboration tools necessitates the use of research and development for future implementation.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Planning and Decision Aid System (PDAS)	2.982	3.609	3.565	0.000	3.565
Articles:	-	-	-	-	-
FY 2023 Plans: (1) continuation of FY 2022 design and development activities (2) integration, testing and continued deployment of new client hardware and modified software (3) continuing planning efforts of replacement datacenters to address obsolescence and modernization issues (4) conduct research into cloud datacenter options as possible mitigations for obsolescence and modernization issues (5) address obsolescence and modernization issues with clients					
FY 2024 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0208043N / *PLANNING AND DECISION AID SYSTEM (PDAS)*	**Project (Number/Name)** 3081 / *Planning and Decision Aid System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
(1) continuation of FY 2023 design and development activities (2) continuing deployment of new client hardware and modified software (3) finalizing design of replacement datacenters to address obsolescence and modernization issues (4) integration of cloud datacenter options into design as applicable (5) develop plan for client upgrades ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Net decrease between FY23 and FY24 is $0.044M reflects minimal impact.					
Accomplishments/Planned Programs Subtotals	2.982	3.609	3.565	0.000	3.565

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• OPN/8106: *Planning and Decision Aid System*	0.500	0.854	0.943	-	0.943	1.032	1.054	1.074	1.095	0.000	6.552
• OMN/1C3C: *Planning and Decision Aid System*	36.052	38.697	38.605	-	38.605	38.562	39.279	40.090	0.000	Continuing	Continuing

Remarks

D. Acquisition Strategy

Acquisition, management and contracting efforts are to support engineering and integration by providing funds to Naval Information Warfare Center (NIWC) Pacific and various contractors. This funding provides system development and support including research, prototype development and modification and integration of Commercial Off-The-Shelf and Open Source software into the life cycle support of the Program. Management oversight is provided by the Program Executive Officer for Digital and Enterprise Services (PEO Digital).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0208043N / *PLANNING AND DECISION AID SYSTEM (PDAS)*	**Project (Number/Name)** 3081 / *Planning and Decision Aid System*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Planning and Decision Aid System (PDAS)	WR	NIWC PAC : San Diego, CA	0.000	2.982	Dec 2021	3.609	Dec 2022	3.565	Dec 2023	-		3.565	Continuing	Continuing	Continuing
		Subtotal	0.000	2.982		3.609		3.565		-		3.565	Continuing	Continuing	N/A

Remarks

Product Development Remarks: FY 2024 planning includes: (1) continuation of FY 2023 design and development activities, (2) continuing deployment of new client hardware and modified software, (3) finalizing design of replacement datacenters to address obsolescence and modernization issues
(4) integration of cloud datacenter options into design as applicable, and (5) develop plan for client upgrades

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	2.982		3.609		3.565		-		3.565	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0208043N / *PLANNING AND DECISION AID SYSTEM (PDAS)*	**Project (Number/Name)** 3081 / *Planning and Decision Aid System*

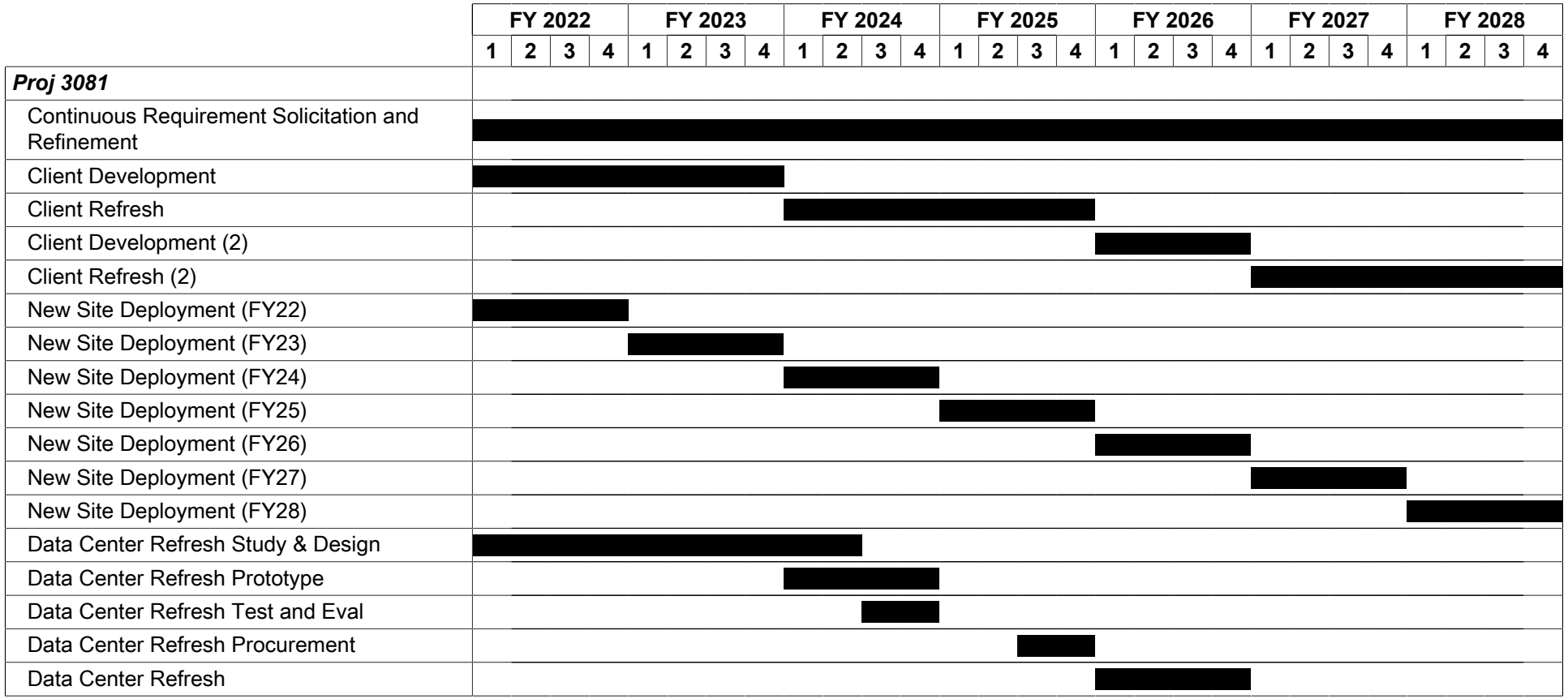


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0208043N / *PLANNING AND DECISION AID SYSTEM (PDAS)*	**Project (Number/Name)** 3081 / *Planning and Decision Aid System*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3081				
Continuous Requirement Solicitation and Refinement	1	2022	4	2028
Client Development	1	2022	4	2023
Client Refresh	1	2024	4	2025
Client Development (2)	1	2026	4	2026
Client Refresh (2)	1	2027	4	2028
New Site Deployment (FY22)	1	2022	4	2022
New Site Deployment (FY23)	1	2023	4	2023
New Site Deployment (FY24)	1	2024	4	2024
New Site Deployment (FY25)	1	2025	4	2025
New Site Deployment (FY26)	1	2026	4	2026
New Site Deployment (FY27)	1	2027	4	2027
New Site Deployment (FY28)	1	2028	4	2028
Data Center Refresh Study & Design	1	2022	2	2024
Data Center Refresh Prototype	1	2024	4	2024
Data Center Refresh Test and Eval	3	2024	4	2024
Data Center Refresh Procurement	3	2025	4	2025
Data Center Refresh	1	2026	4	2026

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0303138N *I AFLOAT NETWORKS*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	308.758	36.259	45.683	49.995	-	49.995	51.296	44.150	37.773	36.494	Continuing	Continuing
0725: *Communication Automation*	9.588	8.685	23.862	20.481	-	20.481	19.679	17.603	17.323	17.748	Continuing	Continuing
3240: *CEC Increment II*	0.000	0.000	0.000	8.454	-	8.454	8.365	0.000	0.000	0.000	0.000	16.819
9999: *Congressional Adds*	4.827	5.792	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	10.619
9C87: *CANES Integration*	294.343	21.782	21.821	21.060	-	21.060	23.252	26.547	20.450	18.746	329.968	777.969
Program MDAP/MAIS Code: **Project MDAP/MAIS Code(s):** M417												

Note

The details of program element 0303138N Project 0725/9C87/3240/C799 are CLASSIFIED and are submitted to Congress in the CLASSIFIED budget justification books.

Beginning in FY24 CEC Increment II Communications as a Service (CaaS) funding was transitioned from PE 0607658N R&D Project 3240

A. Mission Description and Budget Item Justification

The details of program element 0303138N Project 0725/9C87/3240/C799 are CLASSIFIED and are submitted to Congress in the CLASSIFIED budget justification books.

Project 9999: The Network and Data Center Intelligent Assistant (NADIA) project enables automated operation and troubleshooting of complex data centers and networks through the utilization of Artificial Intelligence/Machine Learning (AI/ML). This project will be installed on the CANES network to enhance the onboard management of CANES Network and Cyber Security Operations for Afloat Units.

The Kubernetes project (C799) uses commercial Kubernetes software products to provide integrated geospatial analytics and visualization tools within the CANES network for use by network managers and hosted applications.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0303138N *I AFLOAT NETWORKS*

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	36.879	45.693	40.023	-	40.023
Current President's Budget	36.259	45.683	49.995	-	49.995
Total Adjustments	-0.620	-0.010	9.972	-	9.972
• Congressional General Reductions	-	-0.010			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.041	0.000			
• SBIR/STTR Transfer	-0.578	0.000			
• Program Adjustments	0.000	0.000	9.396	-	9.396
• Rate/Misc Adjustments	-0.001	0.000	0.576	-	0.576

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2022	FY 2023
Project: 9999: *Congressional Adds*		
Congressional Add: *Kubernetes-based geospatial analytics and visualization*	5.792	0.000
Congressional Add Subtotals for Project: 9999	5.792	0.000
Congressional Add Totals for all Projects	5.792	0.000

Change Summary Explanation

FY 2024 funding request was increased by $4.005 million due to the transfer of R&D project 3240 Communication as a Services (CaaS) development efforts into this PE.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0303138N / *AFLOAT NETWORKS*	Project (Number/Name) 0725 / *Communication Automation*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
0725: *Communication Automation*	9.588	8.685	23.862	20.481	-	20.481	19.679	17.603	17.323	17.748	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

The details of program element 0303138N Project 0725 are classified and are submitted to Congress in the classified budget justification books.

A. Mission Description and Budget Item Justification

The details of program element 0303138N Project 0725 are classified and are submitted to Congress in the classified budget justification books.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Automated Digital Network System (ADNS)	8.685	23.862	20.481	0.000	20.481
Articles:	-	-	-	-	-
FY 2023 Plans: The details of program element 0303138N Project 0725 are classified and are submitted to Congress in the classified budget justification books.					
FY 2024 Base Plans: The details of program element 0303138N Project 0725 are classified and are submitted to Congress in the classified budget justification books.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: The details of program element 0303138N Project 0725 are classified and are submitted to Congress in the classified budget justification books.					
Accomplishments/Planned Programs Subtotals	8.685	23.862	20.481	0.000	20.481

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• OPN/3050: *Ship Communications Automation*	90.073	101.691	96.916	-	96.916	107.239	162.314	145.243	148.403	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303138N / *AFLOAT NETWORKS*	**Project (Number/Name)** 0725 / *Communication Automation*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost

Remarks

The details of program element 0303138N Project 0725 are classified and are submitted to Congress in the classified budget justification books.

D. Acquisition Strategy

The details of program element 0303138N Project 0725 are classified and are submitted to Congress in the classified budget justification books.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0303138N / *AFLOAT NETWORKS*	Project (Number/Name) 0725 / *Communication Automation*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Classified	Various	Not Specified : Not Specified	7.861	6.988	Dec 2021	18.833	Dec 2022	15.352	Dec 2023	-		15.352	Continuing	Continuing	Continuing
		Subtotal	7.861	6.988		18.833		15.352		-		15.352	Continuing	Continuing	N/A

Remarks

The details of program element 0303138N Project 0725 are classified and are submitted to Congress in the classified budget justification books.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Classified	Various	Not Specified : Not Specified	0.699	0.788	Jan 2022	2.371	Jan 2023	2.418	Jan 2024	-		2.418	Continuing	Continuing	Continuing
		Subtotal	0.699	0.788		2.371		2.418		-		2.418	Continuing	Continuing	N/A

Remarks

The details of program element 0303138N Project 0725 are classified and are submitted to Congress in the classified budget justification books.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	Various	Not Specified : Not Specified	0.500	0.684	Dec 2021	2.058	Dec 2022	2.099	Dec 2023	-		2.099	Continuing	Continuing	Continuing
		Subtotal	0.500	0.684		2.058		2.099		-		2.099	Continuing	Continuing	N/A

Remarks

The details of program element 0303138N Project 0725 are classified and are submitted to Congress in the classified budget justification books.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0303138N / *AFLOAT NETWORKS*	Project (Number/Name) 0725 / *Communication Automation*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Classified	Various	Not Specified : Not Specified	0.528	0.225	Dec 2021	0.600	Dec 2022	0.612	Dec 2023	-		0.612	Continuing	Continuing	Continuing
		Subtotal	0.528	0.225		0.600		0.612		-		0.612	Continuing	Continuing	N/A

Remarks

The details of program element 0303138N Project 0725 are classified and are submitted to Congress in the classified budget justification books.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	9.588	8.685		23.862		20.481		-		20.481	Continuing	Continuing	N/A

Remarks

The details of program element 0303138N Project 0725 are classified and are submitted to Congress in the classified budget justification books.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303138N / *AFLOAT NETWORKS*	**Project (Number/Name)** 0725 / *Communication Automation*

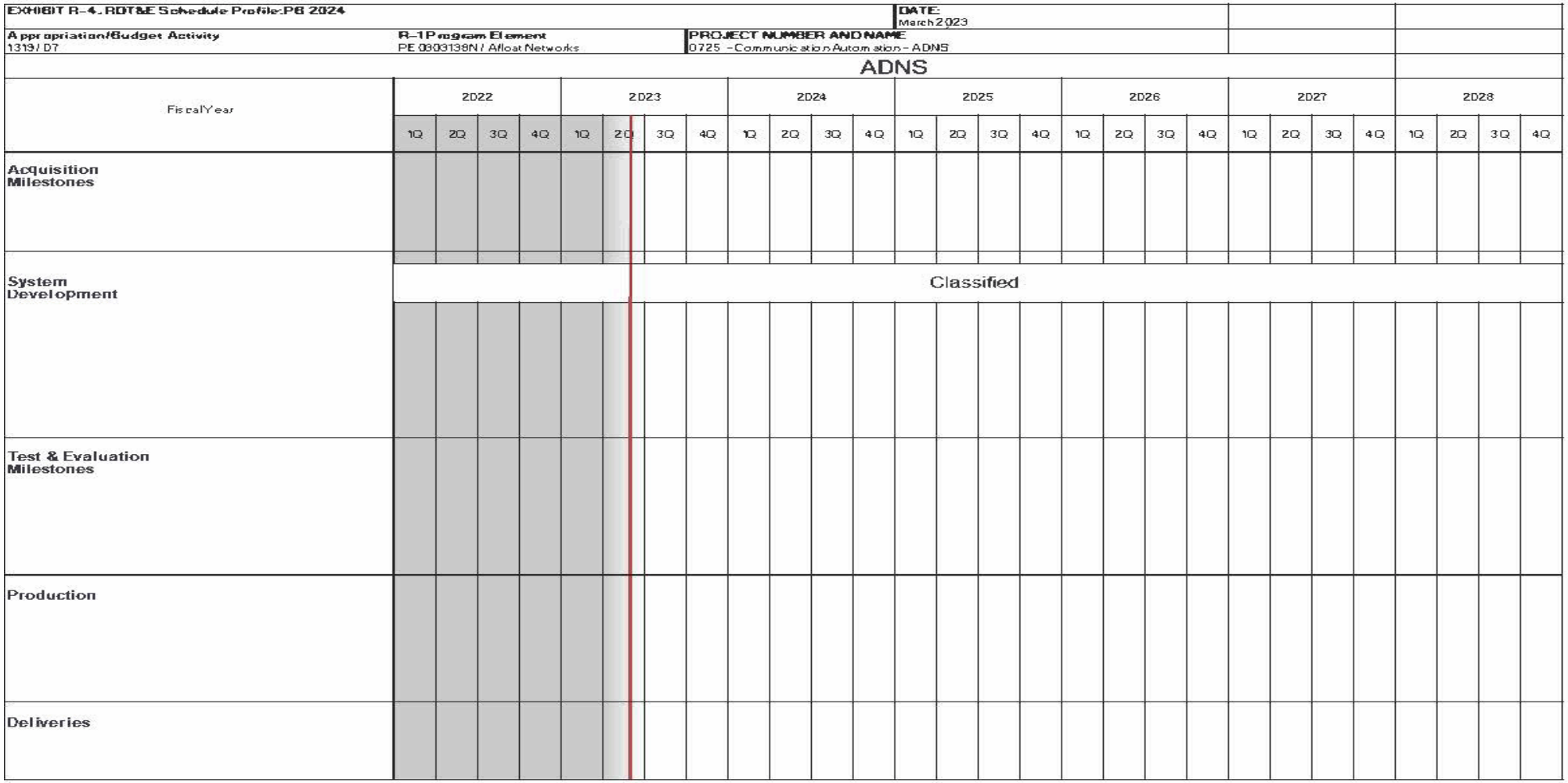


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303138N / *AFLOAT NETWORKS*	**Project (Number/Name)** 0725 / *Communication Automation*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0725				
Classified	1	2024	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0303138N / *AFLOAT NETWORKS*	Project (Number/Name) 3240 / *CEC Increment II*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
3240: *CEC Increment II*	0.000	0.000	0.000	8.454	-	8.454	8.365	0.000	0.000	0.000	0.000	16.819
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

The details of program element 0303138N Project 3240 are classified and are submitted to Congress in the classified budget justification books.

A. Mission Description and Budget Item Justification

The details of program element 0303138N Project 3240 are classified and are submitted to Congress in the classified budget justification books.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Communications as a Service (CaaS)	0.000	0.000	8.454	0.000	8.454
Articles:	-	-	-	-	-
Description: Beginning in FY24 (CaaS) funding was transitioned from PE 0607658N R&D Project 3240 and is not a new start. ***FY 2023 Plans:*** N/A ***FY 2024 Base Plans:*** The details of program element 0303138N Project 3240 are classified and are submitted to Congress in the classified budget justification books. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** The details of program element 0303138N Project 3240 are classified and are submitted to Congress in the classified budget justification books.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	8.454	0.000	8.454

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303138N / *AFLOAT NETWORKS*	**Project (Number/Name)** 3240 / *CEC Increment II*

D. Acquisition Strategy

The details of program element 0303138N Project 3240 are classified and are submitted to Congress in the classified budget justification books.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0303138N / *AFLOAT NETWORKS*	Project (Number/Name) 3240 / *CEC Increment II*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Classified	Various	Various : Various	0.000	0.000		0.000		8.454	Oct 2023	-		8.454	0.000	8.454	-
		Subtotal	0.000	0.000		0.000		8.454		-		8.454	0.000	8.454	N/A

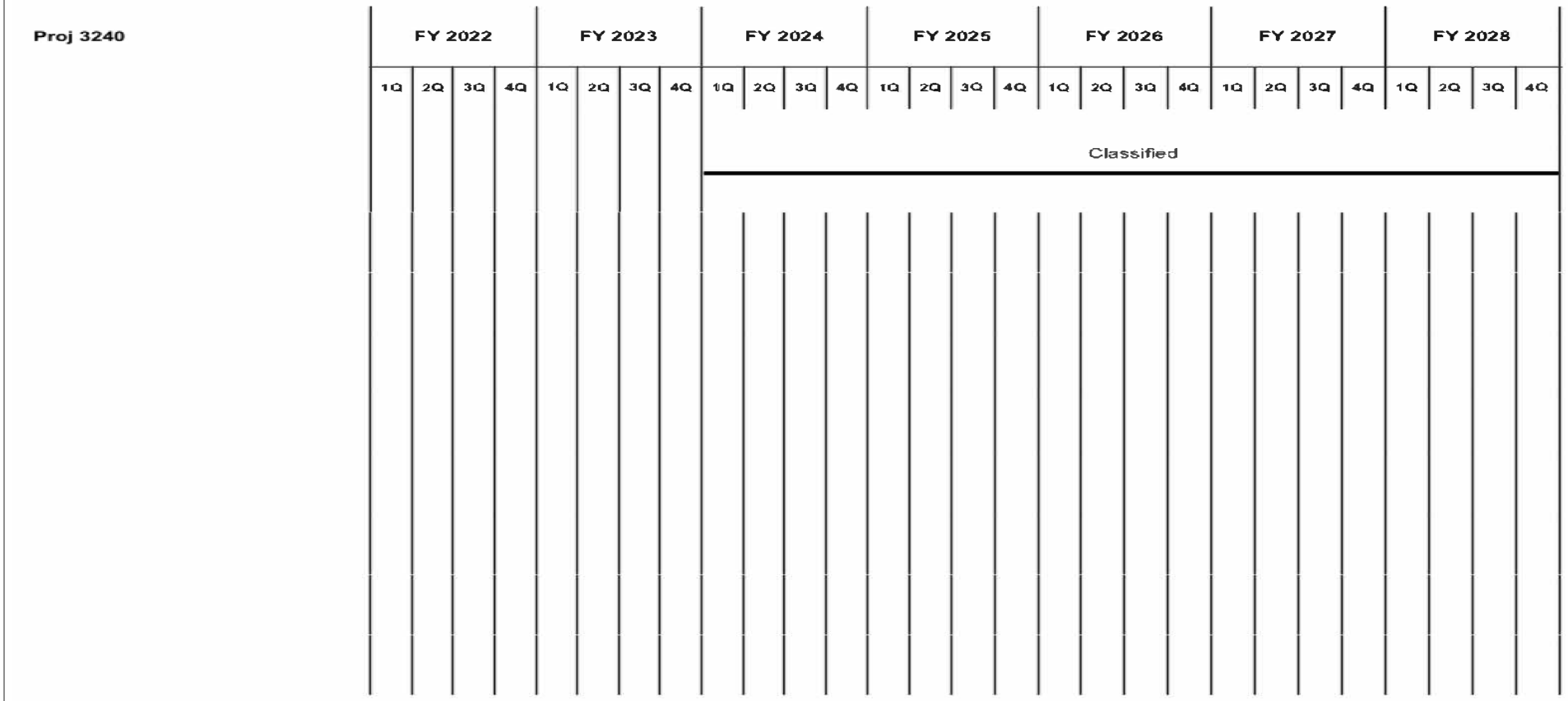
Remarks

The details of program element 0303138N Project 3240 are classified and are submitted to Congress in the classified budget justification books.

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		0.000		8.454		-		8.454	0.000	8.454	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303138N / *AFLOAT NETWORKS*	**Project (Number/Name)** 3240 / *CEC Increment II*



2024PB - 0303138N - 3240

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303138N / *AFLOAT NETWORKS*	**Project (Number/Name)** 3240 / *CEC Increment II*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3240				
Classified	1	2024	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0303138N / *AFLOAT NETWORKS*	Project (Number/Name) 9999 / *Congressional Adds*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
9999: *Congressional Adds*	4.827	5.792	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	10.619
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Congressional adds in PB22 (Kubernetes).

A. Mission Description and Budget Item Justification

Consolidated Afloat Networks and Enterprise Services (CANES) is the Navy's Program of Record (POR) to replace and modernize existing afloat networks with the necessary hardware, software and enterprise services infrastructure to enable information warfare from and within the tactical domain. CANES provides complete infrastructure inclusive of hardware, software, processing, storage and end user devices for the Unclassified, Coalition, Secret and Sensitive Compartmented Information (SCI) enclaves to a wide variety of Navy surface combatants, submarines and Maritime Operations Centers. CANES services include application hosting, data transport and storage, system management, cyber security, email, web, chat, collaboration, and voice and video services. CANES is based on the overarching concept of reducing the number of afloat networks and providing enhanced efficiency through a single engineering focus on integrated technical solutions. It allows for streamlined acquisition, contracting, test events, sustainment, and significant lifecycle efficiencies through consolidation of multiple configuration management baselines, logistics, and training efforts into a single unified support structure.

The Kubernetes project uses commercial Kubernetes software products to provide integrated geospatial analytics and visualization tools within the CANES network for use by network managers and hosted applications.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023
Congressional Add: Kubernetes-based geospatial analytics and visualization	5.792	0.000
FY 2022 Accomplishments: Integrate Kubernetes software into the CANES network to provide integrated geospatial analytics and visualization capabilities for network managers and hosted applications.		
FY 2023 Plans: N/A		
Congressional Adds Subtotals	5.792	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0303138N / *AFLOAT NETWORKS*	Project (Number/Name) 9999 / *Congressional Adds*

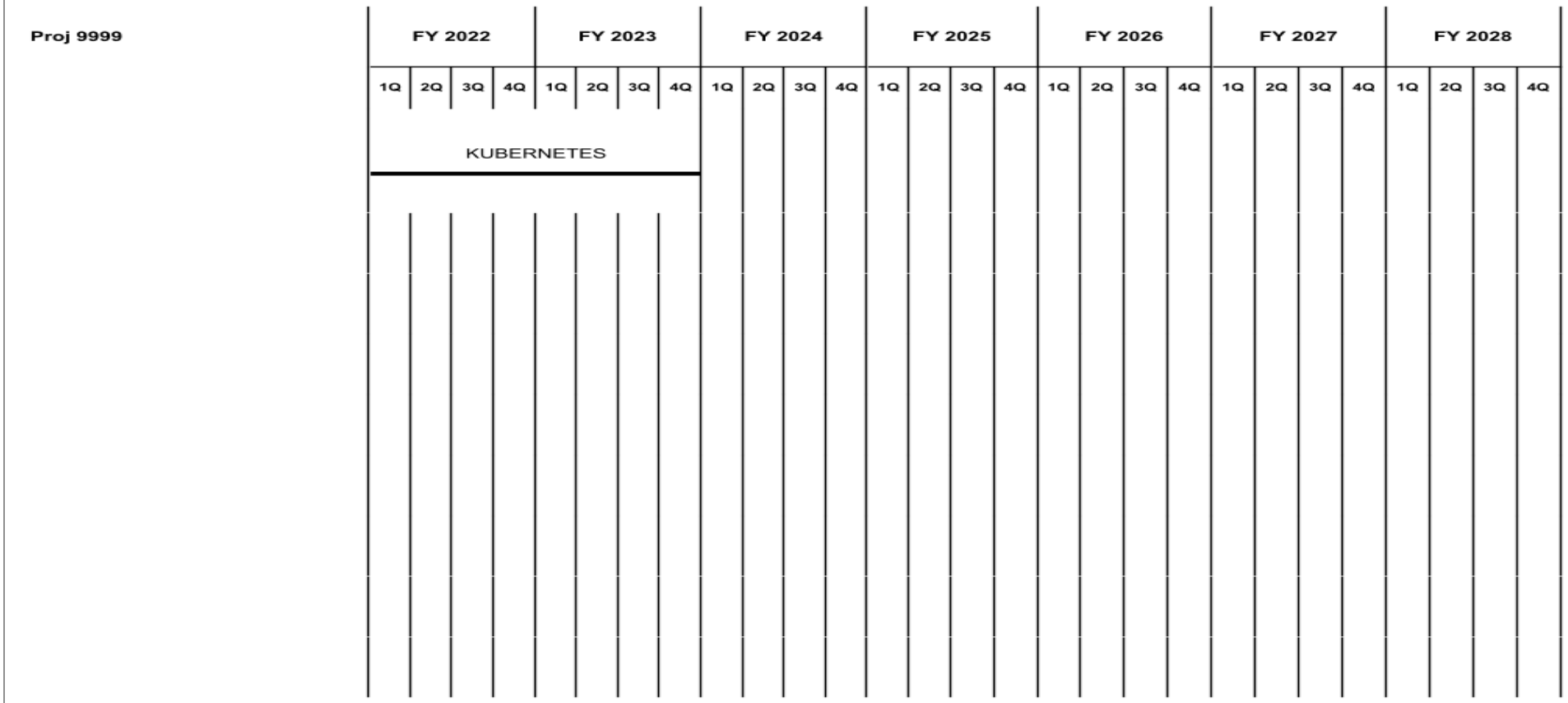
Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Software Development	C/CPFF	NIWC : San Diego, CA and Charleston, SC	4.827	5.792	Jun 2022	0.000		0.000		-		0.000	0.000	10.619	-
		Subtotal	4.827	5.792		0.000		0.000		-		0.000	0.000	10.619	N/A

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	4.827	5.792		0.000		0.000		-		0.000	0.000	10.619	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303138N / *AFLOAT NETWORKS*	**Project (Number/Name)** 9999 / *Congressional Adds*



2024PB - 0303138N - 9999

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303138N / *AFLOAT NETWORKS*	**Project (Number/Name)** 9999 / *Congressional Adds*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 9999				
Engineering Integration	1	2022	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy												Date: March 2023
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0303138N / *AFLOAT NETWORKS*				Project (Number/Name) 9C87 / *CANES Integration*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
9C87: *CANES Integration*	294.343	21.782	21.821	21.060	-	21.060	23.252	26.547	20.450	18.746	329.968	777.969
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: M417

Note

The details of program element 0303138N Project 9C87 are classified and are submitted to Congress in the classified budget justification books.

A. Mission Description and Budget Item Justification

The details of program element 0303138N Project 9C87 are classified and are submitted to Congress in the classified budget justification books.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: CANES Integration	21.782	21.821	21.060	0.000	21.060
Articles:	-	-	-	-	-
FY 2023 Plans: The details of program element 0303138N Project 9C87 are classified and are submitted to Congress in the classified budget justification books.					
FY 2024 Base Plans: The details of program element 0303138N Project 9C87 are classified and are submitted to Congress in the classified budget justification books.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: The details of program element 0303138N Project 9C87 are classified and are submitted to Congress in the classified budget justification books.					
Accomplishments/Planned Programs Subtotals	21.782	21.821	21.060	0.000	21.060

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• OPN/2915: *CANES*	412.002	402.550	467.587	-	467.587	410.053	575.777	597.300	610.525	2,528.432	9,033.925
• OPN/2925: *CANES Intell*	51.593	48.665	48.207	-	48.207	51.256	52.815	55.499	56.617	312.545	1,148.377

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303138N / *AFLOAT NETWORKS*	**Project (Number/Name)** 9C87 / *CANES Integration*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost

Remarks

D. Acquisition Strategy

The details of program element 0303138N Project 9C87 are classified and are submitted to Congress in the classified budget justification books.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0303138N / *AFLOAT NETWORKS*	Project (Number/Name) 9C87 / *CANES Integration*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Classified	Various	Various : Various	265.664	20.844	Nov 2021	20.065	Nov 2022	19.490	Nov 2023	-		19.490	156.967	483.030	437.731
		Subtotal	265.664	20.844		20.065		19.490		-		19.490	156.967	483.030	N/A

Remarks

The details of program element 0303138N Project 9C87 are classified and are submitted to Congress in the classified budget justification books.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Classified	Various	Various : Various	9.220	0.878	Nov 2021	1.428	Nov 2022	1.250	Nov 2023	-		1.250	6.596	19.372	17.744
		Subtotal	9.220	0.878		1.428		1.250		-		1.250	6.596	19.372	N/A

Remarks

The details of program element 0303138N Project 9C87 are classified and are submitted to Congress in the classified budget justification books.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation (OT&E)	Various	Various : Various	6.989	0.000		0.230	Nov 2022	0.225	Nov 2023	-		0.225	1.062	8.506	8.649
		Subtotal	6.989	0.000		0.230		0.225		-		0.225	1.062	8.506	N/A

Remarks

The details of program element 0303138N Project 9C87 are classified and are submitted to Congress in the classified budget justification books.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Classified	Various	Various : Various	12.470	0.060	Dec 2021	0.098	Dec 2022	0.095	Dec 2023	-		0.095	0.453	13.176	13.081

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0303138N / *AFLOAT NETWORKS*	Project (Number/Name) 9C87 / *CANES Integration*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			12.470	0.060		0.098		0.095		-		0.095	0.453	13.176	N/A

Remarks

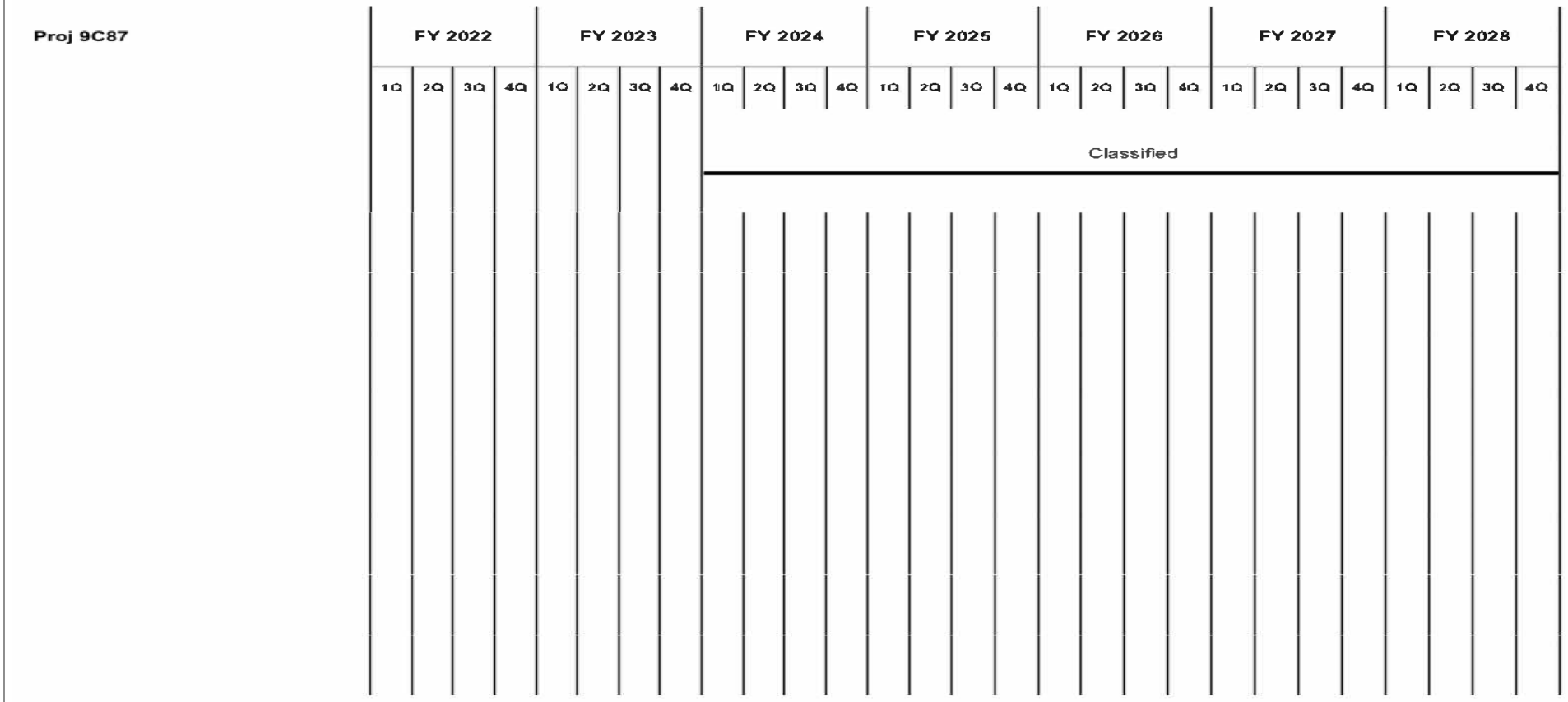
The details of program element 0303138N Project 9C87 are classified and are submitted to Congress in the classified budget justification books.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	294.343	21.782		21.821		21.060		-		21.060	165.078	524.084	N/A

Remarks

The details of program element 0303138N Project 9C87 are classified and are submitted to Congress in the classified budget justification books.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303138N / *AFLOAT NETWORKS*	**Project (Number/Name)** 9C87 / *CANES Integration*



2024PB - 0303138N - 9C87

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303138N / *AFLOAT NETWORKS*	**Project (Number/Name)** 9C87 / *CANES Integration*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 9C87				
Classified	1	2024	4	2028

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy												Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0303140N *I Information Sys Security Program*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	627.045	32.592	33.752	33.390	-	33.390	34.794	35.279	35.664	36.377	Continuing	Continuing
0734: *Communications Security R&D*	600.137	30.449	31.496	31.089	-	31.089	32.447	32.885	33.222	33.886	Continuing	Continuing
3230: *Information Assurance*	26.908	2.143	2.256	2.301	-	2.301	2.347	2.394	2.442	2.491	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Information Systems Security Program (ISSP) ensures the protection of Navy and Navy hosted joint telecommunication and Information Technology (IT) systems from cyber exploitation and attack. The ISSP extends cybersecurity to ensure confidentiality, integrity, and availability of these systems and content processed, stored, or transmitted therein by performing the acquisition, modernization and sustainment of cybersecurity platforms and systems; cyberspace operations include both defensive and offensive measures, which preserve the ability to protect data, networks, net-centric capabilities, and other designated systems while projecting power by the application of force in or through cyberspace. The ISSP includes the protection of the Navy's National Security Systems (NSS). The ISSP must be rapid, predictive, adaptive, and tightly coupled to cyberspace technology. The ISSP provides cybersecurity systems and infrastructure based on mission impacts, cybersecurity threats, information criticality, vulnerabilities, and required defensive countermeasure capabilities.

The ISSP focuses on efforts that address the risk management of cyberspace, which provides capabilities to protect, detect, restore and respond. The ISSP provides the Navy with the following cybersecurity elements: (1) defense of NSS, including other mission requirements (details held at a higher classification), naval weapons systems, critical naval infrastructure for Command, Control, Communications, Computers, & Intelligence (C4I) afloat and ashore networks, joint time and navigation systems, and industrial control systems, using modern cryptographic solutions and cyber security tools; (2) technologies for the Navy's Computer Network Defense (CND) service provider that accelerates the Navy's ability to prevent, constrain, and mitigate cyber attacks and critical vulnerabilities; (3) Navy Cyber Situational Awareness (NCSA) technologies that provides the operational context for cyber threat intelligence and Situational Awareness (SA), from external boundaries to tactical edge infrastructures; (4) assurance of the Navy's Cryptography (Crypto) telecommunications infrastructure and the wireless spectrum; (5) sensing cyber threats across all Navy ashore and afloat networks to expand the capabilities of monitoring, assessing, and detecting adversary activities across multiple enclaves through the collection of tools in SHARKCAGE; (6) assurance of joint-user cyberspace domains, using a Defense-In-Depth (DiD) security architecture and its alignment with the Joint Information Environment (JIE)/Joint Regional Security Stack (JRSS); (7) assurance technologies, including Key Management (KM) and Public Key Infrastructure (PKI).

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy					Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*			R-1 Program Element (Number/Name) PE 0303140N *I Information Sys Security Program*		
B. Program Change Summary ($ in Millions)	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**
Previous President's Budget	33.311	33.752	34.173	-	34.173
Current President's Budget	32.592	33.752	33.390	-	33.390
Total Adjustments	-0.719	0.000	-0.783	-	-0.783
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.003	0.000			
• SBIR/STTR Transfer	-0.716	0.000			
• Rate/Misc Adjustments	0.000	0.000	-0.783	-	-0.783

Change Summary Explanation

TECHNICAL:

Key Management (KM):
NSA changed methodology from Spirals and Spins to Releases. The KMI program will implement an Agile Development approach that will incorporate the tenets of a Development, Security, and Operations (DevSecOps) development methodology for the continued development of KMI CI-3 capabilities implementing Releases 0 thru 7.

SCHEDULE:

Navy Cryptography (Crypto):

- Shifted KGV-11M deliveries to Q2-Q4 FY24.

Key Management (KM):
- CI-3 Full Rate Production Decision (FRPD)/Fielding Decision (FD) shifted from Q1FY24 to Q2FY24 in accordance with NSA schedule. NSA reassessed the Technical Requirements Package to include CI-3 as a result of Department of Defense Chief Information Officer (DODCIO) guidance to address Tier 1 updates in CI-3, resulting in additional scheduling delays.
- CI-3 Release 0 Development, Integration and Test begins Q4FY23 in accordance with NSA schedule.
- CI-3 Release 1 Development, Integration and Test start shifted from Q2FY23 to Q2FY24 in accordance with NSA schedule.
- CI-3 Release 2 Development, Integration and Test start shifted from Q4FY23 to Q4FY24 in accordance with NSA schedule.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0303140N *I Information Sys Security Program*

- CI-3 Releases 3-7 Development, Integration and Test will commence 6 months after the prior release starting in Q2FY25.
- Key Management Infrastructure (KMI) Tech Refresh completion shifted from Q2FY26 to Q1FY27 in accordance with NSA schedule.

FUNDING:
Overall funding has a net decrease of $0.362M in subprojects. The most significant funding change is in the Computer Network Defense (CND) program for increasing Continuity of Operations (COOP) development, and Navy Cryptography (Crypto) program for increasing Crypto Modernization (CM) development efforts.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0303140N / *Information Sys Security Program*				Project (Number/Name) 0734 / *Communications Security R&D*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
0734: *Communications Security R&D*	600.137	30.449	31.496	31.089	-	31.089	32.447	32.885	33.222	33.886	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Information Systems Security Program (ISSP) Research Development Test & Evaluation (RDT&E) efforts extend our cybersecurity and resiliency, provide Defensive Cyberspace Operations (DCO), and cross domain solutions to protect data, Department of Defense (DoD) Information Networks (DoDIN), net-centric operations, the forward deployed, and other designated systems in order to protect cyberspace and critical warfighting capabilities.

This project includes a rapidly evolving development, design and application integration effort to modernize cryptographic equipment and ancillaries with state-of-the-art replacements to counter evolving and increasingly sophisticated threats. Communications Security (COMSEC) and Transmission Security (TRANSEC) are evolving from stand-alone, dedicated devices to embedded modules incorporating National Security Agency (NSA) approved cryptographic engines, loaded with the certified algorithms and keys, and interconnected via industry-defined interfaces. This includes the DoDIN capability requirements document for the development of Content Based Encryption (CBE).

Computer Network Defense (CND): The CND program provides cyberspace capabilities to secure the Cyber Domain. CND is a combination of hardware, software, sets of processes and protective measures that use computer networks to detect, monitor, protect, analyze and defend against network infiltrations resulting in service/network denial, degradation and disruptions. CND enables a government or military institute/organization to defend against network attacks perpetrated by malicious or adversarial computer systems or networks.

Navy Cryptography (Crypto): Navy Crypto modernizes legacy cryptographic equipment which includes families of COMSEC and TRANSEC devices that are divided into crypto voice, crypto data, crypto products and associated ancillary devices. These devices provide modern cryptographic solutions to replace obsolete, legacy devices within the crypto categories in order to meet mandated National Security Agency (NSA) cease key dates for modernized encryption. Advanced Cryptographic Capabilities (ACC) will provide NSA mandated cryptographic security software modernization of various communications security devices by cease key dates (details held at a higher classification).

Key Management (KM): KM monitors and tracks capability verification testing, designs and tests capabilities to provide a net-centric web based architecture, for the ordering, management, and distribution of all cryptographic key material to support Navy users.

Public Key Infrastructure (PKI): The DoD PKI program, under the authority of the Under Secretary of Defense (USD) for Acquisition & Sustainment (USD(A&S)) develops and tests PKI equipment and is responsible for meeting statutory and regulatory requirements for the DoD PKI program. The Navy PKI program tests and implements products for afloat networks and ashore non-Navy Marine Corps Intranet (NMCI) networks and institutionalizes DoD PKI Increment 2 capabilities so that person and non-person entities can securely access all authorized DoD resources.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303140N / *Information Sys Security Program*	**Project (Number/Name)** 0734 / *Communications Security R&D*

SHARKCAGE: SHARKCAGE is the U.S. Navy's Defensive Cyberspace Operations (DCO) analysis enclave and means to achieve cyberspace detection-in-depth for maritime forces afloat and ashore. SHARKCAGE is the mechanism by which units, groups, and fleets will gain an attack sensing and warning (AS&W) capability and how Commander, Task Force 1020/Navy Cyber Defense Operations Command (NCDOC) will achieve unity of effort and economy of force across the Navy's DCO forces. SHARKCAGE is a Navy-specific platform to complement where existing and future theater, joint, and national capabilities are insufficient for detection of adversary activities onboard maritime warfighting platforms that are located at the tactical-edge and distributed across the globe.

Navy Cyber Situational Awareness (NCSA): NCSA is a command and control infrastructure that provides Navy commanders with timely, trusted, and comprehensive Situational Awareness (SA) of the cyberspace domain to include tailored, near real-time visualization of network health, vulnerabilities, and operational readiness through the correlation of data from multiple sources. NCSA combines asset data, baseline configuration data, and real-time threat data which is critical for defending a fully-interconnected network infrastructure. NCSA enables early threat detection and timely decision making. The NCSA software suite includes the Navy Commander's Cyber Dashboard (NCCD), a single view into the platform's cyber readiness, providing better visibility into Information Warfare readiness trends and drivers, as well as current cyber risk to mission; this view is provided by the Readiness Analytics and Visualization Environment (RAVEN) capability. RAVEN is a visualization capability that ingests a variety of readiness and cybersecurity inputs to create visual dashboards. NCSA implements hybrid cloud based modernized Navy Big Data Platform (BDP) instances, including pre-production development and operational instances, that enable data sharing between Navy DCO data and analytics fabric and joint DCO and cyber situational awareness systems as described in the Joint Cyber Warfighting Architecture (JCWA).

Cybersecurity Services: Cybersecurity Services develops cyber architecture and provides cybersecurity engineering for the DoD and Department of the Navy (DoN) cybersecurity interests based on the requirements prioritized by Fleet Cyber Command/Commander Tenth Fleet (FCC/C10F). Cybersecurity Services transitions new technologies to address current Navy cybersecurity challenges.

FY24 will focus on efforts that address the risk management of cyberspace, which provides capabilities to identify, protect, detect, restore and respond. The ISSP provides the Navy with the following cybersecurity elements: (1) defense of National Security Systems (NSS), including other mission requirements (details held at a higher classification), naval weapons systems, critical naval infrastructure for Command, Control, Communications, Computers, & Intelligence (C4I) afloat and ashore networks, joint time and navigation systems, and industrial control systems, using modern cryptographic solutions and cyber security tools; (2) technologies supporting the Navy's Computer Network Defense (CND) service provider that will help the Navy's ability to prevent, constrain, and mitigate cyber attacks and critical vulnerabilities; (3) Navy Cyber Situational Awareness (NCSA) technologies that provides the operational context for cyber threat intelligence and Situational Awareness (SA), from external boundaries to tactical edge infrastructures; (4) assurance of the Navy's Crypto telecommunications infrastructure and the wireless spectrum; (5) sensing cyber threats across all Navy ashore and afloat networks to expand the capabilities of monitoring, assessing, and detecting adversary activities across multiple enclaves through the collection of tools in SHARKCAGE;(6) assurance of joint-user cyberspace domains, using a Defense-In-Depth (DiD) security architecture and its alignment with the Joint Information Environment (JIE)/Joint Regional Security Stack (JRSS), the Integrated Navy Operations Command and Control System (INOCCS), and Zero Trust Architecture (ZTA) concepts; (7) assurance technologies, including Key Management (KM) and Public Key Infrastructure (PKI).

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303140N / *Information Sys Security Program*	**Project (Number/Name)** 0734 / *Communications Security R&D*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Computer Network Defense (CND)	14.465	15.762	16.689	0.000	16.689
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue to manage obsolescence through technical refreshes and capability upgrades to CND subsystems. - Continue to develop and enhance Navy's portion of other mission requirements (details held at a higher classification) and BMD cyber security system of systems within the CND architecture. - Continue to implement DoD and USCC cybersecurity tools and mandates into ONE-Net and C4I networks. - Continue to provide technical guidance to support CANES deployment of new CND capabilities. - Continue to optimize CND to enable transition to JRSS. - Continue efforts to further virtualize CND capabilities for more effective and cost-efficient deployment of cybersecurity technologies. - Continue to develop, integrate, and test solution to replace and assume acquisition management of NCDOC tactical sensor infrastructure. - Continue the enablement of high assurance infrastructure in support of ZTA. -Commence CND NCDOC Continuity of Operations (COOP) development effort to engineer a live automated failover architecture to maintain resilient NCDOC continuity of operations within the DoDIN-N. -Continue Refactor VRAM coding as needed, and adapt VRAM to changing technologies utilized by the application, including adequate integration and testing prior to delivery/production.					
FY 2024 Base Plans: - Continue to manage obsolescence through technical refreshes and capability upgrades to CND subsystems. - Continue to develop and enhance Navy's portion of other mission requirements (details held at a higher classification) and BMD cyber security system of systems within the CND architecture. - Continue to implement DoD and USCC cybersecurity tools and mandates into ONE-Net and C4I networks. - Continue to provide technical guidance to support CANES deployment of new CND capabilities. - Continue efforts to further virtualize CND capabilities for more effective and cost-efficient deployment of cybersecurity technologies. - Continue to develop, integrate, and test solution to replace and assume acquisition management of NCDOC tactical sensor infrastructure. - Continue the enablement of high assurance infrastructure in support of ZTA. -Continue CND NCDOC Continuity of Operations (COOP) development effort to engineer a live automated failover architecture to maintain resilient NCDOC continuity of operations within the DoDIN-N.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303140N / *Information Sys Security Program*	**Project (Number/Name)** 0734 / *Communications Security R&D*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
-Continue Refactor VRAM coding as needed, and adapt VRAM to changing technologies utilized by the application, including adequate integration and testing prior to delivery/production. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY24 increase of $0.927M supports Cybersecurity Coordination advancements in data correlation and analytics technologies transitioning into Computer Network Defense (CND).					
Title: Navy Cryptography (Crypto) ***Articles:*** ***FY 2023 Plans:*** - Continue Advanced Cryptographic Capabilities (ACC) Solutions Development and Product Testing - Continue ACC Deliveries - Commence KGV-11M Deliveries - Continue to provide development and security engineering for modernization of DoN crypto systems and embeddable crypto modernization strategies. - Continue to work with NSA on certification authority and data testing for all crypto modernization efforts. - Continue to investigate impacts of upcoming NSA security enhancements for crypto modernization products. - Continue to enhance and modernize VACM ancillary devices. - Continue to develop Navy strategy and implementation plan to modernize secure voice architectures within Navy networks. ***FY 2024 Base Plans:*** - Continue Advanced Cryptographic Capabilities (ACC) Solutions Development and Product Testing - Continue ACC Deliveries - Continue KGV-11M Deliveries - Continue to provide development and security engineering for modernization of DoN crypto systems and embeddable crypto modernization strategies. - Continue to work with NSA on certification authority and data testing for all crypto modernization efforts. - Continue to investigate impacts of upcoming NSA security enhancements for crypto modernization products. - Continue to enhance and modernize VACM ancillary devices. - Continue to develop Navy strategy and implementation plan to modernize secure voice architectures within Navy networks.	7.113 -	6.911 -	7.316 -	0.000 -	7.316 -

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303140N / *Information Sys Security Program*	**Project (Number/Name)** 0734 / *Communications Security R&D*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Initiate Crypto Mod (CM) Solutions Development, Product Testing, and Fielding. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY24 increase of $0.405M supports Cybersecurity Coordination progressions transitioning into Crypto modernization efforts.					
Title: Key Management (KM) ***Articles:*** ***FY 2023 Plans:*** - Complete the development, engineering and testing of KMI CI-3, Spiral 3 Spin 3 including the integration of iApp within a network environment, which will enhance the accounting for and distribution of Key Management Infrastructure (KMI) key delivery. - Begin the development, engineering and testing of KMI CI-3, Spiral 3 Spin 4. - Continue migrating Communications Security (COMSEC) Management Workstation (CMWS) and the follow on to Simple Key Loader (SKL) into the KMI environment. ***FY 2024 Base Plans:*** - Begin the development, engineering and testing of Key Management Infrastructure (KMI) CI-3, Release 1. - Begin the development, engineering and testing of KMI CI-3, Release 2. - Transition development of Capability Increment (CI)-2 to CI-3 capabilities into KMI. - Begin development of Next Generation Capabilities to distribute key as part of the Crypto Modernization (CM) effort. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY24 increase of $0.117M is due to beginning development of Next Generation Capabilities to distribute key as part of the Crypto Modernization (CM) effort.	1.026 -	1.013 -	1.130 -	0.000 -	1.130 -
Title: Public Key Infrastructure (PKI) ***Articles:*** ***FY 2023 Plans:***	0.408 -	0.411 -	0.462 -	0.000 -	0.462 -

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303140N / *Information Sys Security Program*	**Project (Number/Name)** 0734 / *Communications Security R&D*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Continue Navy compliance and compatibility with DoD PKI implementation, cryptographic algorithms and development efforts, to include CND, enhanced algorithms and other encryption methodologies, NCVI enhancements for afloat and ashore environments, CAC configuration modifications, NEATS, NPE, and SIPRNet Token Management System. ***FY 2024 Base Plans:*** - Continue Navy compliance and compatibility with DoD PKI implementation, cryptographic algorithms and development efforts, to include CND, enhanced algorithms and other encryption methodologies, NCVI enhancements for afloat and ashore environments, CAC configuration modifications, NEATS, NPE, and SIPRNet Token Management System. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY24 increase of $0.051M supports Cybersecurity Coordination progressions transitioning into Public Key Infrastructure efforts.					
Title: SHARKCAGE	2.598	2.532	2.823	0.000	2.823
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue the expansion of other mission requirements (details held at a higher classification) capability within the SHARKCAGE environment. - Continue the enhancement of capabilities to the SHARKCAGE DCO enclave to address additional fleet requirements as the emerging threats evolve. Integration efforts include network taps, sensors, and analytic toolsets for passively monitoring multiple Navy ashore and afloat networks and enclaves. - Continue the SHARKCAGE contract development efforts required to support emergent cybersecurity threats and to provide enhanced incremental capabilities. ***FY 2024 Base Plans:*** -Continue to integrate critical mission requirements (details held at a higher classification) capability within the SHARKCAGE environment to address evolving threats to the warfighter. -Complete the system architecture requirements and prototypes for the SHARKCAGE Afloat and Ashore system units. ***FY 2024 OCO Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303140N / *Information Sys Security Program*	**Project (Number/Name)** 0734 / *Communications Security R&D*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY24 increase of $0.291M due to required architecture and prototype efforts needed to complete Afloat and Ashore system.					
Title: Navy Cyber Situational Awareness (NCSA)	2.387	2.390	2.669	0.000	2.669
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue the development of a shared and tailorable Maritime Cyber "Integrated" COP external to Fleet Cyber Command/Commander Tenth Fleet (FCC/C10F) to include all geographic MOCs to enable assessments of cyber vulnerabilities, threats, and risks relative to Navy missions. - Continue to expand access to mission critical cyber data to provide actionable information to afloat Commanders to understand and mitigate cyber risk to mission. - Deliver platform readiness metrics at an enterprise view of a unit's cyber posture, which provides better visibility into Information Warfare readiness trends and drivers, and displays current risk to mission execution. ***FY 2024 Base Plans:*** - Continue the development of a shared and tailorable Maritime Cyber "Integrated" COP to FCC/C10F, including all geographic MOCs to enable assessments of cyber vulnerabilities, threats, and risks relative to Navy missions. - Continue to expand access to mission critical cyber data to provide actionable information to afloat Commanders to understand and mitigate cyber risk to mission. - Continue to deliver platform readiness metrics at an enterprise view of a unit's cyber posture, which provides better visibility into Information Warfare readiness trends and drivers, and displays current risk to mission execution. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY24 increase of $0.279M supports the continued expansion of access to mission critical cyber data and continued development of a shared and tailorable Cyber Common Operations Center (COP).					
Title: Cybersecurity Coordination	2.452	2.477	0.000	0.000	0.000
Articles:	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303140N / *Information Sys Security Program*	**Project (Number/Name)** 0734 / *Communications Security R&D*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
FY 2023 Plans: - Continue coordination and alignment with joint and DCO/NetOps integration efforts such as Joint Information Environment (JIE), National Defense Authorization Act, Joint Cyber Warfighting Architecture (JCWA) Unified Platform/Data and Analytic Framework (DAF) and the Integrated Navy Operations Command and Control System (INOCCS) to ensure Navy architecture requirements for tactical networks are met. - Continue to provide security systems engineering support for the development of DoD and DoN cybersecurity architectures and the transition of new technologies to address Navy cybersecurity challenges. Continue to provide updates to reflect emerging priorities and address Navy specific threats. - Continue developing implementation strategies for the incorporation of Zero Trust Architecture (ZTA) concepts into the Navy's tactical C4I cybersecurity environment. - Continue to coordinate cybersecurity activities across the virtual SYSCOM via the Cybersecurity TA to ensure the security design and integration of cybersecurity products and services is consistent across the Navy for major initiatives such as the future afloat, ashore, and OCONUS networks. - Continue to provide cybersecurity risk analysis and recommended risk mitigation strategies for Navy critical networks and C4I systems. Continue to coordinate with the Navy acquisition community to ensure cybersecurity requirements are identified and addressed within the development cycles for emerging Navy network and C4I capabilities. - Continue to evaluate products for security issues and develop guidance and procedures for the design and integration of risk mitigation strategies via appropriate cybersecurity controls. - Continue coordination and alignment with JIE (e.g., JRSS, JMS, Tactical Processing Node (TPN) etc.), NDAA 1651/1709 JCWA Unified Platform/DAF and the Integrated Navy Operations Command and Control System (INOCCS) to ensure Navy architecture requirements for tactical networks are met. ***FY 2024 Base Plans:*** N/A ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY24 decrease due to advancements made through Cybersecurity Coordination efforts now transitioning into Computer Network Defense (CND) and Navy Cryptography (Crypto) programs.					
Accomplishments/Planned Programs Subtotals	30.449	31.496	31.089	0.000	31.089

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303140N / *Information Sys Security Program*	**Project (Number/Name)** 0734 / *Communications Security R&D*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• OPN/3415: *Info Systems Security Program (ISSP)*	145.311	156.034	154.890	-	154.890	151.996	154.781	160.353	161.978	Continuing	Continuing

Remarks

D. Acquisition Strategy

Computer Network Defense (CND): The CND Acquisition Category (ACAT) IVM program is a layered protection strategy, which militarizes Commercial Off-The-Shelf (COTS) and integrates Government Off-The-Shelf (GOTS) hardware and software products that collectively provide an effective network security infrastructure. The rapid advancement of cyber technology requires an efficient process for updating CND tools deployed to afloat and ashore platforms. Recognizing the need for future CND capability improvements, the CND program implements an evolutionary acquisition strategy that continuously modernizes and refreshes end-of-life/end-of-service capabilities to ensure the latest cybersecurity tools are protecting the Navy's tactical networks.

Navy Cryptography (Crypto): Modernized crypto devices will replace legacy crypto in accordance with the mandate by Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 6510 as well as the National Security Agency (NSA) planned decertification, which improves the Navy's cyber defense posture. For Advanced Cryptographic Capability (ACC) the acquisition strategy will follow the NSA direction on mandated software upgrades. The KGV-11M program is being led by the Navy.

Key Management (KM): Key Management Infrastructure (KMI) is a NSA-led ACAT I program. It provides the infrastructure for management, ordering and distribution of key material as well as directly supporting the key requirements of all Crypto modernization efforts. KMI CI-2 followed an an agile development strategy, and CI-3 will follow an agile and DevSecOps development strategy. The KMI program will continue to develop alternative architecture implementations for communities within the Navy.

Public Key Infrastructure (PKI): Department of Defense (DoD) PKI is an ACAT I program jointly led by the NSA and the Defense Information Systems Agency (DISA). The Under Secretary of Defense (USD) for Acquisition & Sustainment (USD(A&S)) is the Milestone Decision Authority (MDA). The Navy PKI project supports the DoD-wide implementation of PKI products and services across Navy afloat, non-Navy Marine Corps Intranet (NMCI), Outside the Continental United States (OCONUS) networks and other excepted networks.

SHARKCAGE: SHARKCAGE is transitioning from Rapid Deployment Capability (RDC) to Program of Record and will leverage COTS software and hardware configured to existing Navy networks and enclaves to detect, analyze, and assess cyber threats. SHARKCAGE will provide Navy Cyber Defense Operations Command (NCDOC), Navy Information Operations Centers (NIOC), Fleet Cyber Command/Commander Tenth Fleet (FCC/C10F), Cyber Protection Teams (CPT), and other CND deployers with a global Defensive Cyberspace Operations (DCO) enclave to monitor the Naval Networking Environment (NNE) and maritime Navy networks, including Navy ashore sites and afloat platforms conducting Ballistic Missile Defense (BMD) and other mission requirements (details held at a higher classification).

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303140N / *Information Sys Security Program*	**Project (Number/Name)** 0734 / *Communications Security R&D*

Navy Cyber Situational Awareness (NCSA): The NCSA Deliberate Acquisition Activities will continue to integrate COTS and GOTS hardware and software products to provide visualization of Navy networks and enclaves to analyze and assess mission threats. NCSA will be implemented via an evolutionary acquisition approach using an iterative, agile software enhancement process in the form of capability drops to address future cyber Situation Awareness (SA) capabilities and improvements required by fleet warfighters. These government-led agile software enhancements will be documented and managed through a requirements governance board process.

Cybersecurity Services: Cybersecurity Services is a Navy project, which develops cyber architecture and provides security engineering for the DoD and Department of the Navy (DoN) cybersecurity interests based on the requirements prioritized by FCC/C10F. Cybersecurity Services transitions new technologies to address current Navy cybersecurity challenges.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303140N / *Information Sys Security Program*	**Project (Number/Name)** 0734 / *Communications Security R&D*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development (PY)	Various	Various : Various	196.805	0.000		0.000		0.000		-		0.000	0.000	196.805	-
Hardware Development (WR)	WR	NIWC PACIFIC : San Diego, CA	24.470	3.056	Oct 2021	3.096	Oct 2022	3.055	Oct 2023	-		3.055	Continuing	Continuing	Continuing
Hardware Development	C/CPFF	NIWC PACIFIC : San Diego, CA	8.633	2.268	Oct 2021	2.802	Oct 2022	2.768	Oct 2023	-		2.768	Continuing	Continuing	Continuing
Hardware Development (WR)	WR	NIWC ATLANTIC : Charleston, SC	7.315	0.176	Oct 2021	0.178	Oct 2022	0.176	Oct 2023	-		0.176	Continuing	Continuing	Continuing
Hardware Development	C/CPFF	NIWC ATLANTIC : Charleston, SC	5.890	0.192	Oct 2021	0.195	Oct 2022	0.192	Oct 2023	-		0.192	Continuing	Continuing	Continuing
Software Development (WR)	WR	NIWC PACIFIC : San Diego, CA	52.281	4.646	Oct 2021	4.695	Oct 2022	4.644	Oct 2023	-		4.644	Continuing	Continuing	Continuing
Software Development	C/CPFF	NIWC PACIFIC : San Diego, CA	25.556	3.641	Dec 2021	3.689	Dec 2022	3.639	Dec 2023	-		3.639	Continuing	Continuing	Continuing
Software Development (WR)	WR	NIWC ATLANTIC : Charleston, SC	15.011	2.858	Oct 2021	2.895	Oct 2022	2.857	Oct 2023	-		2.857	Continuing	Continuing	Continuing
Software Development	C/CPFF	NIWC ATLANTIC : Charleston, SC	23.665	3.127	Dec 2021	3.323	Dec 2022	3.278	Dec 2023	-		3.278	Continuing	Continuing	Continuing
Software Development	FFRDC	MITRE : McLean, VA	10.728	0.652	Dec 2021	0.661	Dec 2022	0.936	Dec 2023	-		0.936	Continuing	Continuing	Continuing
Software Development	Various	Various : Various	69.170	0.789	Dec 2021	0.799	Dec 2022	0.984	Dec 2023	-		0.984	Continuing	Continuing	Continuing
Software Development	C/CPFF	BAH : San Diego, CA	15.159	1.652	Jan 2022	1.674	Jan 2023	1.651	Jan 2024	-		1.651	Continuing	Continuing	Continuing
Software Development	FFRDC	GTRI : Atlanta, GA	22.551	0.569	Jan 2022	0.576	Jan 2023	0.285	Jan 2024	-		0.285	Continuing	Continuing	Continuing
Software Development	WR	NSMA : San Diego, CA	7.659	0.650	Oct 2021	0.658	Oct 2022	0.650	Oct 2023	-		0.650	Continuing	Continuing	Continuing
Software Development	WR	NRL : Washington DC	6.146	1.169	Oct 2021	1.184	Oct 2022	0.973	Oct 2023	-		0.973	Continuing	Continuing	Continuing
		Subtotal	491.039	25.445		26.425		26.088		-		26.088	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0303140N / *Information Sys Security Program*	Project (Number/Name) 0734 / *Communications Security R&D*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Architecture	WR	Various : Various	6.502	0.123	Oct 2021	0.125	Oct 2022	0.123	Oct 2023	-		0.123	Continuing	Continuing	Continuing
Architecture	WR	NIWC ATLANTIC : Charleston, SC	3.771	0.216	Oct 2021	0.219	Oct 2022	0.216	Oct 2023	-		0.216	Continuing	Continuing	Continuing
Architecture	WR	NIWC PACIFIC : San Diego, CA	0.450	0.000		0.000		0.000		-		0.000	0.000	0.450	-
Requirements Analysis	C/CPFF	BAH : San Diego, CA	7.990	0.945	Jan 2022	0.957	Jan 2023	0.944	Jan 2024	-		0.944	Continuing	Continuing	Continuing
Studies & Design	WR	Various : Various	7.768	0.353	Oct 2021	0.358	Oct 2022	0.353	Oct 2023	-		0.353	Continuing	Continuing	Continuing
		Subtotal	26.481	1.637		1.659		1.636		-		1.636	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	NIWC PACIFIC : San Diego, CA	39.694	0.817	Oct 2021	0.828	Oct 2022	0.816	Oct 2023	-		0.816	Continuing	Continuing	Continuing
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	WR	COTF : Norfolk, VA	3.367	0.000		0.000		0.000		-		0.000	0.000	3.367	-
Developmental Test & Evaluation (DT&E)	C/CPFF	BAH : San Diego, CA	4.784	1.265	Jan 2022	1.282	Jan 2023	1.265	Jan 2024	-		1.265	Continuing	Continuing	Continuing
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	WR	NIWC ATLANTIC : Charleston, SC	0.234	0.000		0.000		0.000		-		0.000	0.000	0.234	-
		Subtotal	48.079	2.082		2.110		2.081		-		2.081	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	C/CPFF	BAH : San Diego, CA	34.538	1.285	Jan 2022	1.302	Jan 2023	1.284	Jan 2024	-		1.284	Continuing	Continuing	Continuing
		Subtotal	34.538	1.285		1.302		1.284		-		1.284	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0303140N / *Information Sys Security Program*	Project (Number/Name) 0734 / *Communications Security R&D*	

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	600.137	30.449		31.496		31.089		-		31.089	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303140N / *Information Sys Security Program*	**Project (Number/Name)** 0734 / *Communications Security R&D*

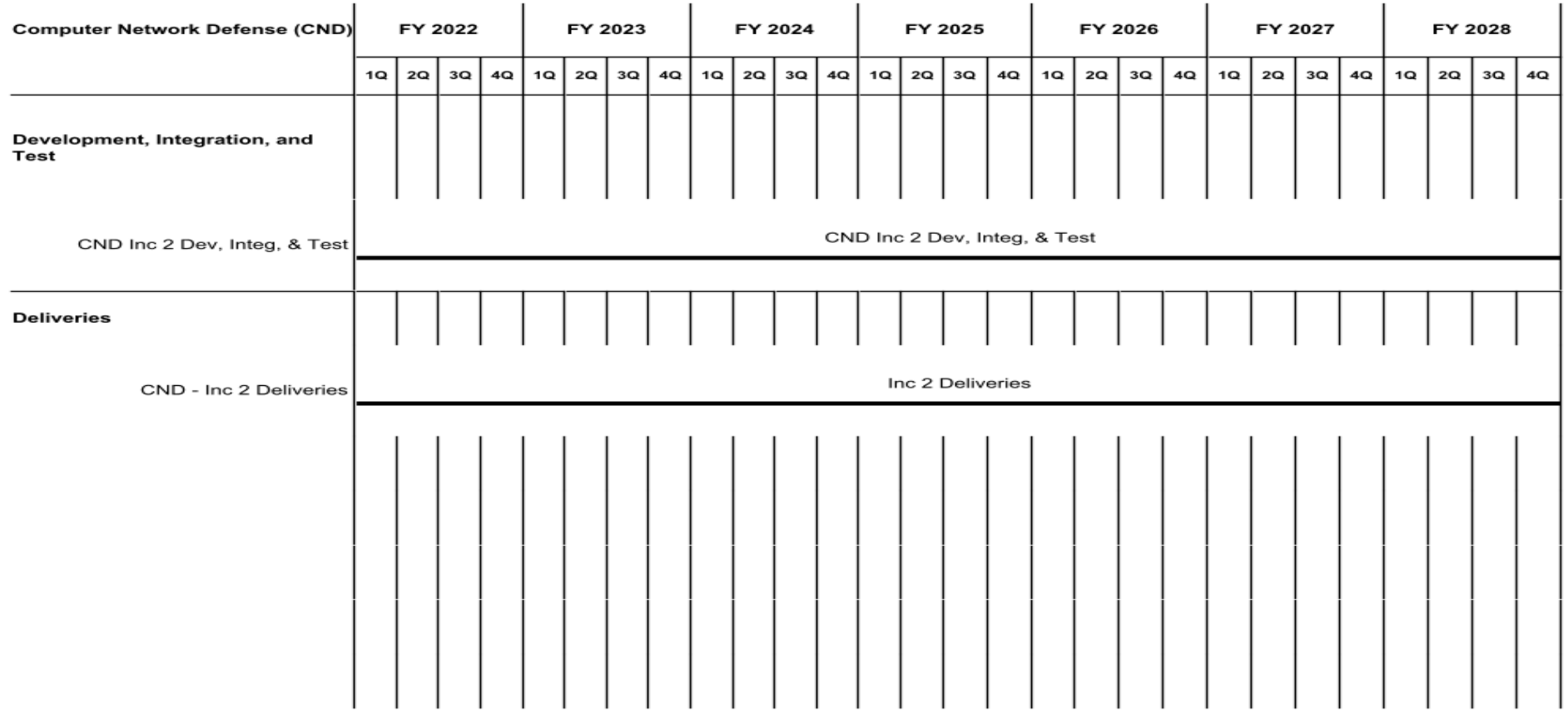

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303140N / *Information Sys Security Program*	**Project (Number/Name)** 0734 / *Communications Security R&D*

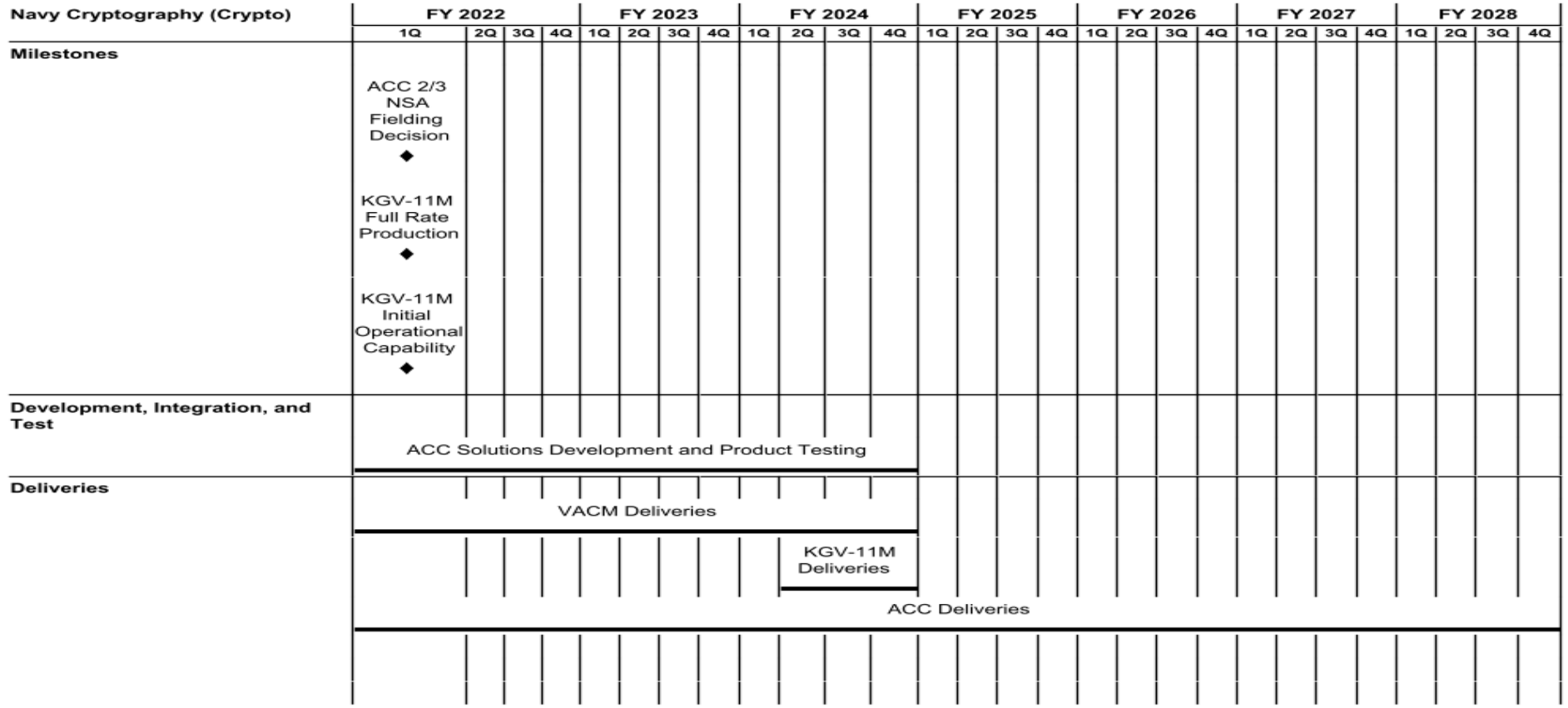

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303140N / *Information Sys Security Program*	**Project (Number/Name)** 0734 / *Communications Security R&D*

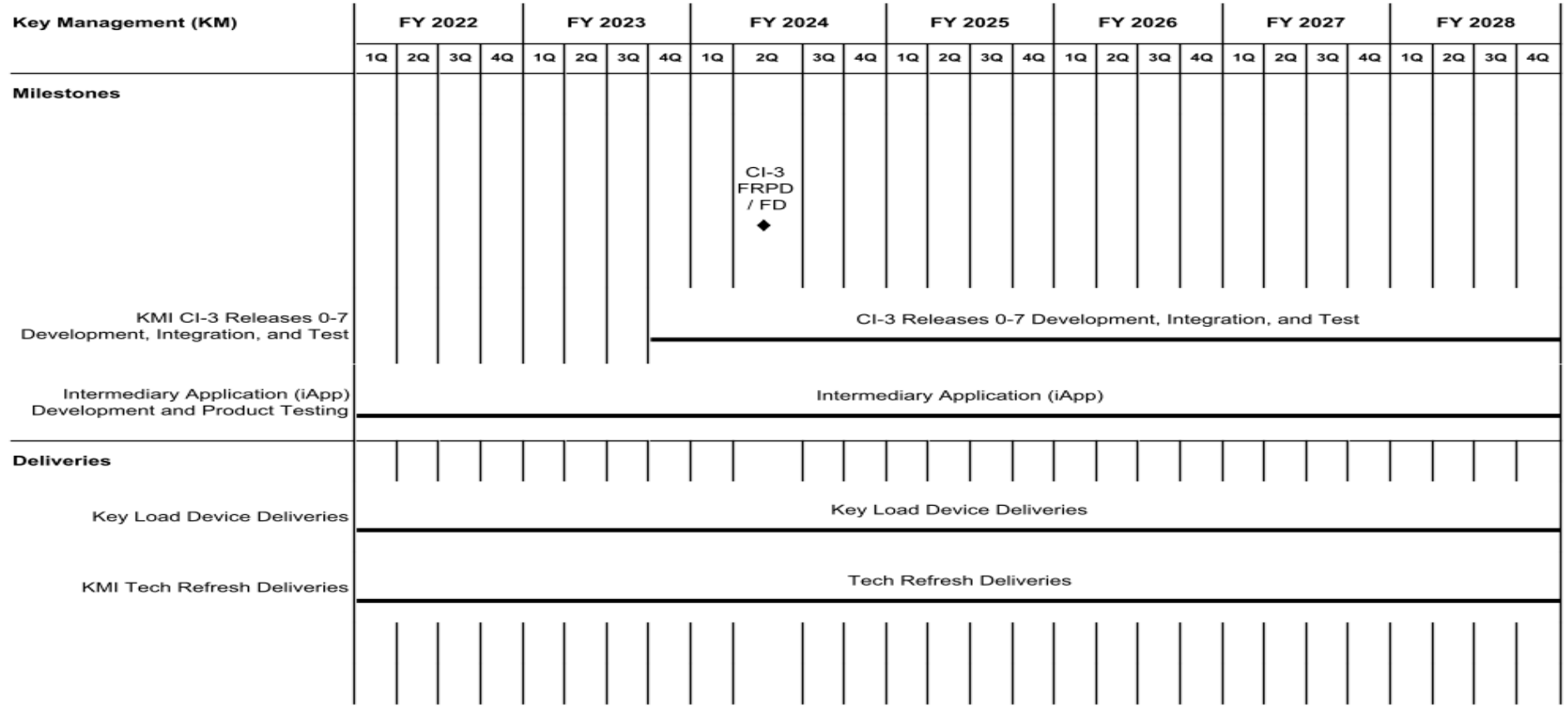

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303140N / *Information Sys Security Program*	**Project (Number/Name)** 0734 / *Communications Security R&D*

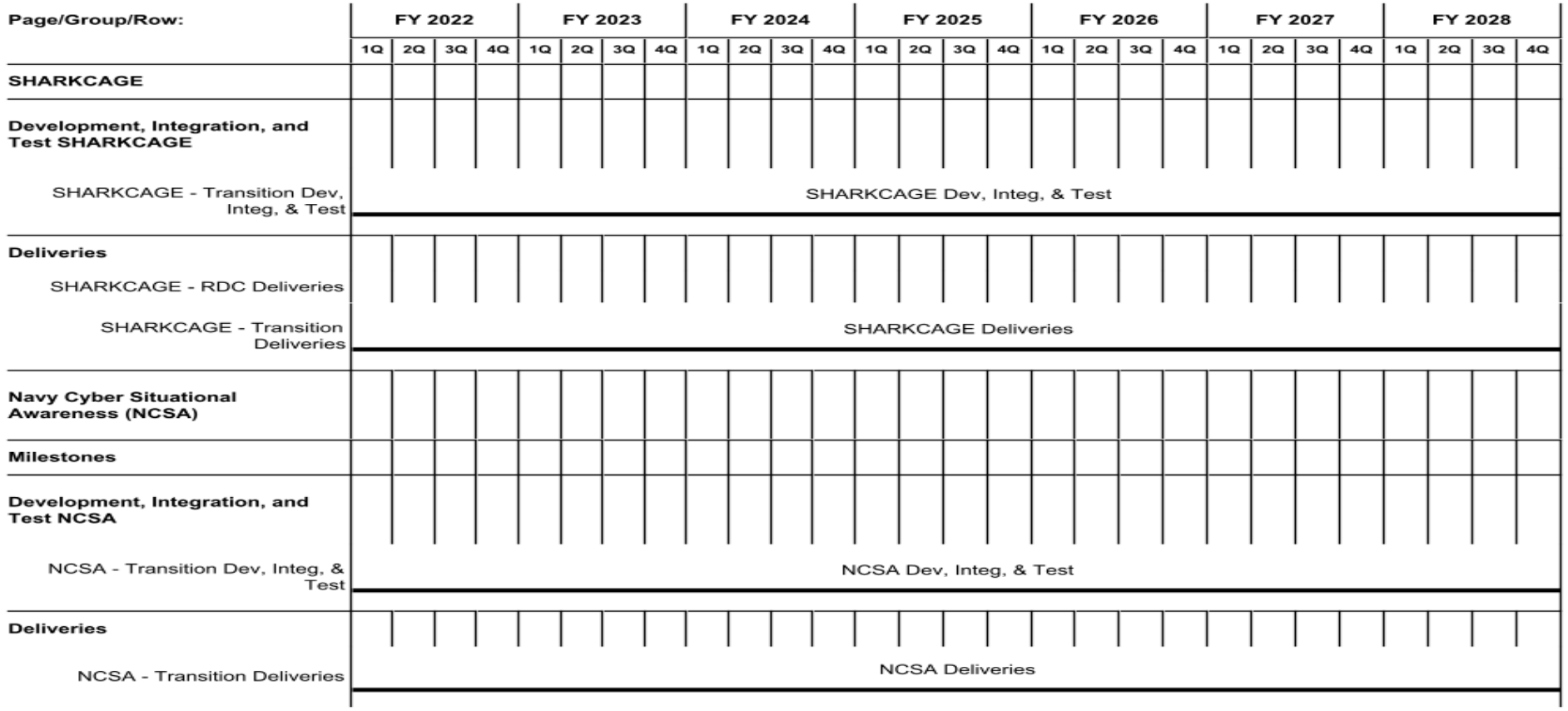

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303140N / *Information Sys Security Program*	**Project (Number/Name)** 0734 / *Communications Security R&D*

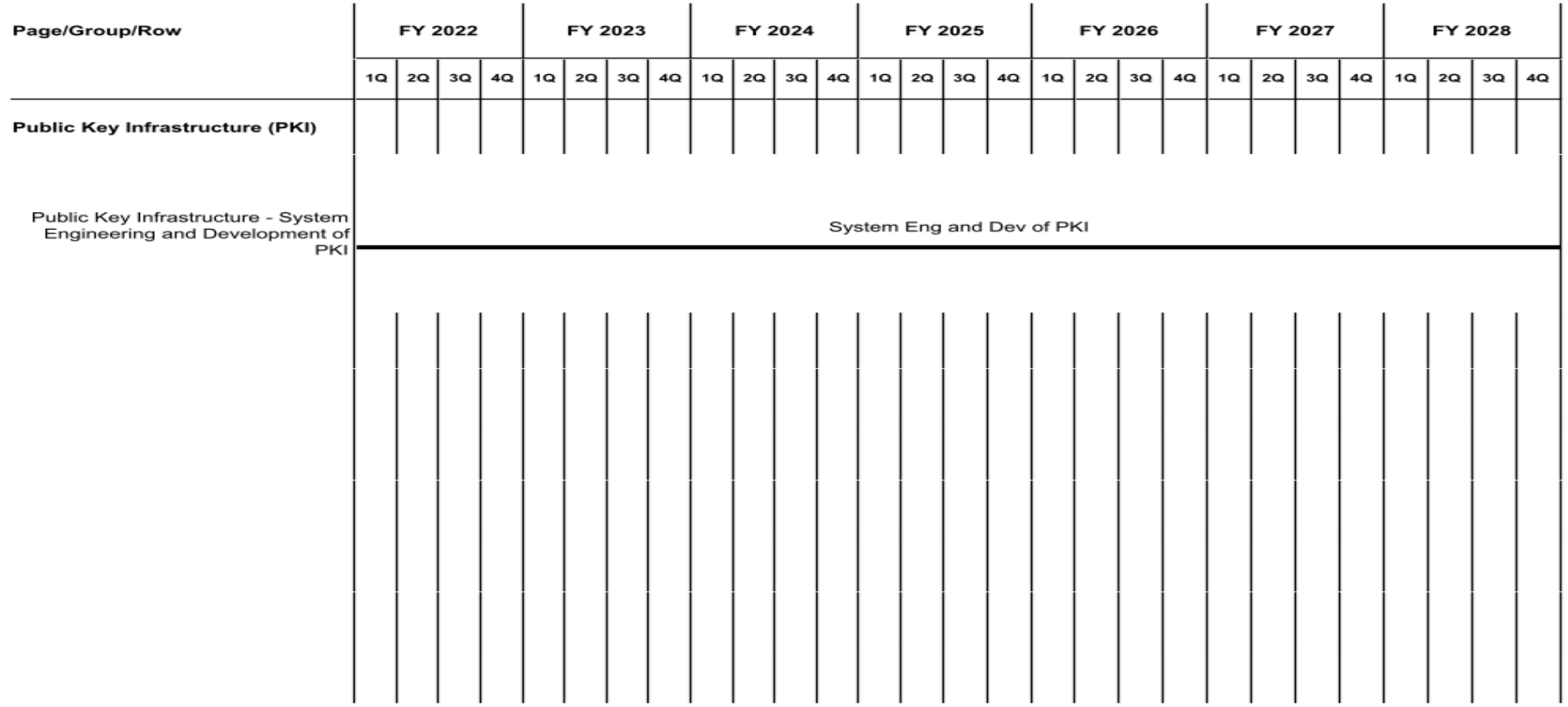

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303140N / *Information Sys Security Program*	**Project (Number/Name)** 0734 / *Communications Security R&D*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Computer Network Defense (CND)				
Development, Integration, and Test: CND Inc 2 Dev, Integ, & Test:	1	2022	4	2028
Deliveries: CND - Inc 2 Deliveries:	1	2022	4	2028
Navy Cryptography (Crypto)				
Milestones: Crypto - ACC 2/3 NSA Fielding Decision	1	2022	1	2022
Milestones: Crypto - KGV-11M Full Rate Production	1	2022	1	2022
Milestones: Crypto - KGV-11M Initial Operational Capability	1	2022	1	2022
Development, Integration, and Test: Crypto - ACC Solutions Development and Product Testing	1	2022	4	2024
Deliveries: Crypto - VACM Deliveries	1	2022	4	2024
Deliveries: Crypto - KGV-11M Deliveries	2	2024	4	2024
Deliveries: Crypto - ACC Deliveries	1	2022	4	2028
Key Management (KM)				
Milestones: KMI CI-3 FRP Decision / FD	2	2024	2	2024
Milestones: KMI CI-3 Releases 0-7 Development, Integration, and Test:	4	2023	4	2028
Milestones: Intermediary Application (iApp) Development and Product Testing:	1	2022	4	2028
Deliveries: Key Load Device Deliveries:	1	2022	4	2028
Deliveries: KMI Tech Refresh Deliveries:	1	2022	4	2028
Page/Group/Row:				
Development, Integration, and Test SHARKCAGE: SHARKCAGE - Transition Dev, Integ, & Test:	1	2022	4	2028
Deliveries: SHARKCAGE - Transition Deliveries:	1	2022	4	2028
Development, Integration, and Test NCSA: NCSA - Transition Dev, Integ, & Test:	1	2022	4	2028

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303140N / *Information Sys Security Program*	**Project (Number/Name)** 0734 / *Communications Security R&D*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Deliveries: NCSA - Transition Deliveries:	1	2022	4	2028
Page/Group/Row				
Public Key Infrastructure (PKI): Public Key Infrastructure - System Engineering and Development of PKI:	1	2022	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0303140N / *Information Sys Security Program*				Project (Number/Name) 3230 / *Information Assurance*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
3230: *Information Assurance*	26.908	2.143	2.256	2.301	-	2.301	2.347	2.394	2.442	2.491	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The goal of the Information Systems Security Program (ISSP) is to ensure the continued protection of Navy and joint information and information systems from hostile exploitation and attack. The ISSP activities address the triad of Defense Information Operations: protection, detection, and reaction. Evolving attack sensing (detection), warning, and response (reaction) responsibilities extend far beyond the traditional ISSP role in the protection of Information Systems, including weapons systems. Focused on the highly mobile forward deployed subscriber, the Navy's adoption of Network-Centric Warfare (NCW) places demands upon the ISSP, as the number of users expands significantly and the criticality of their use escalates. Today, the ISSP protects an expanding core of services critical to the effective performance of the Navy's mission, as well as developing information assurance technology and systems that are resilient and survivable in the face of adversarial attacks. Features that are critical in supporting the Navy's concept of Distributed Maritime Operations (DMO).

The rapid rate of change in the underlying commercial and government information infrastructures makes the provision of security an increasingly complex and dynamic problem. Information Assurance (IA) technology mix and deployment strategies must evolve quickly to meet rapidly evolving threats and vulnerabilities. No longer can information security be divorced from the information infrastructure. The ISSP enables the Navy's war fighter to trust in the availability, integrity, authentication, privacy, and non-repudiation of information.

This project includes funds for advanced technology development, test and evaluation of naval information systems security based on leading edge technologies that will improve information assurance (e.g., situational awareness and information infrastructure protection) across all command echelons to tactical units afloat and war fighters ashore. This effort will provide the research to develop a secure seamless interoperable, common operational environment of networked information systems in the battle space and for monitoring and protecting the information infrastructure from malicious activities. This effort will provide naval forces a secure capability and basis in its achievement of protection from unauthorized access and misuse, and optimized IA resource allocations in the information battle space. This program will also develop core technology to: (1) improve network infrastructure resistance and resiliency to attacks; (2) enable the rapid development and certification of security-aware applications and information technologies in accordance with the common criteria for IA and IA-enabled information technology products by the National Security Telecommunications and Information Systems Security Committee; and (3) measure the effectiveness and efficiency of IA defensive capabilities under naval environments.

The program will develop common architectural frameworks that facilitate integration of network security capabilities, enable effective seamless interoperation, and contribute to a common consistent picture of the networked environment with respect to information assurance and security. This effort will address the need for a common operational picture for IA, as well as assessment of security technology critical to the success of the mission. This effort will also initiate requirements definition for situational awareness capabilities to support computer network defense in a highly-distributed, homogeneous, and heterogeneous networks including mobile and embedded networked devices. This effort also includes the architectural definition of situational awareness and visualization capabilities to support active computer network defense and support underlying data mining and correlation tools. This includes addressing the capability to remotely manage and securely control the

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303140N / *Information Sys Security Program*	**Project (Number/Name)** 3230 / *Information Assurance*

configurations of network security components to implement changes in real time or near real time. This program will also initiate requirements definition for secure coalition data exchange and interoperation among security levels and classifications, and ensure approaches address various security level technologies as well as emerging architectural methods of providing interoperability across different security levels. IA will examine multi-level aware applications and technologies including databases, web browsers, routers/switches, etc. Efforts will also initiate infrastructure protection efforts as the Navy develops network centric architectures and warfare concepts, ensuring an evolutionary development of security architectures and products for Information Assurance (IA) that addresses Navy infrastructure requirements. IA will ensure the architectures evolve to provide proper protection as technology, Department of Defense (DoD) missions, and threats continuously evolve. IA includes defensive protections as well as intrusion monitoring (sensors), warning mechanisms, and response capabilities in the architecture. Ensure the unique security and performance requirements of tactical systems, including those operating various security levels are addressed. Also, the program will initiate the efforts to conceptualize new network centric warfare technology to protect our assets, such as secure network gateways, routers, components and tools that improve the survivability of Navy networks. Additionally, IA will provide systems security engineering, certification and accreditation support for high-confidence naval information systems and ensure certification and accreditation approaches are consistent with Navy and DoD requirements.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Information Assurance (IA)	2.143	2.256	2.301	0.000	2.301
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue systems security engineering, certification and accreditation support for high confidence, high criticality naval information systems and ensure certification and accreditation approaches are consistent with Navy and DoD requirements. - Continue the development of tools to automatically analyze and reverse engineer malware of unknown provenance at scale. This includes rapid prototyping and fielding of novel digital content inspection mechanisms that identify indicators of compromise and generate tailored defensive countermeasures to emerging cyber threats. - Continue the development of new cyber tools/technology to provide dynamic maneuvering/moving target defense of critical naval assets to reduce the attack surface and obviate vulnerabilities prior to exploitation. This includes addressing protocols, input/output resources and stacks, and system software with emphasis on Advanced Persistent Threats (APTs). - Continue the development of tools/technology to provide a cloud application trust in its host infrastructure. - Continue to address SDN-based traffic protection amongst containers deployed on low-trust providers and provide attestation to verify its host complies with a stated network security policy. - Continue the development of tools/technologies that enable scalable, secure device-to-device tactical communications. This includes addressing fine-grained access controls and fully decentralized authorization and enforcement of security policies that enables a self-organizing distributed network in disconnected environments. - Continue the development of tools to measure and reduce collateral damage incurred by cyber operations.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Initiate techniques for multimodal sensing, dependency analysis through causal inference, and fusion of active and passive measurements for iterative sensing and reconnaissance. - Initiate the development of tools to covertly embed sensitive message traffic for resilient cyber and intelligence operations. This includes implementing techniques for altering network protocol parameters in situ, as well as modifying the timing, delay, and delivery of network packets. This further includes techniques to quantify and limit unwanted information leakage to adversaries. - Initiate the development of scalable tools to assure a wide array of naval systems that implement machine learning and deep learning. This includes developer-friendly tools to automate the identification of hazards and faults during the design and development of systems, which process text, image, voice, video, signals, and cyber communications.					
FY 2024 Base Plans: - Complete the development of tools to automatically analyze and reverse engineer malware of unknown provenance at scale. This includes rapid prototyping and fielding of novel digital content inspection mechanisms that identify indicators of compromise and generate tailored defensive countermeasures to emerging cyber threats. - Complete the development of new cyber tools/technology to provide dynamic maneuvering/moving target defense of critical naval assets to reduce the attack surface and obviate vulnerabilities prior to exploitation. This includes addressing protocols, input/output resources and stacks, and system software; with emphasis on Advanced Persistent Threats (APTs). - Continue systems security engineering, certification and accreditation support for high confidence, high criticality naval information systems and ensure certification and accreditation approaches are consistent with Navy and DoD requirements. - Continue the development of tools/technology to provide a cloud application trust in its host infrastructure. - Continue to address SDN-based traffic protection amongst containers deployed on low-trust providers and provide attestation to verify its host complies with a stated network security policy. - Continue the development of tools/technologies that enable scalable, secure device-to-device tactical communications. This includes addressing fine-grained access controls and fully decentralized authorization and enforcement of security policies that enables a self-organizing distributed network in disconnected environments. - Continue the development of tools to measure and reduce collateral damage incurred by cyber operations. Implement techniques for multimodal sensing, dependency analysis through causal inference, and fusion of active and passive measurements for iterative sensing and reconnaissance.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303140N / *Information Sys Security Program*	**Project (Number/Name)** 3230 / *Information Assurance*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Continue the development of tools to covertly embed sensitive message traffic for resilient cyber and intelligence operations. This includes implementing techniques for altering network protocol parameters in situ, as well as modifying the timing, delay, and delivery of network packets. This further includes techniques to quantify and limit unwanted information leakage to adversaries. - Continue the development of scalable tools to assure a wide array of naval systems that implement machine learning and deep learning. This includes developer-friendly tools to automate the identification of hazards and faults during the design and development of systems, which process text, image, voice, video, signals, and cyber communications. - Initiate the development and agile transition of enhanced communication networks to improve information infrastructure protection between the Navy and its commercial partners. This includes cryptographic high value product prototypes, traffic security measures, identity and cryptographic certificate enhancements, and resilience against exfiltration attacks. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY 2024 increase of $0.045M due to inflation.					
Accomplishments/Planned Programs Subtotals	2.143	2.256	2.301	0.000	2.301

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0303140N / *Information Sys Security Program*	Project (Number/Name) 3230 / *Information Assurance*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	Various	NRL : Washington, DC	26.908	2.143	Nov 2021	2.256	Nov 2022	2.301	Nov 2023	-		2.301	Continuing	Continuing	Continuing
		Subtotal	26.908	2.143		2.256		2.301		-		2.301	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	26.908	2.143		2.256		2.301		-		2.301	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303140N / *Information Sys Security Program*	**Project (Number/Name)** 3230 / *Information Assurance*

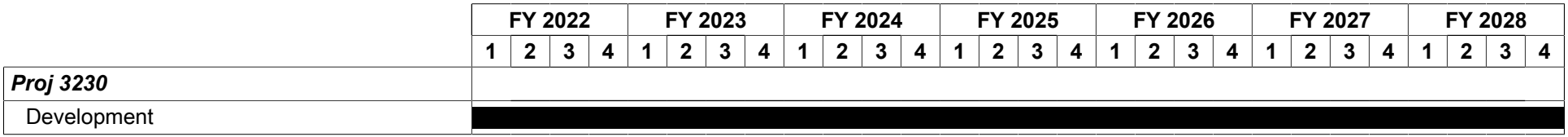

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303140N / *Information Sys Security Program*	**Project (Number/Name)** 3230 / *Information Assurance*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3230				
Development	1	2022	4	2028

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0305192N *I Military Intelligence Program (MIP) Activities*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	7.513	8.415	7.304	-	7.304	8.793	8.771	8.540	8.713	Continuing	Continuing
2246: *Intelligence Support to the Common Operational Picture*	0.000	3.706	4.204	3.012	-	3.012	4.321	4.204	3.899	3.979	Continuing	Continuing
2295: *Maritime Support*	0.000	3.807	4.211	4.292	-	4.292	4.472	4.567	4.641	4.734	Continuing	Continuing

A. Mission Description and Budget Item Justification

The details of this program element are classified CONFIDENTIAL and are submitted annually to Congress in the classified budget justification books.

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	7.514	8.415	8.084	-	8.084
Current President's Budget	7.513	8.415	7.304	-	7.304
Total Adjustments	-0.001	0.000	-0.780	-	-0.780
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.001	0.000			
• Rate/Misc Adjustments	0.000	0.000	-0.780	-	-0.780

Change Summary Explanation

Technical: Not applicable.

Schedule: Not applicable.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy												Date: March 2023
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0305192N / *Military Intelligence Program (MIP) Activities*				Project (Number/Name) 2246 / *Intelligence Support to the Common Operational Picture*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
2246: *Intelligence Support to the Common Operational Picture*	0.000	3.706	4.204	3.012	-	3.012	4.321	4.204	3.899	3.979	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The details of this program element are classified CONFIDENTIAL and are submitted annually to Congress in the classified budget justification books.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy												Date: March 2023
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0305192N / *Military Intelligence Program (MIP) Activities*				Project (Number/Name) 2295 / *Maritime Support*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
2295: *Maritime Support*	0.000	3.807	4.211	4.292	-	4.292	4.472	4.567	4.641	4.734	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The details of this program element are classified CONFIDENTIAL and are submitted annually to Congress in the classified budget justification books.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0305204N *I Tactical Unmanned Aer Vehicles*

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	294.710	9.837	10.576	11.235	-	11.235	10.145	10.328	10.493	10.704	Continuing	Continuing
2478: *Tactical Control System*	294.710	9.837	10.576	11.235	-	11.235	10.145	10.328	10.493	10.704	Continuing	Continuing

A. Mission Description and Budget Item Justification

The MQ-8 Unmanned Air System is a Joint Military Intelligence Program.

This program element provides funding for the software development capabilities associated with Mission modules of the Tactical Unmanned Aerial Vehicle. This project is a Joint Military Intelligence Program.

The Tactical Control System (TCS), a component of the MQ-8 System, provides software for the joint tactical MQ-8 Fire Scout System. TCS integrated into the MQ-8 Mission Control System (MCS) provides the warfighters with the capability for day/night aerial Intelligence, Surveillance and Reconnaissance (ISR), target acquisition, voice, data and command and control communications/relay, and mine detection and localization. Additionally, TCS provides a multi-level, scalable, and flexible operator control of the air vehicles and payloads as well as direct receipt and dissemination of unmanned aerial vehicle sensor data.

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	9.837	10.576	11.185	-	11.185
Current President's Budget	9.837	10.576	11.235	-	11.235
Total Adjustments	0.000	0.000	0.050	-	0.050
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Rate/Misc Adjustments	0.000	0.000	0.050	-	0.050

Change Summary Explanation

Funding: The FY 2024 Request increased by $0.050M since the previous President's Budget submission due to inflation and working capital fund rate adjustments.

Schedule: TCS schedule deliveries updated to reflect changes in MQ-8 Fire Scout schedule milestones. Version 10 is scheduled to complete in the fourth quarter of FY 2023. This aligns with MQ-8 and supports subsequent TCS deliveries. Coastal Battlefield Reconnaissance and Analysis (COBRA) was renamed Mine

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0305204N *I Tactical Unmanned Aer Vehicles*

Counter Measures (MCM) to refer to the capability. The schedule was updated to incorporate TCS versions in support of continued MQ-8 operations with the addition of MCM, Optical Sensor System and Datalink Networks.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0305204N / *Tactical Unmanned Aer Vehicles*	Project (Number/Name) 2478 / *Tactical Control System*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2478: *Tactical Control System*	294.710	9.837	10.576	11.235	-	11.235	10.145	10.328	10.493	10.704	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Tactical Control System (TCS) program supports the MQ-8 Fire Scout System and is a standards-based system, which provides interoperability and commonality for Command and Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) interfaces of Unmanned Aircraft Systems (UAS). TCS software, operating on Mission Control System (MCS) (also referred to as a Ground Control Station) hardware, utilizes North Atlantic Treaty Organization (NATO) Standardization Agreements (STANAG)-4586 architecture to communicate across a Tactical Common Data Link.

TCS provides a full range of scalable UAS capabilities from passive receipt of air vehicle and payload data to full air vehicle and payload command and control. TCS offers the warfighter a common core operating environment to simultaneously receive, process, and disseminate data from different UAS types for intelligence, reconnaissance, surveillance, and combat assessment.

This program supports enhancements and updates to TCS in order to continue to meet supported air vehicle enhancements, incorporation of new technologies that will be used to enhance overall system performance, includes software updates to support Mission System Trainers (MST), incorporate new payloads and payload capabilities, incorporate multi-vehicle control, incorporate NATO STANAG-4586 and Command, Control, Communications, Computers and Intelligence enhancements, and alignment with OSD direction for UAS control segments.

TCS software is incorporated into the MQ-8 Fire Scout System and fields in conjunction with MQ-8. TCS software addresses MQ-8 requirements validated by the Joint Requirements Oversight Council in the MQ-8 Capability Production Document (Nov 2016) and multiple Joint Emergent Operational Need/Urgent Operational Needs statements. TCS is supported by an Operational Requirements Document (Feb 2000).

TCS maximizes the use of contractor and government off-the-shelf hardware and software whenever possible and incorporates software/hardware enhancements where appropriate to maintain growth potential and minimize hardware and operating system dependence. TCS software is interoperable and is compliant with the OSD Command and Control, Communications, Intelligence Joint Technical Architecture, Distributed Common Ground System standards, Global Command and Control System, and NATO standards. TCS hardware and software upgrades support the Navy's Common Control System (CCS) migration and as such can be used to support future UAS MCS requirements.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: TCS Development and Integration	8.748	9.070	8.906	0.000	8.906
Articles:	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305204N / *Tactical Unmanned Aer Vehicles*	**Project (Number/Name)** 2478 / *Tactical Control System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
FY 2023 Plans: Continue TCS integration and test with MQ-8 development. Continue new TCS capabilities to support requirements for MQ-8 land-based efforts plus support for air capable ships (to include Littoral Combat Ship (LCS), Frigates (FFG(X)), and Expeditionary Support Bases (ESB). Continue TCS STANAG 4586 compliance. Continue TCS C4ISR interface integration and testing for MQ-8 systems. Continue hardware and operating system independence initiatives. Continue radar and Minotaur updates. Start TCS version 11 integration and test. ***FY 2024 Base Plans:*** Continue new TCS capabilities to support requirements for MQ-8 land-based efforts plus support for air capable ships (to include LCS, Frigates (FFG(X)), and Expeditionary Support Bases (ESB). Continue TCS STANAG 4586 compliance. Continue TCS C4ISR interface integration and testing for MQ-8 systems. Continue hardware and operating system independence initiatives. Continue TCS version 11 development and test to integrate user interface enhancements, cyber security updates, and onboard operator proficiency training capability. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease of $0.164M from FY2023 to FY2024 due to the transition from a 12 month to an 18 month software development schedule.					
Title: Technical and Engineering Services	1.089	1.506	2.329	0.000	2.329
Articles:	-	-	-	-	-
FY 2023 Plans: Increase in Government Engineering support related to TCS rel 10.0 correction of deficiencies (COD) build and capability enhancements for rel 11.0. ***FY 2024 Base Plans:*** Developmental testing of TCS software modifications to support capability enhancements and corrections of deficiencies (COD). ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:***					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305204N / *Tactical Unmanned Aer Vehicles*	**Project (Number/Name)** 2478 / *Tactical Control System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Increase of $0.823M from FY2023 to FY2024 due to increase in Test and Evaluation to support integration of additional capability, correction of deficiencies and training systems testing requirements, and an increase of management support as it relates to rate adjustments.					
Accomplishments/Planned Programs Subtotals	9.837	10.576	11.235	0.000	11.235

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The TCS program is government owned, non-proprietary software that currently supports the MQ-8 Fire Scout System. The TCS program continues to focus on Navy requirements and standards-based architecture/software to support interoperability. The government-owned TCS software development toolkit is available to all UAS developers and manufacturers that allows a low-cost integration into the open architecture non-proprietary TCS system.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305204N / *Tactical Unmanned Aer Vehicles*	**Project (Number/Name)** 2478 / *Tactical Control System*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Software Development	SS/CPIF	Raytheon : Falls Church,VA	73.906	8.748	Dec 2021	8.241	Dec 2022	8.013	Dec 2023	-		8.013	40.244	139.152	122.874
Prior Year Cost no longer Funded in the FYDP	Various	Various : Various	195.505	0.000		0.000		0.000		-		0.000	0.000	195.505	195.505
Software Development	TBD	Various : Various	0.934	0.000	Nov 2021	0.829	Nov 2022	0.893	Nov 2023	-		0.893	9.376	12.032	11.418
		Subtotal	270.345	8.748		9.070		8.906		-		8.906	49.620	346.689	N/A

Remarks

FY 2024 decrease due to transition from a 12 month to an 18 month software development schedule.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	Various : Various	1.455	0.032	Nov 2021	0.158	Nov 2022	0.938	Nov 2023	-		0.938	Continuing	Continuing	Continuing
		Subtotal	1.455	0.032		0.158		0.938		-		0.938	Continuing	Continuing	N/A

Remarks

FY 2024 increased by $0.780 in Test and Evaluation to support integration of capability enhancements, correction of deficiencies and training systems testing requirements for TCS Rel 10.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	Various	Various : Various	5.012	0.236	Aug 2022	0.329	Nov 2022	0.336	Nov 2023	-		0.336	Continuing	Continuing	Continuing
Government Engineering Support	WR	Various : Various	11.689	0.583	Nov 2021	0.687	Nov 2022	0.679	Nov 2023	-		0.679	Continuing	Continuing	Continuing
Program Management Support	Various	Various : Various	5.717	0.212	Nov 2021	0.298	Nov 2022	0.341	Nov 2023	-		0.341	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305204N / *Tactical Unmanned Aer Vehicles*	**Project (Number/Name)** 2478 / *Tactical Control System*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	WR	NAVAIR : Patuxent River, MD	0.492	0.026	Nov 2021	0.034	Nov 2022	0.035	Nov 2023	-		0.035	Continuing	Continuing	Continuing
		Subtotal	22.910	1.057		1.348		1.391		-		1.391	Continuing	Continuing	N/A

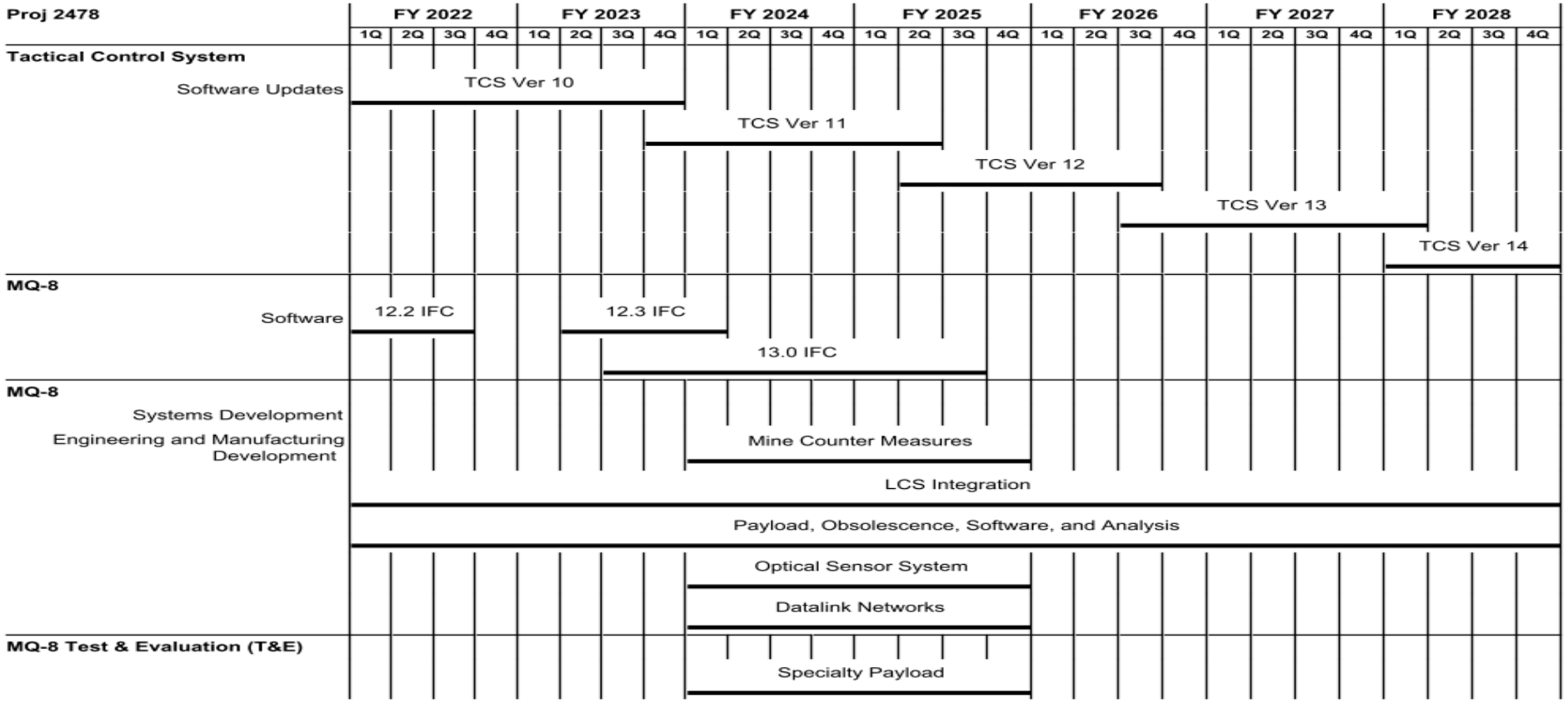
Remarks

FY 2024 increased by $.043 in Management Services: Contractor Engineering support, Program Management support, and Travel relates to working capital fund rate adjustments.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	294.710	9.837		10.576		11.235		-		11.235	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305204N / *Tactical Unmanned Aer Vehicles*	**Project (Number/Name)** 2478 / *Tactical Control System*



2024PB - 0305204N - 2478

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305204N / *Tactical Unmanned Aer Vehicles*	**Project (Number/Name)** 2478 / *Tactical Control System*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2478				
Tactical Control System: Software Updates: TCS Version 10	1	2022	4	2023
Tactical Control System: Software Updates: TCS Version 11	4	2023	2	2025
Tactical Control System: Software Updates: TCS Version 12	2	2025	3	2026
Tactical Control System: Software Updates: TCS Version 13	3	2026	1	2028
Tactical Control System: Software Updates: TCS Version 14	1	2028	4	2028
MQ-8: Software: 12.2 IFC	1	2022	3	2022
MQ-8: Software: 12.3 IFC	2	2023	1	2024
MQ-8: Software: 13.0 IFC	3	2023	3	2025
MQ-8: Engineering and Manufacturing Development: Mine Counter Measures (MCM)	1	2024	4	2025
MQ-8: Engineering and Manufacturing Development: Littoral Combat Ship (LCS) Integration	1	2022	4	2028
MQ-8: Engineering and Manufacturing Development: Payload, Obsolescence, Software, and Analysis	1	2022	4	2028
MQ-8: Engineering and Manufacturing Development: Optical Sensor System	1	2024	4	2025
MQ-8: Engineering and Manufacturing Development: Datalink Networks	1	2024	4	2025
MQ-8 Test & Evaluation (T&E): Specialty Payload	1	2024	4	2025

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy												Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0305205N *I UAS Integration & Interoperability*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	207.766	4.842	15.396	16.409	-	16.409	7.387	6.472	6.544	6.674	Continuing	Continuing
1993: *Architecture and Capabilities for Autonomy in the Naval Enterprise (ARCANE)*	0.000	0.000	0.000	16.409	-	16.409	7.387	6.472	6.544	6.674	Continuing	Continuing
3379: *Common Control System*	207.766	4.842	15.396	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	228.004

A. Mission Description and Budget Item Justification

Unmanned Aircraft Systems (UAS) Integration and Interoperability funding supports the development of solutions for Command and Control (C2) and interoperability of UAS platforms across the Naval Aviation Enterprise (NAE).

Project 3379: All Common Control System (CCS) efforts for Autonomy and Executive Control of multiple unmanned aircraft previously funded under PU 3379 have been transferred to PU 1993 - "Architect and Cap for Autonomy in the Naval Enterprise (ARCANE). This budget profile supports executive control of multiple unmanned aircraft through the development of an autonomy architecture for Naval Aviation platforms. This is an extension of the line of effort established by Common Control System (CCS) (Project 3379), expanding into autonomy and capabilities aligned with the National Defense Strategy. New PU established for clarity.

Project 1993: ARchitecture and Capabilities for Autonomy in the Naval Enterprise (ARCANE) budget profile supports executive control of multiple unmanned aircraft through the development of an autonomy architecture for Naval Aviation platforms. This is an extension of the line of effort established by Common Control System (CCS) (Project 3379),
expanding into autonomy and capabilities aligned with the National Defense Strategy. New PU established for clarity.

The CCS program was redirected in FY21 to focus on autonomy, executive control, artificial intelligence, and machine learning for Unmanned Systems (UxS) systems. This direction was consistent with decisions to implement existing solutions for UAS control, while continuing to advance development in valid requirements captured in the CCS requirements document. Under this new direction the program is operating under the name ARCANE.

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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy					Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*			R-1 Program Element (Number/Name) PE 0305205N *I UAS Integration & Interoperability*		
B. Program Change Summary ($ in Millions)	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**
Previous President's Budget	5.000	18.373	12.396	-	12.396
Current President's Budget	4.842	15.396	16.409	-	16.409
Total Adjustments	-0.158	-2.977	4.013	-	4.013
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-2.977			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.158	0.000			
• Program Adjustments	0.000	0.000	4.000	-	4.000
• Rate/Misc Adjustments	0.000	0.000	0.013	-	0.013

Change Summary Explanation

Project schedule changes from FY23 submission for Project 3379 reflect redirection toward ARCANE and transfer of autonomy and executive control efforts to Project 1993.This is an extension of the line of effort established by Common Control System (CCS) (Project 3379), expanding into autonomy and capabilities aligned with the National Defense Strategy. New PU established for clarity.

FY24 funding increase enables development activities after program redirection toward autonomy. The increase provides funding for development of autonomy architecture, autonomous behaviors, and tools to enable future autonomy development for the NAE.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0305205N / *UAS Integration & Interoperability*	Project (Number/Name) 1993 / *Architecture and Capabilities for Autonomy in the Naval Enterprise (ARCANE)*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
1993: *Architecture and Capabilities for Autonomy in the Naval Enterprise (ARCANE)*	0.000	0.000	0.000	16.409	-	16.409	7.387	6.472	6.544	6.674	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

ARchitecture and Capabilities for Autonomy in the Naval Enterprise (ARCANE) budget profile supports executive control of multiple unmanned aircraft through the development of an autonomy architecture for Naval Aviation platforms. This is an extension of the line of effort established by CCS (Project 3379), expanding into autonomy and capabilities aligned with the National Defense Strategy. New PU established for clarity.

The CCS program was redirected in FY21 to focus on autonomy, executive control, artificial intelligence, and machine learning for Unmanned Systems (UxS) systems. This direction was consistent with decisions to implement existing solutions for UAS control, while continuing to advance development in valid requirements captured in the CCS requirements document. Under this new direction the program is operating under the name ARCANE.

As part of this transition in focus, the ARCANE program is moving forward under the DoD Adaptive Acquisition Framework Software Acquisition Pathway. This pathway will allow the program to be more responsive to the autonomy needs of Naval Aviation platforms and allow for more efficient delivery of incremental capability. ARCANE has requested entry into the Planning Phase of the Software Acquisition Pathway, and is routing for DA approval. A draft acquisition strategy has been developed and will continue to be refined throughout the Planning Phase.

The ARCANE program will be a provider of autonomous capability solutions for Naval Aviation systems in order to provide interoperability between unmanned and autonomous Naval Aviation platforms, achieving integrated warfighting capability. ARCANE will consist of a common autonomy architecture framework; a process to enable Naval Aviation platforms to identify, achieve, and sustain autonomy needs; and a repository of autonomous behaviors developed for all ARCANE implementations across the Naval Aviation Enterprise (NAE). ARCANE will establish the autonomy enterprise architecture that supports the high-end fight and reduces impact on platform and OEM schedule / business arrangements. Autonomous capabilities will reduce cognitive decision-making workload and required operator actions to maximize warfighting impact in future "great power competition." The Software Acquisition Pathway will provide for the growth of autonomy-enabled capabilities at software pace, not traditional acquisition pace.

Concurrent with enterprise-level work on standards and architectures, the ARCANE program will transition the autonomy elements of the AVATAR Manned-Unmanned Teaming (MUM-T) program, fielding an initial MUM-T capability. The foundational autonomy elements of the MUM-T capability will also serve as the starting point for additional autonomy solutions for the NAE. Establishment of the initial MUM-T warfighting capability will be dependent on partner program integration, within that partner's resourcing approach and acquisition strategy.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305205N / *UAS Integration & Interoperability*	**Project (Number/Name)** 1993 / *Architecture and Capabilities for Autonomy in the Naval Enterprise (ARCANE)*

The ARCANE Acquisition Strategy is in revision in accordance with the redirection in the program to focus on autonomy, executive control, artificial intelligence, and machine learning for UxS systems and continuing to reduce barriers to integration of Government-owned software services.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: ARCANE Phase 1	0.000	0.000	16.409	0.000	16.409
Articles:	-	-	-	-	-
FY 2023 Plans: N/A					
FY 2024 Base Plans: FY24 efforts will pursue common autonomy architecture framework for Naval Aviation. This framework will be largely based upon the Strategic Capabilities Office (SCO) AVATAR program, which transfers the autonomy-related technology portions of the AVATAR program to ARCANE by the end of FY23. FY24 will include engineering efforts to increase the technical maturity of the autonomy architecture toward production readiness, enhance cybersecurity, and validate that system safety and airworthiness are satisfactory. Efforts to establish an autonomy test, evaluation, verification, and validation environment will also be included.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: FY 2024 funding enables development activities after program redirection toward autonomy. The increase provides funding for development of autonomy architecture, autonomous behaviors, and related tools for the NAE.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	16.409	0.000	16.409

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• OPN/4604: *ARCANE .*	0.000	0.000	1.612	-	1.612	5.613	5.618	5.728	5.848	Continuing	Continuing

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305205N / *UAS Integration & Interoperability*	**Project (Number/Name)** 1993 / *Architecture and Capabilities for Autonomy in the Naval Enterprise (ARCANE)*

D. Acquisition Strategy

The ARCANE program will move forward under the DoD Adaptive Acquisition Framework Software Acquisition Pathway (DoDI 5000.87). This pathway will allow the program to be more responsive to the autonomy needs of Naval Aviation platforms and allow for efficient delivery of incremental capability.

The program engineering efforts will build onward from the autonomy architectures initiated by the SCO AVATAR program. This foundation will allow the program to start from a point of higher technological maturity to achieve more rapid technology insertion, rather than designing a new autonomy architecture framework. The original SCO effort included competitive contracting under an Other Transactions Authority (OTA) which resulted in three vendors participating in Phase 1 of AVATAR. Two of the three vendors are still participating in Phase 3 of the AVATAR program, and elements from all three original vendors will be leveraged by ARCANE to establish the best possible enterprise architecture for autonomy.

ARCANE will use a combination of government and industry software development and support activities to develop and sustain both the autonomy architecture framework and autonomous behaviors. This will include establishing and maintaining a dedicated government software activity, as well as using relevant contract authorities to quickly allocate scope to industry. Channels for both industry and government organic development will enable ARCANE to provide timely response to operational needs, allowing for addition of new autonomous behaviors and modification of existing behaviors at the speed of relevance. This "capability to create capability" will be critical to countering evolving threats in order to maximize the effectiveness of autonomous systems and the lethality of the units they support in "great power competition."

The funding model for the program is as follows:

- ARCANE funding will establish the autonomy enterprise architecture.

- Once established, the enterprise architecture will require continued funding to support Continuous Integration / Continuous Development (CI/CD). This will include cybersecurity "threat-pacing", correction of software defects, resolution of software obsolescence issues, architecture and pipeline maintenance and upgrades, modification of existing autonomous behaviors, and continued behavior development to "pace the threat."

- When partner programs identify unique autonomy capability needs, these product-specific behaviors will be developed in accordance with the target program's resourcing, requirements, and acquisition approaches.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305205N / *UAS Integration & Interoperability*	**Project (Number/Name)** 1993 / *Architecture and Capabilities for Autonomy in the Naval Enterprise (ARCANE)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Advanced Development	WR	NAWC-WD : China Lake, CA	0.000	0.000		0.000		1.180	Nov 2023	-		1.180	Continuing	Continuing	Continuing
Software Cyber Modeling	C/CPFF	JHU APL : Baltimore, MD	0.000	0.000		0.000		0.555	Nov 2023	-		0.555	Continuing	Continuing	Continuing
Architecture Development	Various	Various : Various	0.000	0.000		0.000		0.605	Mar 2024	-		0.605	Continuing	Continuing	Continuing
SSA - Software Integration	WR	NIWC : San Diego, CA	0.000	0.000		0.000		2.000	Nov 2023	-		2.000	Continuing	Continuing	Continuing
Autonomy Development	TBD	TBD : TBD	0.000	0.000		0.000		3.500	Nov 2023	-		3.500	0.000	3.500	-
Autonomy Engineering and Lab Development	TBD	TBD : TBD	0.000	0.000		0.000		1.000	Nov 2023	-		1.000	0.000	1.000	-
		Subtotal	0.000	0.000		0.000		8.840		-		8.840	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NAWC-AD : Pax River, MD	0.000	0.000		0.000		1.798	Nov 2023	-		1.798	Continuing	Continuing	Continuing
Systems Engineering	WR	NAWC-TSD : Orlando, FL	0.000	0.000		0.000		0.100	Nov 2023	-		0.100	Continuing	Continuing	Continuing
Systems Engineering Technical Agent	C/CPFF	DCS Corporation : Alexandria, VA	0.000	0.000		0.000		2.550	Nov 2023	-		2.550	Continuing	Continuing	Continuing
Systems Engineering	C/CPFF	PSE : San Diego, CA	0.000	0.000		0.000		0.700	Nov 2023	-		0.700	Continuing	Continuing	Continuing
Systems Engineering	C/CPFF	TBD : TBD	0.000	0.000		0.000		0.995	Nov 2023	-		0.995	Continuing	Continuing	Continuing
Software Support Services	C/CPFF	TBD : TBD	0.000	0.000		0.000		0.426	Nov 2023	-		0.426	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.000		6.569		-		6.569	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305205N / *UAS Integration & Interoperability*	**Project (Number/Name)** 1993 / *Architecture and Capabilities for Autonomy in the Naval Enterprise (ARCANE)*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	NAWC-AD : Pax River, MD	0.000	0.000		0.000		0.200	Nov 2023	-		0.200	0.000	0.200	-
Developmental Test & Evaluation (DT&E)	TBD	TBD : TBD	0.000	0.000		0.000		0.100	Nov 2023	-		0.100	0.000	0.100	-
		Subtotal	0.000	0.000		0.000		0.300		-		0.300	0.000	0.300	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	WR	NAWC-AD : Pax River, MD	0.000	0.000		0.000		0.260	Nov 2023	-		0.260	0.000	0.260	-
Program Management Support	C/CPFF	Precise Systems : Lexington Park, MD	0.000	0.000		0.000		0.440	May 2024	-		0.440	0.000	0.440	-
		Subtotal	0.000	0.000		0.000		0.700		-		0.700	0.000	0.700	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		0.000		16.409		-		16.409	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305205N / *UAS Integration & Interoperability*	**Project (Number/Name)** 1993 / *Architecture and Capabilities for Autonomy in the Naval Enterprise (ARCANE)*

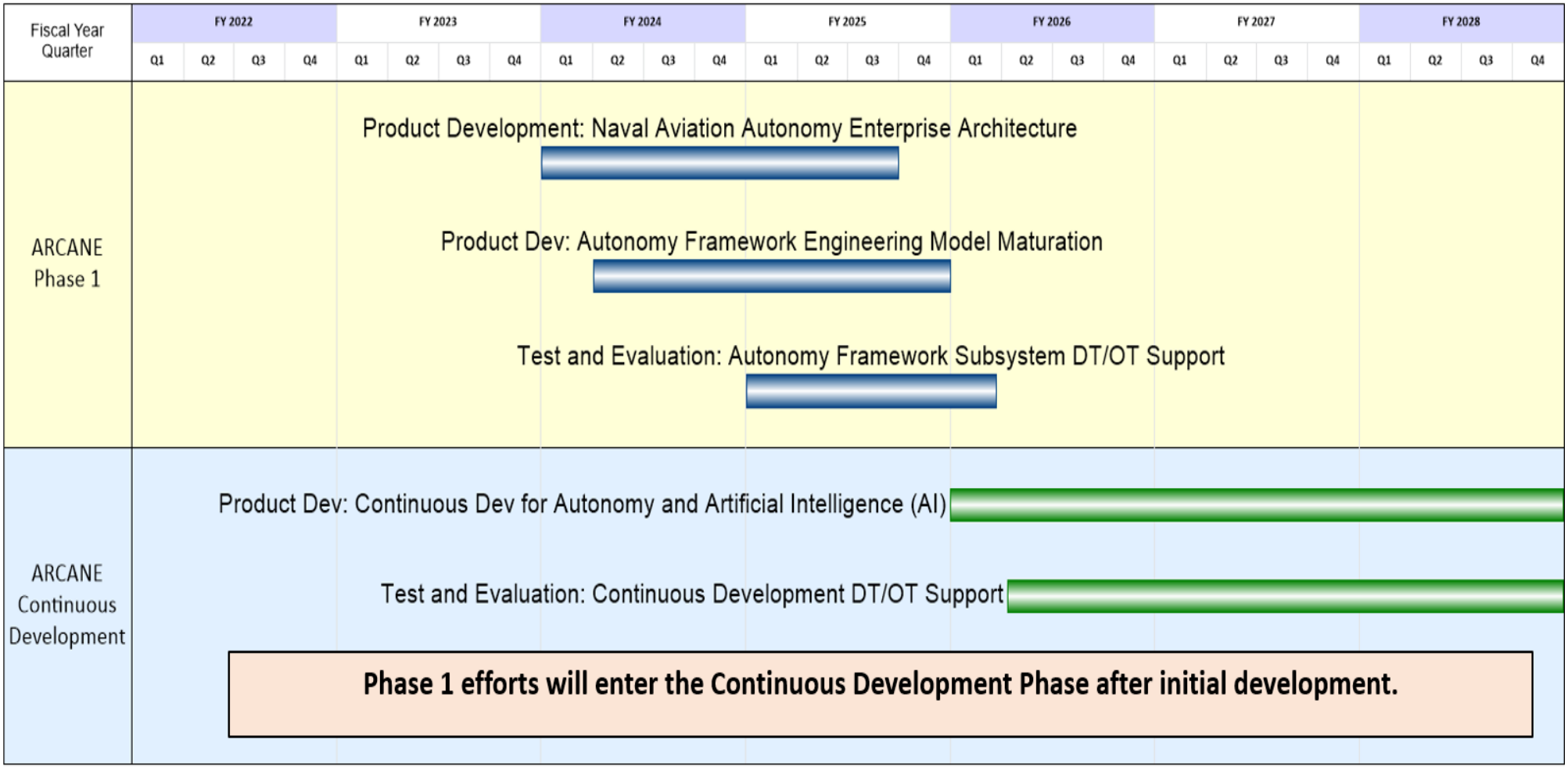

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305205N / *UAS Integration & Interoperability*	**Project (Number/Name)** 1993 / *Architecture and Capabilities for Autonomy in the Naval Enterprise (ARCANE)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 1993				
Product Development: ARCANE Phase 1: Naval Aviation Autonomy Enterprise Architecture Development	1	2024	3	2025
Product Development: ARCANE Phase 1: Autonomy Framework Engineering Development Model Maturation	2	2024	3	2025
Product Development: Continuous Development for Autonomy and AI	1	2026	4	2028
Test and Evaluation: ARCANE Phase 1: Autonomy Framework Subsystem DT/OT Support	1	2025	1	2026
Test and Evaluation: Continuous Development DT/OT Support	3	2026	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0305205N / *UAS Integration & Interoperability*	Project (Number/Name) 3379 / *Common Control System*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
3379: *Common Control System*	207.766	4.842	15.396	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	228.004
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

CCS budget profile supported MQ-8 Fire Scout and follow on UxS platforms. All Common Control System (CCS) efforts for Autonomy and Executive Control of multiple unmanned aircraft have been transferred to PU 1993 - "Architect and Cap for Autonomy in the Naval Enterprise (ARCANE) budget profile supports executive control of multiple unmanned aircraft through the development of an autonomy architecture for Naval Aviation platforms. This is an extension of the line of effort established by Common Control System (CCS) (Project 3379), expanding into autonomy and capabilities aligned with the National Defense Strategy. New PU established for clarity.

The primary mission of CCS is to provide common control across the Navy's UxSs portfolio to add scalable and adaptable warfighting capability, implement robust cybersecurity attributes, leverage existing government owned products, eliminate redundant software development efforts, consolidate product support, encourage innovation thru competition, improve cost control and enable rapid integration of UxS capabilities across Aviation, Surface, Sub-Surface, and Ground domains.

CCS is a ship/shore/airborne/expeditionary based common control system that provides Vehicle Management (VM) /MM/MP capabilities for Naval Group 1 through 5 Unmanned Air Vehicles (UAVs) as well as other domain UxSs. VM is the software that allows the operator to control the UxS. MM/MP is the software that allows the operator to create mission plans and control the UxS's sensors and payloads. CCS software is based on the Society of Automotive Engineers (SAE) Unmanned Control Segment (UCS) architecture which is a service oriented open architecture that is modular and scalable to meet evolving Service requirements and is also supportive of safety/airworthiness certification and cybersecurity certification.

The CCS requirements are documented in an approved and validated Information Systems Initial Capabilities Document (IS-ICD) and in approved Requirement Definition Packages (RDP). This program defines, develops, and delivers CCS capabilities that enables the flexibility for Ground Control Systems (GCS) that could be ship, shore, airborne, or expeditionary based to operate multiple and dissimilar Naval UxSs. CCS includes a common framework, user interface, and common components that will also be integrated and tested with legacy platform components. CCS is being developed with an open and modular business model with robust cybersecurity implementation and will be provided as Government Furnished Equipment (GFE) to UxS contractors as required. The CCS acquisition approach provides increasing capability through incremental development for UxS platforms as follows: Increment I delivered initial unmanned vehicle management (VM) functionality for MQ-25 Stingray in FY 2018 and MQ-8 Fire Scout in FY 2019. Increment I development activities completed in FY 2019. Increment II builds upon CCS Increment I software delivery, adding discrete common MM/MP capabilities as well as maturing VM capabilities.

These MM/MP capabilities include route planning, sensor and payload control, and data processing and dissemination. CCS Increment II software will be hosted on legacy platform hardware. Increment II adds robust cybersecurity controls, key systems safety attributes and core program infrastructure, to include a system integration lab and software support activity (SSA), which provides monthly cybersecurity patches and Correction of Deficiencies. Additional efforts include developing and executing plans for integration of common CCS VM services already developed under this program into other UxS cross-domain platforms' control stations to reduce

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305205N / *UAS Integration & Interoperability*	**Project (Number/Name)** 3379 / *Common Control System*

department-level Total Ownership Costs for unmanned Ground Control Systems. The CCS Acquisition Strategy was revised in FY21 to align with the UxS Campaign Plan to focus on executive control, automation, artificial intelligence and machine learning for UxS systems.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Increment II	4.842	15.396	0.000	0.000	0.000
Articles:	-	-	-	-	-

Description: CCS Increment II develops common MM/MP capabilities and updates and matures VM capabilities, integrating these capabilities into the core CCS software baseline delivered under Increment I in support of Naval UxSs. CCS Increment II is the future common control system software that provides maximum commonality for affordable transition to MQ-8 Fire Scout, and other UxS to reduce enterprise Total Ownership Cost for UxS Ground Control Systems. Increment II also incorporates cyber security measures, key systems safety attributes, and core program infrastructure to include system integration lab and software support activities (SSA).

FY 2023 Plans:
The SSA will continue to provide integrated software baselines to supported UxS platforms, correct identified deficiencies, ensure cyber security compliance, and support engineering/test/evaluation activities. Development efforts support the CNO's Unmanned Campaign Plan, including key focus areas related to Model-Based Systems Engineering, interoperability throughout the Navy and DoD, autonomy, artificial intelligence /machine learning, manned-unmanned teaming, cyber defense and continuing to reduce barriers to integration of Government owned software services. This includes incremental deliveries of both the Integrated Cyber Model (ICM) to detect/address cyber attacks during mission execution and the CCS Common Presentation Layer, the prerequisite for control of multiple dissimilar UxS vehicles from a single control station. Begin integration efforts with Unmanned Maritime Autonomy Architecture (UMAA) in FY23 while integration and test support for other CCS platforms continue. Starting in FY23, funding will support an increased focus on Autonomy development. Autonomy development includes: collaboration with Industry and other Government agencies regarding technology maturation and transition; Capability Test, Evaluation, Validation, and Verification (TEVV); and Capability Monitoring & Sustainment. As part of autonomy development, the program will begin transition activities for the autonomy elements of the AVATAR MUM-T program, in coordination with other partner programs, with the ultimate goal of fielding an operational MUM-T capability.

FY 2024 Base Plans:
N/A

FY 2024 OCO Plans:

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305205N / *UAS Integration & Interoperability*	**Project (Number/Name)** 3379 / *Common Control System*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** CCS efforts relating to autonomy and executive control of multiple unmanned aircraft have been transferred to Project 1993. Funding for Project 3379 reduced to zero based on cessation of further development on legacy CCS.					
Accomplishments/Planned Programs Subtotals	4.842	15.396	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• OPN/4250: *Common Control System*	1.470	1.610	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	5.558

Remarks

D. Acquisition Strategy

Program Executive Office Unmanned Aviation and Weapon Systems (PEO(U&W)) issued an Acquisition Decision Memorandum (ADM) 5000 Ser PEO(U&W)/11-093 dated July 1, 2011 to establish the Common Control System (CCS) to achieve Unmanned Aircraft System (UAS) common control across PEO(U&W) UAS platforms to eliminate redundant efforts, encourage innovation and improve cost control of unmanned aviation.

As directed by the ADM the program will define, develop and deliver a common control system to be integrated into platform ground control systems that operate respective naval Unmanned Systems (UxS)s. This will include a common framework, a common user interface and common components that will be integrated and tested with unique components on emerging or legacy platforms. The CCS acquisition approach provides increasing UxS capability through incremental development for UxS platforms as follows: Increment I provided common Vehicle Management (VM) capability to MQ-25 Stingray and MQ-8 Fire Scout which can also support other UxSs.

Increment II develops common MM/MP capabilities and updates and matures VM capabilities, integrating these capabilities into the core CCS software baseline delivered under Increment I in support of Naval UxSs. CCS was provided to the MQ-25 Stingray air vehicle prime as Government-Furnished Equipment (GFE) in FY 2018 and was also provided for transition to MQ-8 Fire Scout starting in FY 2019.

CCS is available to additional follow-on UxS platforms to further reduce enterprise Total Ownership Cost for Ground Control Systems. CCS leverages existing government-owned products and will employ competitive procurement vehicles.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305205N / *UAS Integration & Interoperability*	**Project (Number/Name)** 3379 / *Common Control System*

ASN (RDA) designated CCS Increment II as an ACAT II program on December 1, 2017. PEO(U&W) issued ADM 5000 Ser PEO(U&W)/18-119 dated September 11, 2018 approving the CCS Increment II Acquisition Strategy. PEO(U&W) issued ADM 5000 Ser PEO(U&W)/18-157 dated October 5, 2018 approving the CCS acquisition documentation tailoring and entry criteria for Increment II Milestone B. OPNAV N9 letter designating CCS as the Navy's Unmanned Systems' (UxS) Control Station software signed 31 JAN 19. CCS IS-ICD signed by OPNAV N9 on 01 MAR 19 and validated by JROC on 23 JUL 19. Requirements Definition Package (RDP) for CCS Unmanned Aircraft System (UAS) VM was signed by OPNAV N98 on 07 MAR 19. RDP for CCS UAS MM/MP signed by OPNAV N98 on 07 MAR 19. A Key Performance Parameter for all future Navy Unmanned Systems to use CCS was approved by OPNAV N9 08 JAN 2020. RDP for CCS interoperability signed by OPNAV N98 on 23 JUL 20. CCS was reaffirmed as the Navy's Modular Open Systems Architecture (MOSA) control software solution for all Navy Unmanned Systems (UxS), DEC 2020. OPNAV N9 further highlighted their commitment to CCS as defined in the UxS Campaign Plan on 17 MAR 21.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0305205N / *UAS Integration & Interoperability*	Project (Number/Name) 3379 / *Common Control System*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Software Development (Increment I)	C/CPFF	Raytheon : Dulles, VA	44.177	0.000		0.000		0.000		-		0.000	0.000	44.177	44.228
Primary Software Development - Software Services (Increment II)	C/CPFF	TBD : TBD	0.000	0.000	Jul 2022	2.023	Jan 2023	0.000		-		0.000	0.000	2.023	Continuing
Primary Software Development - Software Services (Increment II)	C/CPFF	Northop Grumman : Rancho Bernardo, CA	13.034	0.000		0.000		0.000		-		0.000	0.000	13.034	Continuing
Primary Software Development - Software Services (Increment II)	C/CPFF	Raytheon : Dulles, VA	2.364	0.000		0.000		0.000		-		0.000	0.000	2.364	2.364
Advanced Development	WR	NAWC-WD : China Lake, CA	8.574	0.240	Nov 2021	0.245	Nov 2022	0.000		-		0.000	0.000	9.059	8.339
Software Cyber Modeling	C/CPFF	JHU APL : Baltimore, MD	4.949	0.000	Jul 2022	0.551	Jul 2023	0.000		-		0.000	0.000	5.500	Continuing
Architecture Development	C/CPFF	SEI : Hanscom, MA	1.355	0.000		0.000		0.000		-		0.000	0.000	1.355	1.355
Architecture Development	C/CPFF	NRL : Washington, DC	2.330	0.000		0.000		0.000		-		0.000	0.000	2.330	2.330
Architecture Development	Various	Various : Various	4.733	0.100	Mar 2022	0.102	Mar 2023	0.000		-		0.000	0.000	4.935	3.605
SSA - Software Integration	C/CPFF	Raytheon : Dulles, VA	17.057	0.000		0.000		0.000		-		0.000	0.000	17.057	Continuing
SSA - Software Integration	C/CPFF	NIWC : San Diego, CA	6.590	0.676	Nov 2021	4.312	Nov 2022	0.000		-		0.000	0.000	11.578	Continuing
MQ-25 MIPR NSMA	TBD	NSMA : Washington, DC	48.000	0.000		0.000		0.000		-		0.000	0.000	48.000	-
Autonomy Development	TBD	TBD : TBD	0.000	0.000		2.732	Nov 2022	0.000		-		0.000	0.000	2.732	-
		Subtotal	153.163	1.016		9.965		0.000		-		0.000	0.000	164.144	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0305205N / *UAS Integration & Interoperability*	Project (Number/Name) 3379 / *Common Control System*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NAWC-AD : Pax River, MD	22.031	1.045	Nov 2021	1.516	Nov 2022	0.000		-		0.000	0.000	24.592	Continuing
Lead Systems Engineering and Integration	WR	NAWC-WD : Pt Mugu, CA	2.995	0.000		0.000		0.000		-		0.000	0.000	2.995	2.995
Systems Engineering	C/CPFF	Engility : Pax River, MD	0.756	0.000		0.000		0.000		-		0.000	0.000	0.756	0.756
Systems Engineering Integration Test	C/CPFF	Booz Allen : Pax River, MD	3.064	0.000		0.000		0.000		-		0.000	0.000	3.064	Continuing
Systems Engineering Study	C/CPFF	CNA : Alexandria, VA	0.800	0.000		0.000		0.000		-		0.000	0.000	0.800	0.800
Systems Engineering	Various	Various : Various	1.666	0.000		0.000		0.000		-		0.000	0.000	1.666	2.026
Systems Engineering Technical Agent	C/CPFF	DCS Corporation : Alexandria, VA	10.176	0.000		0.000		0.000		-		0.000	0.000	10.176	10.176
Systems Engineering Technical Agent Follow On	C/CPFF	DCS Corporation : Alexandria, VA	2.300	1.735	Nov 2021	2.850	Nov 2022	0.000		-		0.000	0.000	6.885	Continuing
Systems Engineering	C/CPFF	PSE : San Diego, CA	1.750	0.375	Nov 2021	0.382	Nov 2022	0.000		-		0.000	0.000	2.507	-
		Subtotal	45.538	3.155		4.748		0.000		-		0.000	0.000	53.441	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	NAWC-AD : Pax River, MD	2.545	0.190	Nov 2021	0.193	Nov 2022	0.000		-		0.000	0.000	2.928	Continuing
Developmental Test & Evaluation (DT&E)	WR	NAWC-WD : Pt Mugu, CA	0.730	0.000		0.000		0.000		-		0.000	0.000	0.730	0.730
Developmental Test & Evaluation (DT&E)	C/CPFF	BAE : Rancho Bernardo, CA	2.549	0.000		0.000		0.000		-		0.000	0.000	2.549	2.549
		Subtotal	5.824	0.190		0.193		0.000		-		0.000	0.000	6.207	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0305205N / *UAS Integration & Interoperability*	Project (Number/Name) 3379 / *Common Control System*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	WR	NAWC-AD : Pax River, MD	1.801	0.250	Nov 2021	0.255	Nov 2022	0.000		-		0.000	0.000	2.306	Continuing
Program Management Support	C/CPFF	Ausley Associates : Lexington Park, MD	1.440	0.231	May 2022	0.235	May 2023	0.000		-		0.000	0.000	1.906	Continuing
		Subtotal	3.241	0.481		0.490		0.000		-		0.000	0.000	4.212	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	207.766	4.842		15.396		0.000		-		0.000	0.000	228.004	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305205N / *UAS Integration & Interoperability*	**Project (Number/Name)** 3379 / *Common Control System*

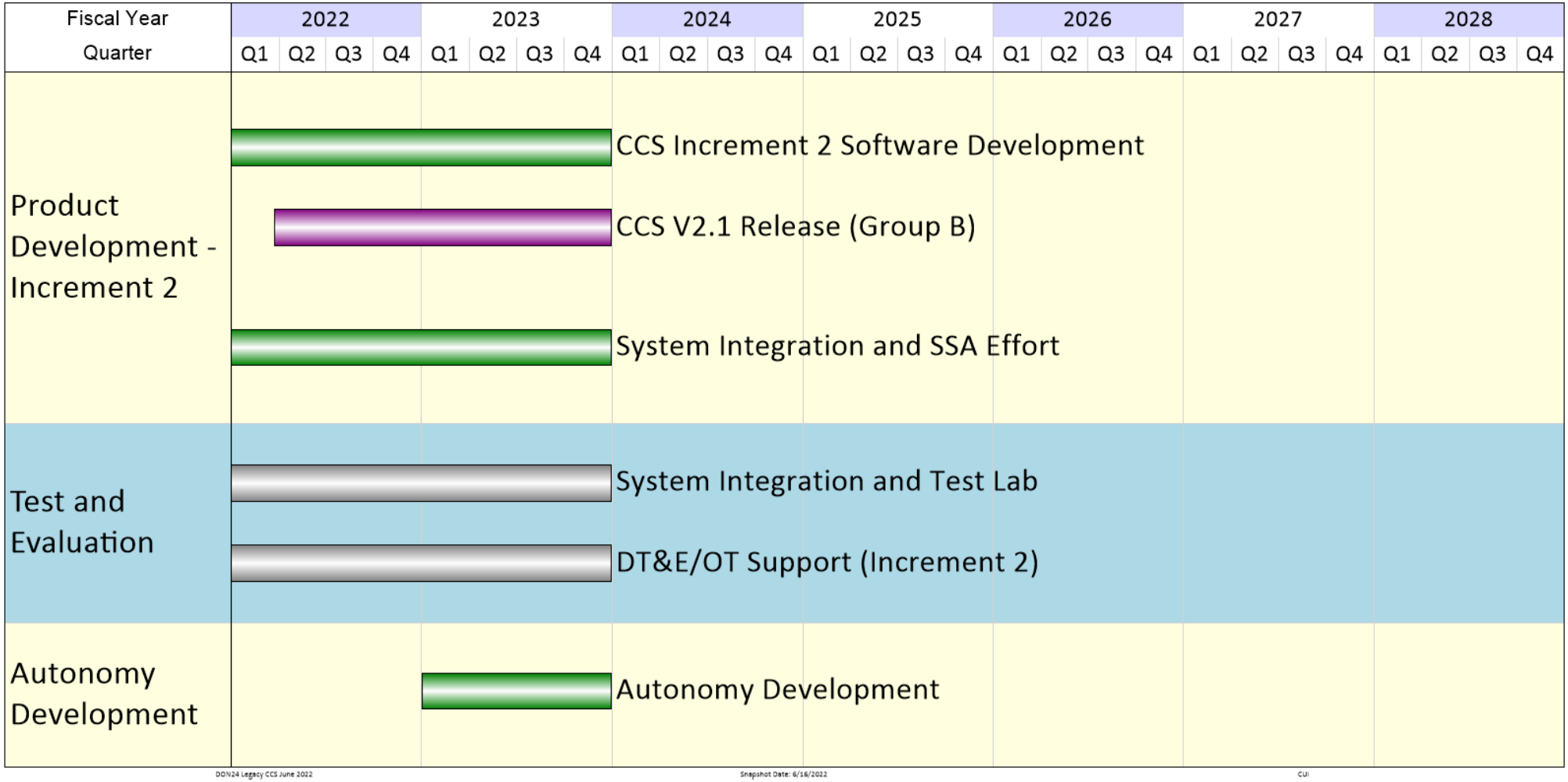

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305205N / *UAS Integration & Interoperability*	**Project (Number/Name)** 3379 / *Common Control System*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Common Control System				
Product Development: Increment II: CCS Program Software Integration/SSA Follow-on Efforts	1	2022	4	2023
Product Development: Increment II: CCS Increment II Software Development	1	2022	4	2023
Test and Evaluation: DT&E/OT Support (Increment II)	1	2022	4	2023
Test and Evaluation: System Integration and Test Laboratory	1	2022	4	2023
Autonomy Development: Autonomy Development	1	2023	4	2023

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0305208M *I Distributed Common Ground/Surface Systems*

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	135.562	29.749	45.705	51.192	-	51.192	55.009	54.126	36.310	34.629	Continuing	Continuing
2268: *Distributed Common Ground System (DCGS-MC)*	135.562	29.749	45.705	51.192	-	51.192	55.009	54.126	36.310	34.629	Continuing	Continuing

A. Mission Description and Budget Item Justification

DCGS-MC is a Military Intelligence Program (MIP) program element.

Distributed Common Ground System-Marine Corps (DCGS-MC) is a critical Commandant of the Marine Corps Force Design program focused on Reconnaissance/ Counter-Reconnaissance that senses and makes sense of the forward operating area and provides robust multi-intelligence processing, exploitation, and dissemination (PED) activities to include sensor fusion and correlation. As the forward sensing element of the maritime force, DCGS-MC provides the foundation for algorithmic warfare at the tactical edge pushing validated target quality information to enable global long range precision fires. DCGS-MC complies with the DoD DCGS Enterprise interoperability and information sharing requirements necessary for PED capabilities via consolidated functional servers, workstations, cloud computing, and advanced technological processing capabilities from a contested, tactical environment to the integrated Marine Corps Intelligence, Surveillance, and Reconnaissance Enterprise (MCISRE). DCGS-MC capabilities deliver tactically focused, operational, and strategic intelligence across all echelons of the Marine Corps at the tactical edge throughout all phases of operations to provide relevant, precise battlespace awareness, and threat characterization for the Joint Task Force, Naval Force, Marine Air-Ground Task Force, and subordinate Marine units in support of Expeditionary Advanced Base Operations and Distributed Maritime Operations.

Modernization efforts are focused on advanced all-domain information environment tools, and technologies that enable superior awareness of the battlespace. The capabilities reduce the logistical and cognitive burden on the individual Marine by reducing size, weight, and power and provide advanced computing capabilities at the forward edge in a contested environment against a peer adversary. Current programmatic efforts support a multi-domain sensing architecture, organic sensing, mobile battlespace
awareness, and increased integration with space and cyber systems. From the MCISRE to Naval Operations Architecture, DCGS-MC provides an enduring information advantage and the rapid weaponization of data to support enhancements to the kill web by streamlining information exchanges, federating track and sensor data for rapid analysis and exploitation, and
increasing accessibility information across all levels of security classification.

Maritime Targeting Cell-Expeditionary (MTC-X) details provided at a higher classification.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0305208M *I Distributed Common Ground/Surface Systems*

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	29.749	45.705	36.012	-	36.012
Current President's Budget	29.749	45.705	51.192	-	51.192
Total Adjustments	0.000	0.000	15.180	-	15.180
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	0.000	0.000	15.014	-	15.014
• Rate/Misc Adjustments	0.000	0.000	0.166	-	0.166

Change Summary Explanation

Overall increase from FY2023 to FY2024 of $5.487M is attributed to activities related to the development and testing of mobile variants for Maritime Targeting Cell Expeditionary (MTC-X). Increase is also attributed to the initiation of activities related to MINOTAUR Integration and development of MAVEN AI/ML technologies.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0305208M / *Distributed Common Ground/Surface Systems*				Project (Number/Name) 2268 / *Distributed Common Ground System (DCGS-MC)*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
2268: *Distributed Common Ground System (DCGS-MC)*	135.562	29.749	45.705	51.192	-	51.192	55.009	54.126	36.310	34.629	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This is a Military Intelligence Program (MIP) Program Element.

Distributed Common Ground System-Marine Corps (DCGS-MC) is a critical Commandant of the Marine Corps Force Design program focused on Reconnaissance/ Counter-Reconnaissance that senses and makes sense of the forward operating area; providing robust multi-intelligence processing, exploitation, and dissemination (PED) activities to include sensor fusion and correlation. As the forward sensing element of the maritime force, DCGS-MC provides the foundation for algorithmic warfare at the tactical edge pushing validated target quality information to enable global long range precision fires. DCGS-MC complies with the DoD DCGS Enterprise interoperability and information sharing requirements necessary for PED capabilities via consolidated functional servers, workstations, cloud computing, and advanced technological processing capabilities from a contested, tactical environment to the integrated Marine Corps Intelligence, Surveillance, and Reconnaissance Enterprise (MCISRE). DCGS-MC capabilities deliver tactically focused, operational, and strategic intelligence across all echelons of the Marine Corps at the tactical edge throughout all phases of operations to provide relevant, precise battlespace awareness, and threat characterization for the Joint Task Force, Naval Force, Marine Air-Ground Task Force, and subordinate Marine units in support of Expeditionary Advanced Base Operations and Distributed Maritime Operations.

Modernization efforts are focused on advanced all-domain information environment tools, and technologies that enable superior awareness of the battlespace. The capabilities reduce the logistical and cognitive burden on the individual Marine by reducing size, weight, and power and provide advanced computing capabilities at the forward edge in a contested environment against a peer adversary. Current programmatic efforts support a multi-domain sensing architecture, organic sensing, mobile battlespace awareness, and increased integration with space and cyber systems. From the MCISRE to Naval Operations Architecture, DCGS-MC provides an enduring information advantage and the rapid weaponization of data to support enhancements to the kill web by streamlining information exchanges, federating track and sensor data for rapid analysis and exploitation, and increasing accessibility information across all levels of security classification.

Maritime Targeting Cell-Expeditionary (MTC-X) details provided at a higher classification.

The functional capabilities are grouped by DCGS-MC Signals Intelligence (SIGINT), DCGS-MC Geospatial Intelligence (GEOINT), DCGS-MC All Source, Family of Integrated Targeting and Exploitation (FITE), and Publicly Available Information (PAI)/Open Source Intelligence (OSINT). Future capabilities will be delivered via clearly defined capability drops determined by an integrated assessment of user needs, technology readiness, risk mitigation, and affordability.

DCGS-MC SIGINT fuses and analyzes SIGINT data from tactical, theater, and national collectors and databases for dissemination to tactical commanders. It automatically collects, stores, retrieves, and plays back digital signals and provides SIGINT analysis applications to deployable FMF units that direct and manage the technical and operational functions of Radio Battalion (RadBn) SIGINT and electronic warfare (EW) assets. DCGS-MC SIGINT consists of the Technical Control

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305208M / *Distributed Common Ground/Surface Systems*	**Project (Number/Name)** 2268 / *Distributed Common Ground System (DCGS-MC)*

Analysis Center (TCAC) Remote Analysis Workstation (RAWS), and the Transportable Workstation (TWS) and is the focal point of RadBn, Marine Corps Forces Special Operations Command, and Joint Strike Fighter (JSF) Signals Intelligence (SIGINT) operations. It enables the analysis of tactical SIGINT collection and analytical data for ingest into Family of Integrated Targeting and Exploitation (FITE) for transfer to the tactical commanders on multiple security levels for discovery by any DCGS-MC enabled Marine. The system is also capable of processing of Electronic Warfare (EW) information including EW Support and Electronic Attack (EA) data collected by RadBn and JSF aircraft.

DCGS-MC GEOINT informs and provides commanders at all echelons the ability to anticipate and react quickly to evolving situations and support fires to accurately identify, locate and prosecute targets within the area of operations. DCGS-MC GEOINT aggregates organic, theater, and national Intelligence, Surveillance, and Reconnaissance (ISR) data providing the foundation for FITE to conduct advanced analytical processes that DCGS-MC GEOINT ingests for interrogation and validation to inform decision-makers and Long-Range Precision Fires (LRPF) of actionable targets. DCGS-MC GEOINT is the core capability of technical applications and geospatial algorithms that process, exploit, analyze, and produce geophysical information, products, and services which establish the geospatial foundation and common frame of reference for battlespace awareness, planning, and enhanced decision-making.

DCGS-MC All Source facilitates global collaboration with Marine and joint analytical systems, enabling Marines to conduct multi-discipline intelligence fusion, analysis, production, and dissemination of intelligence in support of the Find, Fix, Track, Target and Assess process by automating multiple intelligence functions and processes. DCGS-MC All Source investment in advanced decision support tools that leverage data science and artificial intelligence for the tactical, naval, and joint force to enable the common battlespace awareness. These capabilities include the display of current enemy situation, collection requirement management, asset management, message parsing, and database updates. DCGS-MC All Source automatically ingests and normalizes data and provides access to intelligence produced by tactical, theater, and national systems and agencies for a fused holistic view of the battlefield. It facilitates the dissemination and exchange of intelligence and information with all echelons through tactical local area networks and wide area networks across the force.

Family of Integrated Targeting and Exploitation (FITE) is an advanced multi-domain information standardization and exchange environment that provides access to, and transport for the MCISRE to the Naval Operations Architecture in order to provide information advantage and the rapid weaponization of data. FITE supports enhancements to the kill web by streamlining information exchanges, federating track and sensor data for rapid analysis, exploitation and processing for target engagement, and increases accessibility of information across all levels of security. Additionally, FITE supports long range precision fires and over the horizon targeting by providing a focal point for aggregation and fusion of national and theater sensors to enable data exchange with tactical SIGINT/EW assets, DCGS-MC All Source, DCGS-MC GEOINT, and edge computing environments. FITE implements advanced critical technologies such as MAVEN and MINOTAUR in order to reduce the analytical process, enable rapid prosecution of targets, and streamline intelligence support to operations. FITE implementation of advanced capabilities, coupled with the analytical tools within DCGS-MC provides the ideal coupling of intelligence, operations, and targeting to prosecute targets at machine speeds against peer adversaries. FITE also includes the Maritime Targeting Cell - Expeditionary (MTC-X), for which details are held at a higher classification level.

The MINOTAUR system is an Intelligence, Surveillance, and Reconnaissance (ISR) platform developed to aggregate independent sensors and operator interfaces into a single operational picture. MINOTAUR performs the automated correlation of multiple sources of data into a common user interface that provides enhanced situational awareness for operators. Additionally, MINOTAUR implements advanced analytic capabilities in order to identify and track targets of significance in dense operational environments. The result is a real time system that enables operators to locate and track specific targets of interests to support mission operations.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305208M / *Distributed Common Ground/Surface Systems*	**Project (Number/Name)** 2268 / *Distributed Common Ground System (DCGS-MC)*

MAVEN hardware and software is required to process multiple network video streams to provide real-time geo-rectification and geo-registration of imagery and perform Artificial Intelligence (AI) and Computer Vision (CV) based detection, tracking, and classification of objects within video.

The Technical Control and Analysis Center (TCAC) is a server- workstation combination that provides transportable, semi- automated Signals Intelligence (SIGINT) processing, analysis, and reporting to the Radio Battalions, Marine Corps Special Operations Command, and Marine Littoral Regiment. Technical Control and Analysis Capability Cross-Domain Solution enables the transfer of intelligence information across multiple domains to the tactical commanders for continued processing by the TCAC-General Services (GENSER). TCAC-GENSER fuses, analyzes, and disseminates SIGINT data from tactical, theater, and national assets to tactical commander. TCAC-GENSER receives intelligence production from the TCAC-RAW/TWS via the TCAC-CDS.

PAI/OSINT capability, in collaboration with MARFORCYBER, will allow users to gather, enrich and analyze PAI in order to generate, preserve, deny and project information. With incremental progression the intent is to enable data sharing across the entire operational environment in a private cloud environment. Commanders and staff require a clear understanding of the Operational Environment to communicate, access, visualize, describe, and direct operations. Therefore, Marines must be able to efficiently access, gather, and exploit PAI by all available means. Adversaries often reveal vulnerabilities or intentions that the FMF can only exploit in the cognitive or information dimensions. There was no procurement funding in the previous years.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: DCGS-MC SIGINT: Product Development	3.070	2.572	2.127	0.000	2.127
Articles:	-	-	-	-	-
FY 2023 Plans: - Complete product development of the Remote Analysis Workstation (RAWS) and continue product development of the Transportable Workstation (TWS) hardware refresh to implement and insert new software and automation capacity to replace older and unsupportable software and hardware baselines. ***FY 2024 Base Plans:*** - Complete product development of the TWS hardware refresh. - Continue product development of software in order to enhance the analysis of near-peer signals of interest and the adaptation of evolving technical capabilities to combat the pacing threat. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease from FY 2023 to FY 2024 is due to the completion of the RAWS hardware refresh development effort.					
Title: DCGS-MC SIGINT: Test and Evaluation	1.417	0.750	0.200	0.000	0.200

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305208M / *Distributed Common Ground/Surface Systems*	**Project (Number/Name)** 2268 / *Distributed Common Ground System (DCGS-MC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Articles:	-	-	-	-	-
FY 2023 Plans: - Initiate testing in support of the Remote Analysis Workstation (RAWS) and Transportable Workstation (TWS) hardware refresh. ***FY 2024 Base Plans:*** - Complete integration testing in support of the Remote Analysis Workstation (RAWS) and Transportable Workstation (TWS) hardware refresh. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease from FY 2023 to FY 2024 reflects the completion of integration testing in support of the RAWS and TWS hardware refresh.					
Title: DCGS-MC SIGINT: Support	0.611	0.623	0.210	0.000	0.210
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue technical support for RAWS and TWS hardware refresh. - Continue technical support of improvement to DCGS-MC SIGINT software baseline based on the Secure the Enterprise/ Secure the Network initiatives required by NSA for network connectivity. ***FY 2024 Base Plans:*** - Complete technical support for RAWS and TWS hardware refresh. - Continue technical support of improvement to DCGS-MC SIGINT software baseline based on the Secure the Enterprise/ Secure the Network initiatives required by NSA for network connectivity. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease from FY 2023 to FY 2024 reflects reduced support required for the RAWS and TWS hardware refresh.					
Title: DCGS-MC GEOINT: Product Development	8.062	8.769	5.981	0.000	5.981
Articles:	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305208M / *Distributed Common Ground/Surface Systems*	**Project (Number/Name)** 2268 / *Distributed Common Ground System (DCGS-MC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
FY 2023 Plans: - Complete support for development and integration of a Naval integrated mobile and modular Common Data Link (CDL) antenna refresh. - Complete research & development of non-permissive sub/surface and airborne survey modernization efforts and peripheral updates and refresh. - Continue support for program Engineering Change Proposals (ECPs) as necessary. - Continue support for integration of DCGS-MC GEOINT software enhancements as identified through configuration control board and engineering review boards in response to Fleet Marine Force requirements. - Continue support for cloud services migration; to include workflow automation, leveraging Artificial Intelligence/ Machine Learning (AI/ML) data analysis capabilities and technology advancements. - Continue support to integrate garrison EHUB Data Storage/Management Services into DCGS-MC. - Continue integration of automated (AI/ML enabled) feature extraction capability, data migration, auto report generation. - - Continue Project Maven/Minotaur capability enhancements in support of Marine Corps Full Motion Video Processing, Exploitation and Dissemination Nodes. - Continue GEOINT Software baseline application integration and testing to provide built-in machine learning to solve complex analytic problems. - Continue development, integration and test of Minotaur Family of Services Virtual Machine baseline to be employed in a Common Hosting Environment. -Initiate product improvements necessary to support Geospatial workflow automation, and algorithm-based technologies. -Initiate integration of advanced Geospatial analysis and visualization toolsets.					
FY 2024 Base Plans: - Complete support to integrate garrison EHUB Data Storage/Management Services into DCGS-MC. - Complete Project Maven/Minotaur capability enhancements in support of Marine Corps Full Motion Video Processing, Exploitation and Dissemination Nodes. - Complete integration of automated (AI/ML enabled) feature extraction capability, data migration, auto report generation. - Continue support for program Engineering Change Proposals (ECPs) as necessary. - Continue support for integration of DCGS-MC GEOINT software enhancements as identified through configuration control board and engineering review boards in response to Fleet Marine Force requirements.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305208M / *Distributed Common Ground/Surface Systems*	**Project (Number/Name)** 2268 / *Distributed Common Ground System (DCGS-MC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Continue support for cloud services migration; to include workflow automation, leveraging Artificial Intelligence/ Machine Learning (AI/ML) data analysis capabilities and technology advancements. - Continue GEOINT Software baseline application integration and testing to provide built-in machine learning to solve complex analytic problems. - Continue product improvements necessary to support Geospatial workflow automation, and algorithm-based technologies. - Continue integration of advanced Geospatial analysis and visualization toolsets. - Initiate research and development activities for advanced Antenna capabilities to increase interfaces with additional platforms. - Initiate research and development activities to identify and close multi-INT PED capability gaps. - Initiate research activities for future SATCOM capabilities to support the GEOINT analyst. - Initiate research activities to develop tools that automate generation, exploitation, visualization, and fusion of high precision elevation/surface models and non-literal imagery data. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease from FY 2023 to FY 2024 reflects the completion of research and development activities associated with non-permissive sub/surface and airborne survey modernization efforts.					
Title: DCGS-MC GEOINT: Test and Evaluation	3.191	4.328	1.543	0.000	1.543
Articles:	-	-	-	-	-
FY 2023 Plans: - Complete support for test and evaluation of Common Data Link (CDL) antenna refresh and additional naval integrated mobile and modular Common Data Link (CDL) antennas - Continue Post Milestone C SETR activities associated with DCGS-MC Capability Drops, software integration and associated test events. - Continue support for expanded Processing, Exploitation, and Dissemination (PED) reach-back capability to accommodate FMV/GEOINT exploitation in support of tactical intelligence analysts operating in a Disconnected, Intermittent, Limited bandwidth (D-DIL) environment. - Continue support for research and development activities to integrate SIGINT capability into DCGS-MC.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305208M / *Distributed Common Ground/Surface Systems*	**Project (Number/Name)** 2268 / *Distributed Common Ground System (DCGS-MC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Continue support for cloud services migration; to include workflow automation, leveraging AI/ML data analysis capabilities and technology advancements. - Continue integration and systems testing of survey modernization efforts and peripheral updates/refresh. - Complete integration and system testing for non-permissive sub/surface and airborne survey modernization efforts. - Continue integration and system testing of Automated (AI/ML enabled) Feature Extraction capability. - Continue integration and system testing for GEOINT Software baseline to provide built-in machine learning to solve complex analytic problems. - Continue integration and system testing for AI/ML enabled Automated Report Generation tool within the GEOINT baseline - Continue integration and system testing for Project Maven/Minotaur capability enhancements for Marine Corps Full Motion Video Processing, Exploitation and Dissemination Nodes. - Continue integration and system testing for Minotaur Family of Services virtual machine baseline to be employed in a common hosting environment. -Initiate integration and system testing for the product improvements necessary to support Geospatial workflow automation, and algorithm-based technologies. -Initiate integration and system testing advanced Geospatial analysis and visualization toolsets.					
FY 2024 Base Plans: - Complete integration and system testing for Minotaur Family of Services virtual machine baseline to be employed in a common hosting environment. - Complete integration and system testing for Project Maven/Minotaur capability enhancements for Marine Corps Full Motion Video Processing, Exploitation and Dissemination Nodes. - Complete integration and system testing of Automated (AI/ML enabled) Feature Extraction capability. - Complete integration and system testing for AI/ML enabled Automated Report Generation tool within the GEOINT baseline. - Complete support for research and development activities to integrate SIGINT capability into DCGS-MC. - Continue Post Milestone C SETR activities associated with DCGS-MC Capability Drops, software integration and associated test events. - Continue support for expanded Processing, Exploitation, and Dissemination (PED) reach-back capability to accommodate FMV/GEOINT exploitation in support of tactical intelligence analysts operating in a Disconnected, Intermittent, Limited bandwidth (D-DIL) environment.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305208M / *Distributed Common Ground/Surface Systems*	**Project (Number/Name)** 2268 / *Distributed Common Ground System (DCGS-MC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Continue support for cloud services migration; to include workflow automation, leveraging AI/ML data analysis capabilities and technology advancements. - Continue integration and systems testing of survey modernization efforts and peripheral updates/refresh. - Continue integration and system testing for GEOINT Software baseline to provide built-in machine learning to solve complex analytic problems. - Continue integration and system testing for the product improvements necessary to support Geospatial workflow automation, and algorithm-based technologies. - Continue integration and system testing advanced Geospatial analysis and visualization toolsets. - Initiate test and evaluation activities for advanced Antenna capabilities to increase interfaces with additional platforms. - Initiate test and evaluation activities to identify and close multi-INT PED capability gaps. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease from FY 2023 to FY 2024 reflects the completion of test and evaluation activities associated with non-permissive sub/surface and airborne survey modernization efforts.					
Title: DCGS-MC GEOINT: Support	0.900	0.901	0.895	0.000	0.895
Articles:	-	-	-	-	-
FY 2023 Plans: - Complete support for development and integration of a Naval integrated mobile and modular Common Data Link (CDL) antenna refresh. - Complete support for research & development of non-permissive sub/surface and airborne survey modernization efforts. - Continue support for program Engineering Change Proposals (ECPs) as necessary. - Continue support for integration of DCGS-MC GEOINT software enhancements as identified through configuration control board and engineering review boards in response to Fleet Marine Force requirements. - Continue support for cloud services migration; to include workflow automation, leveraging Artificial Intelligence/ Machine Learning (AI/ML) data analysis capabilities and technology advancements. - Continue support to integrate garrison EHUB Data Storage/Management Services into DCGS-MC. - Continue support for integration of automated (AI/ML enabled) feature extraction capability.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305208M / *Distributed Common Ground/Surface Systems*	**Project (Number/Name)** 2268 / *Distributed Common Ground System (DCGS-MC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Continue support for Project Maven/Minotaur capability enhancements in support of Marine Corps Full Motion Video Processing, Exploitation and Dissemination Nodes. - Continue support for GEOINT Software baseline application integration and testing to provide built-in machine learning to solve complex analytic problems. - Continue support for development, integration and test of Minotaur Family of Services Virtual Machine baseline to be employed in a Common Hosting Environment. -Initiate support for product improvements necessary to support Geospatial workflow automation, and algorithm-based technologies. -Initiate support for integration of advanced Geospatial analysis and visualization toolsets.					
FY 2024 Base Plans: - Complete support for Project Maven/Minotaur capability enhancements in support of Marine Corps Full Motion Video Processing, Exploitation and Dissemination Nodes. - Complete support for development, integration and test of Minotaur Family of Services Virtual Machine baseline to be employed in a Common Hosting Environment. - Complete support for integration of automated (AI/ML enabled) feature extraction capability. - Continue support for peripheral updates and refresh. - Continue support for program Engineering Change Proposals (ECPs) as necessary. - Continue support for integration of DCGS-MC GEOINT software enhancements as identified through configuration control board and engineering review boards in response to Fleet Marine Force requirements. - Continue support for cloud services migration; to include workflow automation, leveraging Artificial Intelligence/ Machine Learning (AI/ML) data analysis capabilities and technology advancements. - Continue support to integrate garrison EHUB Data Storage/Management Services into DCGS-MC. - Continue support for GEOINT Software baseline application integration and testing to provide built-in machine learning to solve complex analytic problems. - Continue support for product improvements necessary to support Geospatial workflow automation, and algorithm-based technologies. - Continue support for integration of advanced Geospatial analysis and visualization toolsets. - Initiate support activities for advanced Antenna capabilities to increase interfaces with additional platforms. - Initiate support activities to identify and close multi-INT PED capability gaps. - Initiate support activities to provide SATCOM capabilities to support the GEOINT analyst.					
FY 2024 OCO Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305208M / *Distributed Common Ground/Surface Systems*	**Project (Number/Name)** 2268 / *Distributed Common Ground System (DCGS-MC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** DCGS-MC GEOINT Support: No significant change from FY 2023 to FY 2024.					
Title: DCGS-MC All Source: Product Development	8.297	8.878	6.590	0.000	6.590
Articles:	-	-	-	-	-
FY 2023 Plans: - Complete cloud services migration; to include workflow automation, leveraging AI/ML data analysis capabilities and technology advancements. - Complete integration of workstation technical refresh hardware into the DCGS-MC All Source. - Continue integration of structured analytics capabilities into the DCGS-MC All Source. - Continue integration of a modernized virtual collaborative environment for standardized intelligence production and training. - Initiate integration of collection management visualization tool set. - Initiate integration of Common Operational Picture management tool.					
FY 2024 Base Plans: - Complete integration of Common Operational Picture management tool. - Complete integration of collection management visualization tool set. - Continue integration of structured analytics capabilities into the DCGS-MC All Source. - Continue integration of a modernized virtual collaborative environment for standardized intelligence production and training. - Continue integration of Common Operational Picture management tool. - Initiate integration of advanced mobile information/intelligence capability. - Initiate development of Battalion & Company level small form factor hardware and software to provide intelligence support during highly mobile tactical operations.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305208M / *Distributed Common Ground/Surface Systems*	**Project (Number/Name)** 2268 / *Distributed Common Ground System (DCGS-MC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Decrease from FY 2023 to FY 2024 is due to the completion of the cloud services migration to include workflow automation, leveraging AI/ML data analysis capabilities and technology advancements, and integration of workstation technical refresh hardware into DCGS-MC All Source.					
Title: DCGS-MC All Source: Test and Evaluation	4.201	3.810	1.926	0.000	1.926
Articles:	-	-	-	-	-
FY 2023 Plans: - Complete cloud services migration; to include workflow automation, leveraging AI/ML data analysis capabilities and technology advancements. - Complete system testing, and evaluation of workstation technical refresh hardware into the DCGS-MC All Source. - Continue system testing, and evaluation of structured analytics capabilities into the DCGS-MC All Source. - Continue system testing, and evaluation a modernized virtual collaborative environment for standardized intelligence production and training. - Continue system testing, and evaluation a Common Operational Picture management tool. - Initiate system testing, and evaluation a collection management visualization tool set.					
FY 2024 Base Plans: - Complete system developmental testing, and evaluation of Common Operational Picture management tool. - Complete system developmental testing, and evaluation of collection management visualization tool set. - Continue system developmental testing, and evaluation of structured analytics capabilities into the DCGS-MC All Source. - Continue system developmental testing, and evaluation of a modernized virtual collaborative environment for standardized intelligence production and training. - Initiate system developmental testing, and evaluation of advanced mobile information/intelligence capability. - Initiate system developmental testing, and evaluation of Battalion & Company level small form factor hardware and software to provide intelligence support during highly mobile tactical operations.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305208M / *Distributed Common Ground/Surface Systems*	**Project (Number/Name)** 2268 / *Distributed Common Ground System (DCGS-MC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Decrease from FY 2023 to FY 2024 is due to the completion of system test and evaluation of the cloud services migration to include workflow automation, leveraging AI/ML data analysis capabilities and technology advancements, and workstation technical refresh hardware into DCGS-MC All Source.					
Title: DCGS-MC All Source Support	0.000	0.455	0.459	0.000	0.459
Articles:	-	-	-	-	-
FY 2023 Plans: - Initiated support for the workstation technical refresh hardware into the DCGS-MC All Source. - Initiated support for the structured analytics capabilities into the DCGS-MC All Source.					
FY 2024 Base Plans: - Complete support for the workstation technical refresh hardware into the DCGS-MC All Source. - Complete support for the structured analytics capabilities into the DCGS-MC All Source. - Initiate support for Battalion & Company level mobile information/intelligence capability.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: DCGS-MC All Source Support: No significant change from FY 2023 to FY 2024.					
Title: FITE: Product Development	0.000	11.049	22.661	0.000	22.661
Articles:	-	-	-	-	-
FY 2023 Plans: - Initiate integration of Information Fusion Core Engine/Platform. - Initiate integration of All Domain Integration and Visualization. - Initiate integration of a Collection Requirements Management and Collections Operations Suite. - Initiate product development of the General Services (GENSER) analysis capability and Enterprise Cross Domain Solution hardware refresh to implement and insert new software and automation capacity to replace older and unsupportable software and hardware baselines. - Initiate MTC-X effort - details are held at a higher classification.					
FY 2024 Base Plans: - Complete product development of the General Services (GENSER) analysis capability and Enterprise Cross Domain Solution hardware refresh.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305208M / *Distributed Common Ground/Surface Systems*	**Project (Number/Name)** 2268 / *Distributed Common Ground System (DCGS-MC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Continue integration of Information Fusion Core Engine/Platform. - Continue integration of All Domain Integration and Visualization. - Continue integration of a Collection Requirements Management and Collections Operations Suite. - Continue MTC-X effort - details are held at a higher classification. - Initiate the integration of USMC organic group 1-3 UAS - Initiate the integration of USMC communications pathways and architecture - Initiate planning and development for a hybrid cloud architecture that supports units at the Battalion level and below - Initiate the development of a software container development, management, and patching environment - Initiate the research and development of MTC-X Mobile variant - Initiate the research of Artificial Intelligence applications in the development of patterns of life analysis to support advanced indications and warnings - Initiate prototyping and development of mobile variants in support of MTC-X - details are held at a higher classification. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY 2023 to FY 2024 supports prototyping and development of mobile variants in support Maritime Targeting Cell Expeditionary (MTC-X)- further details are held at higher classification. Increase is also attributed to the development activities related to: Organic Sensors, MINOTAUR Integration, and MAVEN AI/ML technologies in order to automate the process of locating, identifying, and visualizing enemy locations and high value targets; further enabling targeting, battlespace awareness and decision making.					
Title: FITE: Test and Evaluation	0.000	2.706	6.473	0.000	6.473
Articles:	-	-	-	-	-
FY 2023 Plans: - Initiate system testing, and evaluation of Information Fusion Core Engine/Platform. - Initiate system testing, and evaluation of All Domain Integration and Visualization. - Initiate system testing, and evaluation of a Collection Requirements Management and Collections Operations Suite. - Initiate system testing, and evaluation of for the MTC-X effort - details are held at a higher classification.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Initiate integration testing in support of the GENSER analysis capability hardware refresh. ***FY 2024 Base Plans:*** - Complete integration testing in support of the GENSER analysis capability hardware refresh. - Continue MTC-X effort - details are held at a higher classification. - Continue test and evaluation of Information Fusion Core Engine/Platform. - Continue test and evaluation of All Domain Integration and Visualization. - Continue system testing, and evaluation of a Collection Requirements Management and Collections Operations Suite. - Initiate integration of program Engineering Change Proposals as necessary. - Initiate test and evaluation for software enhancements as identified through configuration control board and engineering review boards in response to Fleet Marine Force requirements. - Initiate test and evaluation for MINOTAUR and MAVEN interoperability with DCGS-MC ecosystem and emerging platforms. - Initiate test and evaluation for MTC-X mobile variants. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY 2023 to FY 2024 largely reflects test and evaluation efforts of mobile variants in support Maritime Targeting Cell Expeditionary (MTC-X) - further details are held at higher classification. Increase also reflects test and evaluation activities related to: Organic Sensors, MINOTAUR Integration, and MAVEN AI/ML technologies in order to automate the process of locating, identifying, and visualizing enemy locations and high value targets; further enabling targeting, battlespace awareness and decision making.					
Title: FITE: Support	0.000	0.864	2.127	0.000	2.127
Articles:	-	-	-	-	-
FY 2023 Plans: - Initiate support for the MTC-X effort - details are held at a higher classification. - Initiate support of Information Fusion Core Engine/Platform. - Initiate support of All Domain Integration and Visualization.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305208M / *Distributed Common Ground/Surface Systems*	**Project (Number/Name)** 2268 / *Distributed Common Ground System (DCGS-MC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Initiate support for integration, system testing, and evaluation of a Collection Requirements Management and Collections Operations Suite. ***FY 2024 Base Plans:*** - Continue MTC-X effort - details are held at a higher classification. - Continue support of Information Fusion Core Engine/Platform. - Continue support of All Domain Integration and Visualization. - Continue support for integration, system testing, and evaluation of a Collection Requirements Management and Collections Operations Suite. - Initiate support for integration, test and evaluation for software enhancements as identified through configuration control board and engineering review boards in response to Fleet Marine Force requirements. - Initiate support for integration, test and evaluation for advanced capabilities to increase interoperability with emerging platforms. - Initiate the development of training curriculum to support MTC-X and Information Fusion Core Engine - Initiate support to develop automated workflows that leverage AI/ML technologies - Initiate the cost benefit analysis of a hybrid cloud architecture - Initiate the data and information exchange requirements of a hybrid cloud architecture - Initiate the bandwidth requirements for a hybrid cloud architecture - Initiate support for MTC-X mobile variant prototyping ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY 2023 to FY 2024 reflects the support required for the Organic Sensors, MINOTAUR Integration, and MAVEN AI/ML technologies efforts in order to automate the process of locating, identifying, and visualizing enemy locations and high value targets; further enabling targeting, battlespace awareness and decision making.					
Accomplishments/Planned Programs Subtotals	29.749	45.705	51.192	0.000	51.192

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• PMC/47671: *DCGS-MC GEOINT*	15.763	11.111	27.024	-	27.024	29.743	30.546	26.374	26.901	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• PMC/47672: *DCGS-MC All Source*	11.025	7.712	11.005	-	11.005	17.082	11.284	11.932	12.200	Continuing	Continuing
• PMC/47673: *DCGS-MC SIGINT*	1.845	4.050	3.000	-	3.000	3.046	4.229	3.168	3.231	Continuing	Continuing
• PMC/47674: *DCGS-MC FITE*	0.000	16.800	24.260	-	24.260	17.361	8.890	2.417	2.507	Continuing	Continuing
• PMC/47675: *PAI OSINT*	0.000	0.000	3.000	-	3.000	0.000	0.000	3.200	0.000	Continuing	Continuing

Remarks

D. Acquisition Strategy

The acquisition strategy follows a hybrid approach consisting of a viable mix of alternatives that allows flexibility, agility, and rapid fielding of new capabilities. This evolutionary approach provides users with time-phased increments of capabilities that promote earlier delivery, improves affordability, and reduces risk. The evolutionary approach enables DCGS-MC to effectively assess and leverage emerging technologies to accelerate introduction into the Marine Corps Intelligence Surveillance and Reconnaissance Enterprise. DCGS-MC capabilities will be fielded in increments through operational capability drops. FITE includes MTC-X, a Joint program office in collaboration with Program Executive Office (PEO) Integrated Warfare Systems (IWS) and Marine Corps Warfighting Lab (MCWL). MTC-X aligns with the Joint All Domain Command and Control (JADC2) integration with Air Force and Army initiatives.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DCGS-MC SIGINT- GOVT	WR	NIWC-LANT : Charleston, SC	0.000	1.358	Dec 2021	1.498	Dec 2022	1.218	Oct 2023	-		1.218	Continuing	Continuing	Continuing
DCGS-MC SIGINT	C/CPFF	NIWC-LANT : Charleston, SC	3.271	1.712	Sep 2022	1.074	Mar 2023	0.909	Mar 2024	-		0.909	Continuing	Continuing	Continuing
DCGS-MC GEOINT-GOVT	WR	NIWC-LANT : Charleston, SC	2.931	2.439	Dec 2021	2.697	Dec 2022	1.478	Dec 2023	-		1.478	Continuing	Continuing	Continuing
DCGS-MC GEOINT	C/CPFF	NIWC-LANT : Charleston, SC	4.048	2.413	Dec 2021	3.372	Dec 2022	2.053	Dec 2023	-		2.053	Continuing	Continuing	Continuing
DCGS-MC GEOINT EHUB	C/CPFF	DTIC : Ft Belvior, VA	5.634	2.010	Jan 2022	1.500	Jan 2023	1.250	Jan 2024	-		1.250	Continuing	Continuing	Continuing
DCGS-MC GEOINT	C/FFP	MCSC : Quantico, VA	2.400	1.200	Jan 2022	1.200	Jan 2023	1.200	Jan 2024	-		1.200	Continuing	Continuing	Continuing
DCGS-MC All Source-GOVT	WR	NIWC-LANT : Charleston, SC	3.633	5.577	Feb 2022	6.203	Feb 2023	3.776	Feb 2024	-		3.776	Continuing	Continuing	Continuing
DCGS-MC All Source	C/FFP	NIWC-LANT : Charleston, SC	3.340	2.720	Dec 2021	2.675	Dec 2022	2.814	Dec 2023	-		2.814	Continuing	Continuing	Continuing
FITE	Various	TBD : TBD	0.000	0.000		7.979	Mar 2023	13.591	Mar 2024	-		13.591	0.000	21.570	-
FITE: MTC-X	Various	NSMA : Washington DC	0.000	0.000		3.070	Mar 2023	9.070	Mar 2024	-		9.070	0.000	12.140	-
DCGS PRIOR YEAR CUMULATIVE FUNDING	Various	N/A : N/A	61.368	0.000		0.000		0.000		-		0.000	0.000	61.368	-
		Subtotal	86.625	19.429		31.268		37.359		-		37.359	Continuing	Continuing	N/A

Remarks

Product Development overall increase from FY 2023 to FY 2024 largely reflects prototyping and development of mobile variants in support Maritime Targeting Cell Expeditionary (MTC-X). Details held at higher classification. Increase is also attributed to the development activities related to: Organic Sensors, MINOTAUR Integration, and MAVEN AI/ML technologies in order to automate the process of locating, identifying, and visualizing enemy locations and high value targets; further enabling targeting, battlespace awareness and decision making.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0305208M / *Distributed Common Ground/Surface Systems*	Project (Number/Name) 2268 / *Distributed Common Ground System (DCGS-MC)*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DCGS-MC SIGINT	C/CPFF	NIWC-LANT : Charleston, SC	0.635	0.611	Dec 2021	0.623	Dec 2022	0.210	Dec 2023	-		0.210	Continuing	Continuing	Continuing
DCGS-MC GEOINT	C/CPFF	NIWC-LANT : Charleston, SC	3.450	0.900	Mar 2022	0.901	Mar 2023	0.895	Mar 2024	-		0.895	Continuing	Continuing	Continuing
DCGS-MC All Source	WR	NIWC-LANT : Charleston, SC	0.000	0.000		0.455	Dec 2022	0.459	Dec 2023	-		0.459	0.000	0.914	-
FITE	C/BA	TBD : TBD	0.000	0.000		0.654	Dec 2022	0.917	Dec 2023	-		0.917	0.000	1.571	-
FITE: MTC-X	C/BA	NSMA : Washington DC	0.000	0.000		0.210	Dec 2022	1.210	Dec 2023	-		1.210	0.000	1.420	-
DCGS PRIOR YEAR CUMULATIVE FUNDING	Various	N/A : N/A	8.385	0.000		0.000		0.000		-		0.000	0.000	8.385	-
		Subtotal	12.470	1.511		2.843		3.691		-		3.691	Continuing	Continuing	N/A

Remarks

Support overall increase from FY 2023 to FY 2024 largely reflects support required for mobile variants for Maritime Targeting Cell Expeditionary (MTC-X). Details held at higher classification.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	C/CPFF	SIGINT/NIWC-LANT : Charleston, SC	2.214	1.417	Sep 2022	0.750	Mar 2023	0.200	Mar 2024	-		0.200	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	Various	GEOINT/NIWC-LANT : Charleston, SC	8.536	1.346	Mar 2022	2.081	Mar 2023	0.765	Mar 2024	-		0.765	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	MIPR	GEOINT/NSMA : Washington DC	1.634	0.345	Dec 2021	0.290	Dec 2022	0.290	Dec 2023	-		0.290	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	C/CPFF	GEOINTNIWC-LANT : Charleston, SC	7.441	1.500	Mar 2022	1.957	Mar 2023	0.488	Mar 2024	-		0.488	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305208M / *Distributed Common Ground/Surface Systems*	**Project (Number/Name)** 2268 / *Distributed Common Ground System (DCGS-MC)*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	Various	All Source/NIWC-LANT : Charleston, SC	5.206	4.201	Feb 2022	3.810	Feb 2023	1.926	Feb 2024	-		1.926	Continuing	Continuing	Continuing
Developmental Test & Evaluation (DT&E)	Various	FITE MTC-X/NSMA : Washington DC	0.000	0.000		0.920	Mar 2023	3.920	Mar 2024	-		3.920	0.000	4.840	-
Developmental Test & Evaluation (DT&E)	Various	FITE/TBD : TBD	0.000	0.000		1.786	Mar 2023	2.553	Mar 2024	-		2.553	0.000	4.339	-
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	Various	N/A : N/A	9.406	0.000		0.000		0.000		-		0.000	0.000	9.406	-
		Subtotal	34.437	8.809		11.594		10.142		-		10.142	Continuing	Continuing	N/A

Remarks

Test and Evaluation overall decrease from FY 2023 to FY 2024 is largely attributed to the completion of DCGS-MC GEOINT test and evaluation activities associated with non-permissive sub-surface and airborne survey modernization efforts.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DCGS-MC GEOINT: MITRE	C/CPFF	CECOM : APG, MD	1.700	0.000	Nov 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
DCGS-MC All Source	C/FFP	DTIC : Ft. Belvoir, VA	0.330	0.000		0.000		0.000		-		0.000	0.000	0.330	-
		Subtotal	2.030	0.000		0.000		0.000		-		0.000	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	135.562	29.749		45.705		51.192		-		51.192	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0305208M / *Distributed Common Ground/Surface Systems*	Project (Number/Name) 2268 / *Distributed Common Ground System (DCGS-MC)*	

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Overall increase from FY 2023 to FY 2024 is largely attributed to activities related to the development and testing of mobile variants for Maritime Targeting Cell Expeditionary (MTC-X). Increase is also attributed to the initiation of activities related to MINOTAUR Integration and development of MAVEN AI/ML technologies in order to automate the process of locating, identifying, and visualizing enemy locations and high value targets; further enabling targeting, battlespace awareness and decision making.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305208M / *Distributed Common Ground/Surface Systems*	**Project (Number/Name)** 2268 / *Distributed Common Ground System (DCGS-MC)*

DCGS SIGINT

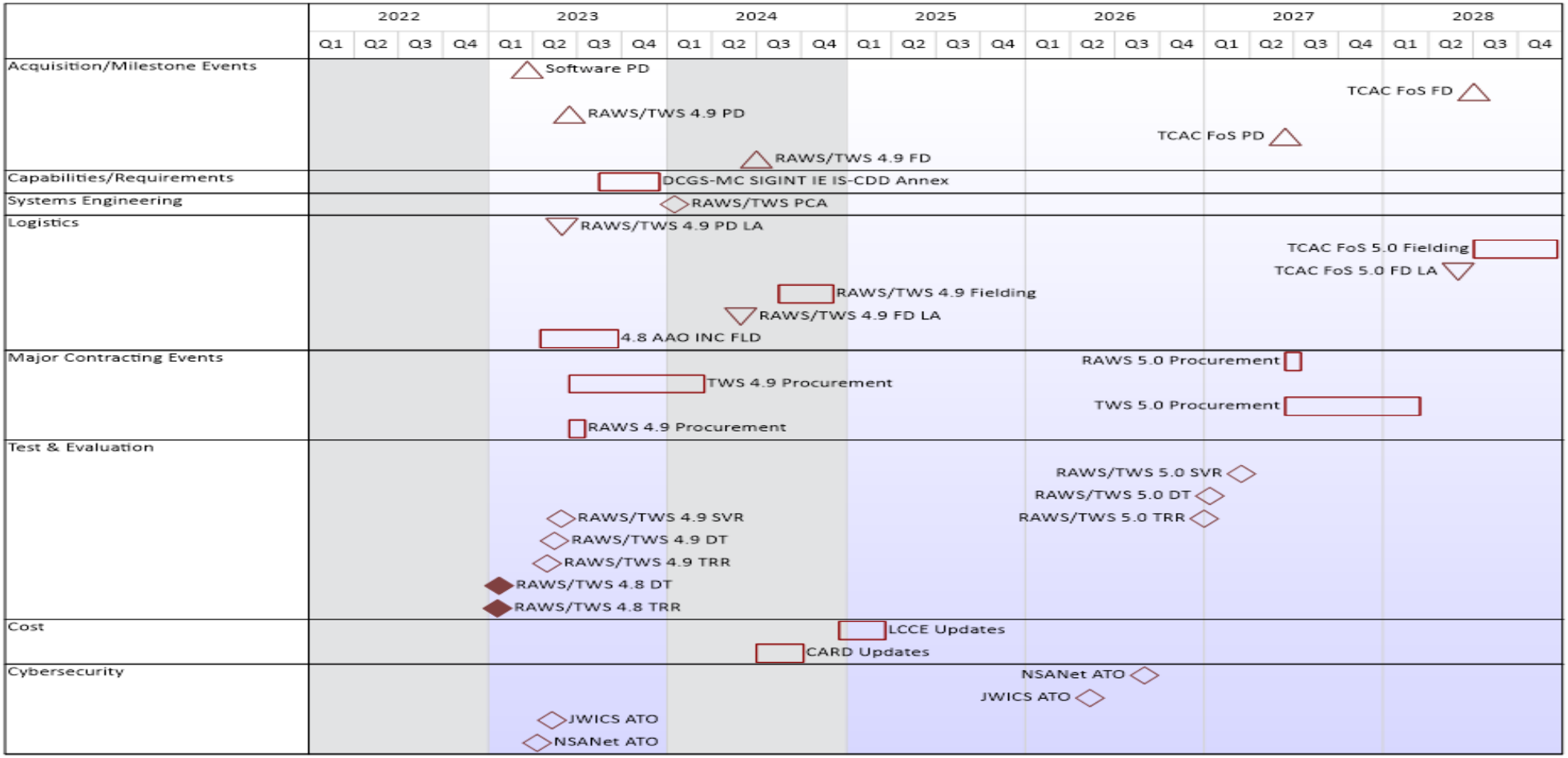

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305208M / *Distributed Common Ground/Surface Systems*	**Project (Number/Name)** 2268 / *Distributed Common Ground System (DCGS-MC)*

DCGS- MC GEOINT PROGRAM SCHEDULE

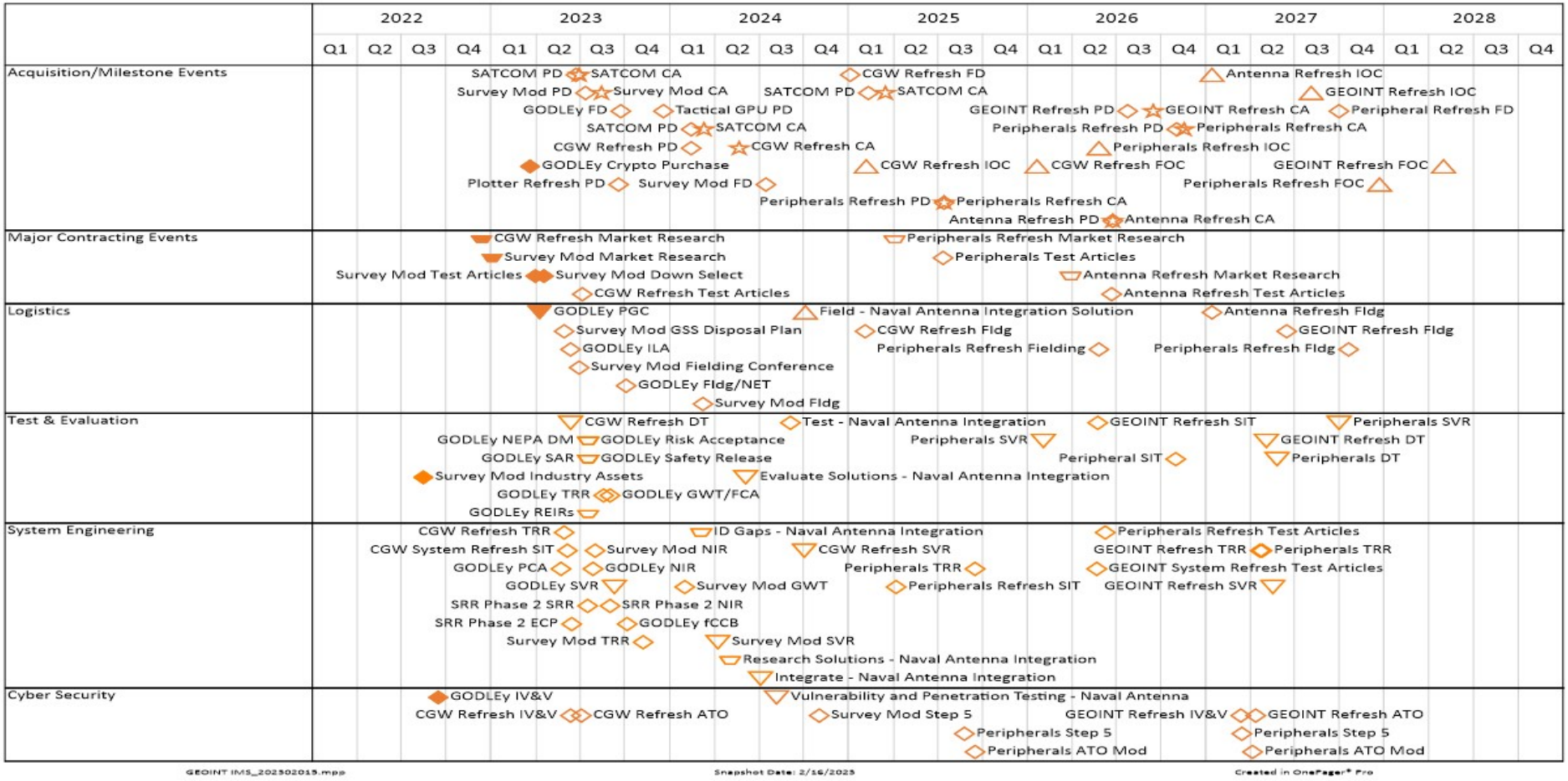

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305208M / *Distributed Common Ground/Surface Systems*	**Project (Number/Name)** 2268 / *Distributed Common Ground System (DCGS-MC)*

DCGS-MC All Source

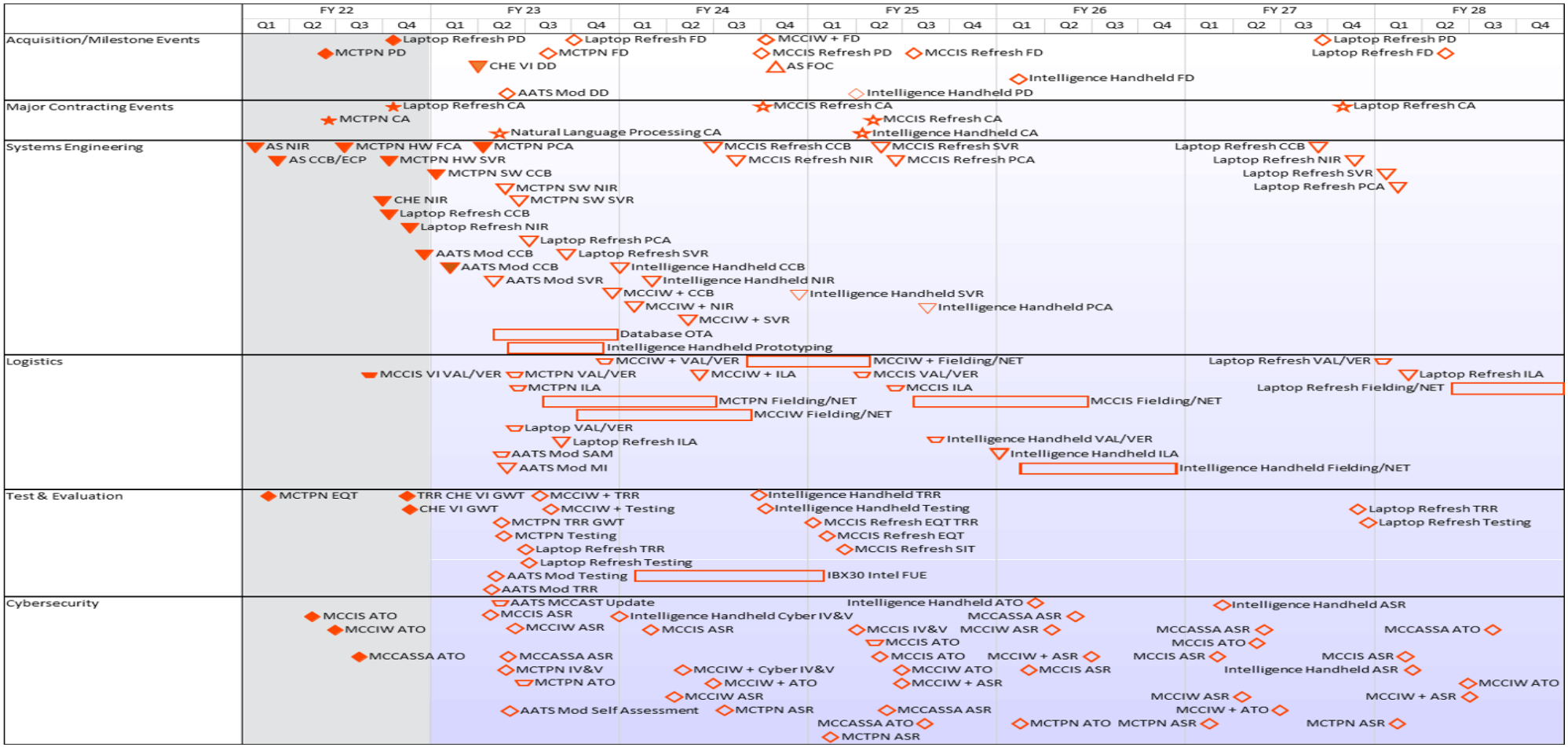

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305208M / *Distributed Common Ground/Surface Systems*	**Project (Number/Name)** 2268 / *Distributed Common Ground System (DCGS-MC)*

FITE Program Schedule

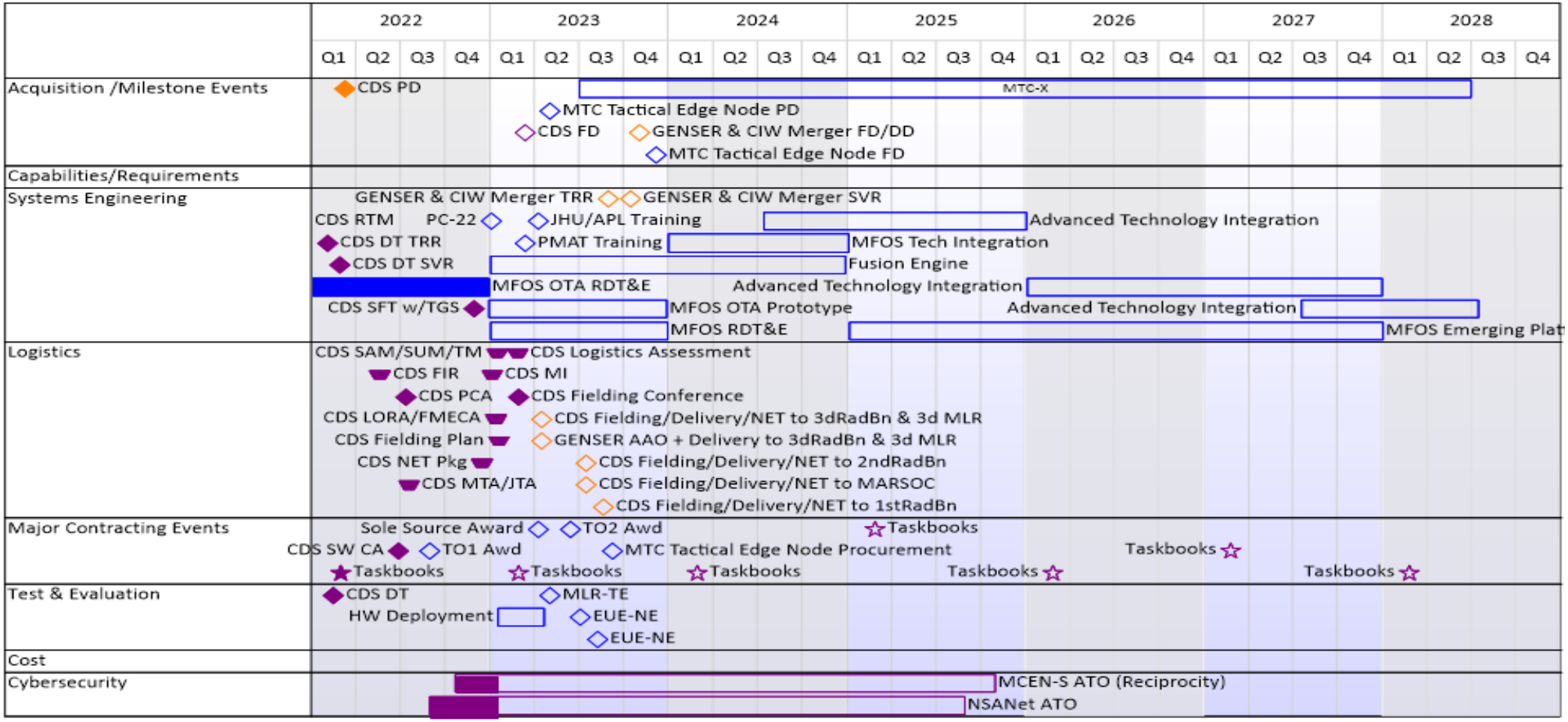

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305208M / *Distributed Common Ground/Surface Systems*	**Project (Number/Name)** 2268 / *Distributed Common Ground System (DCGS-MC)*

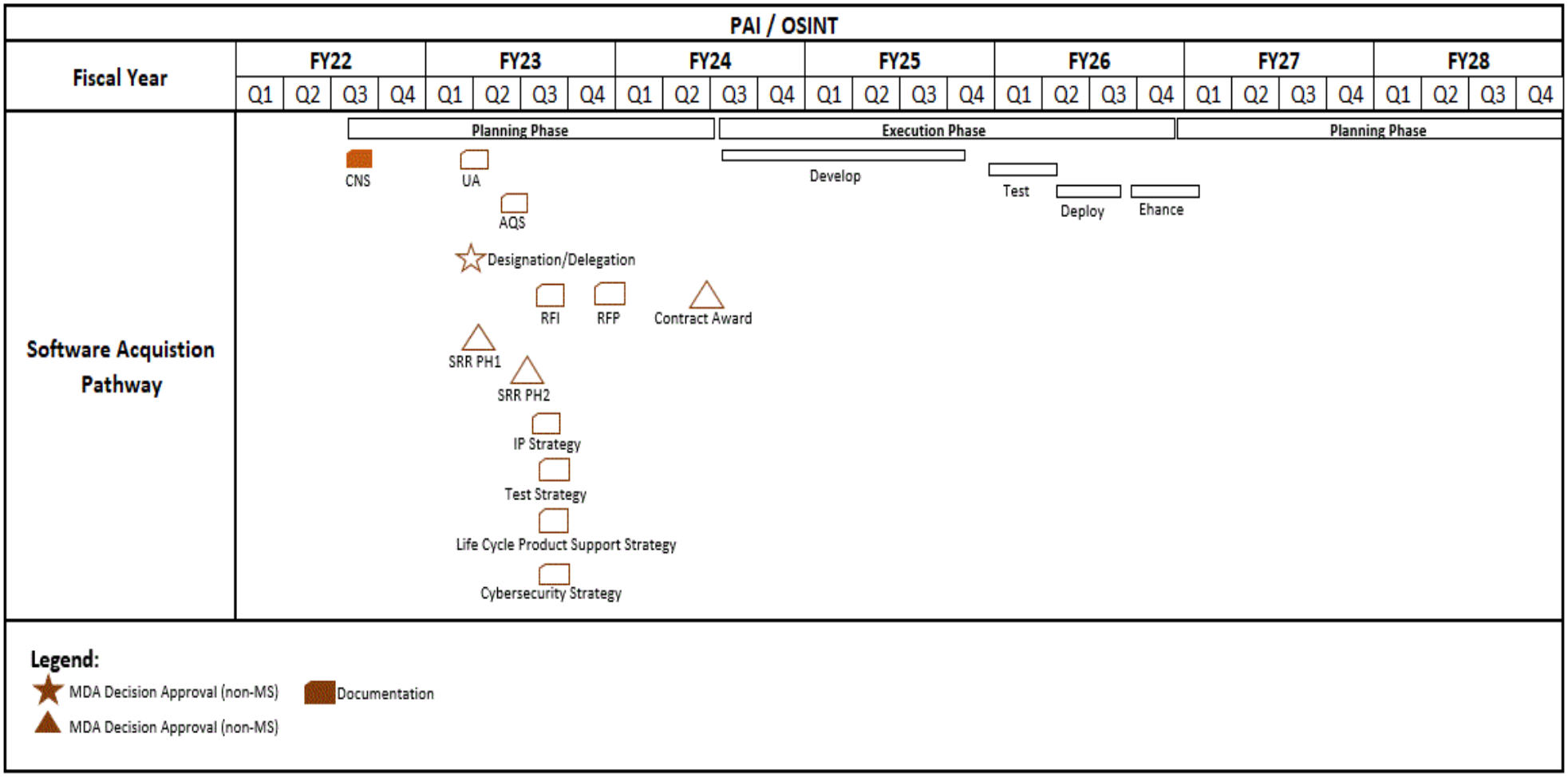

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305208M / *Distributed Common Ground/Surface Systems*	**Project (Number/Name)** 2268 / *Distributed Common Ground System (DCGS-MC)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2268				
DCGS-MC SIGINT: RAWS/TWS TRR/DT	2	2023	2	2023
DCGS-MC SIGINT: RAWS/TWS Procurement Decision	2	2023	2	2023
DCGS-MC SIGINT: RAWS Delivery Order Award	3	2023	3	2023
DCGS-MC SIGINT: TWS Delivery Order Award	1	2024	1	2024
DCGS-MC SIGINT: RAWS/TWS Fielding Decision	2	2024	2	2024
DCGS-MC GEOINT: GODLEy Antenna Peripheral (Crypto) Procurement	1	2023	1	2023
DCGS-MC GEOINT: SATCOM Procurement Decision	2	2023	2	2023
DCGS-MC GEOINT: GODLEy Antenna Fielding Decision	3	2023	3	2023
DCGS-MC GEOINT: Survey Modernization Procurement Decision	3	2023	3	2023
DCGS-MC GEOINT: Plotter Refresh Procurement Decision	3	2023	3	2023
DCGS-MC GEOINT: CGW Refresh Procurement Decision	1	2024	1	2024
DCGS-MC GEOINT: Survey Modernization Fielding Decision	3	2024	3	2024
DCGS-MC GEOINT: CGW Refresh Fielding Decision	4	2024	4	2024
DCGS-MC ALL SOURCE: MCTPN Procurement Decision	2	2022	2	2022
DCGS-MC ALL SOURCE: Common Intelligence Workstation Laptop Procurement Decision	4	2022	4	2022
DCGS-MC ALL SOURCE: MCTPN Fielding Decision	3	2023	3	2023
DCGS-MC ALL SOURCE: Common Intelligence Workstation Laptop Fielding Decision	4	2023	4	2023
DCGS-MC ALL SOURCE: MCCIS Technical Refresh Procurement Decision	4	2024	4	2024
DCGS-MC ALL SOURCE: Intelligence On the Move Handheld Procurement Decision	2	2025	2	2025
DCGS-MC ALL SOURCE: MCCIS Technical Refresh Fielding Decision	3	2025	3	2025

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305208M / *Distributed Common Ground/Surface Systems*	**Project (Number/Name)** 2268 / *Distributed Common Ground System (DCGS-MC)*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
DCGS-MC ALL SOURCE: Intelligence On the Move Handheld Fielding Decision	1	2026	1	2026
FITE: CDS Procurement Decision	1	2022	1	2022
FITE: CDS Fielding Decision	1	2023	1	2023
FITE: FITE Tactical Edge Node Procurement Decision	2	2023	2	2023
FITE: FITE Tactical Edge Node Fielding Decision	4	2023	4	2023
FITE: MTC-X	2	2023	4	2028
PAI/OSINT: PAI/OSINT Capability Procurement Decision	3	2024	3	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy												Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0305220N *I MQ-4C Triton*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	3,526.543	13.029	13.893	12.094	-	12.094	15.747	14.115	14.345	14.633	45.622	3,670.021
4020: *MQ-4C TRITON*	3,526.543	13.029	13.893	12.094	-	12.094	15.747	14.115	14.345	14.633	45.622	3,670.021
Program MDAP/MAIS Code: **Project MDAP/MAIS Code(s):** 373												

Note

MQ-4C Triton RDT&E efforts segregated into two distinct Program Elements. PE 0305220N, PU 4020 Baseline, supported developmental efforts from the inception of the program and continues to fund fatigue testing, and other assessments that may initiate performance improvement efforts for other aircraft components associated. PE 0305421N, PU 2939 Modernization, supports the development of advanced radar modes inclusive of Ground Moving Target Indicator (GMTI), Enhanced Electro-Optic/Infrared (EO/IR) detection in support of GEOINT for increased maritime domain awareness, Integration of High Gain Aperture (HGA) for improved SIGINT, communications and networks resiliency in denied environments, implementation of multi-UA Command and Control (C2), and implementation of Sense and Avoid (SAA) traffic and weather capability for increased mission availability and airspace integration.

A. Mission Description and Budget Item Justification

The MQ-4C Triton Unmanned Air System (UAS) is a high altitude-long endurance UAS designed to provide Fleet and combatant commanders with persistent maritime Intelligence, Surveillance and Reconnaissance (ISR) of nearly all the world's high-density sea-lanes, littorals, and areas of national interest. The MQ-4C air vehicle, mission control system, specialized sensors, and communications suite play a significant role in achieving the Navy's strategic vision for the 21st century. The Triton system provides persistent ISR and unparalleled situational awareness of the maritime battle space to the supported combatant commander and fleet commander. The system also serves as a Fleet response plan enabler with a persistent, global force offering to provide critical trip wire information for intelligence preparation of the environment. Triton provides the Warfighter with unprecedented levels of battlespace awareness to synchronize actions necessary to maintain maritime Full Spectrum Superiority. Teamed with its manned-capability counterpart, the P-8A Poseidon, Triton is a key component of the Navy's maritime domain awareness family of systems. MQ-4C Triton leverages Maritime Patrol and Reconnaissance Force manpower, training and maintenance efficiencies.

Triton Early Operational Capability (EOC) was successfully deployed in 2020. Following EOC, the MQ-4C Triton UAS continues to develop incremental capabilities within the ongoing acquisition program to meet program requirements in support of the 2011 National Defense Authorization Act (NDAA) enabling EP-3 Aries sundown and the Maritime Intelligence, Surveillance, Reconnaissance and Targeting (MISR-T) transition plan.

Increment 1 upgrades to the EOC system support program Initial Operational Capability (IOC) meeting NDAA 2011 requirements enabling MISR-T transition and EP-3 sundown. Increment 1 provides Multi-Intelligence capabilities, Counter Electronic Attack upgrades, and data dissemination across multiple classification domains and successfully completes in FY 2023.

Triton MQ-4C Unmanned Aerial Vehicle System (UAS) Full Scale Fatigue Test (FSFT), Effects of Defects (EoD) test efforts, and incorporating a stress report represent the effort required to complete the FSFT and EoD testing. Additionally, post-test activities necessary to fully verify and validate fatigue and damage tolerance

requirements of the Performance Based System Specification (PBSS). Fatigue testing and the results are required to certify the airframe to its designed service life of 51,000 flight hours/2,029 landings. The duration of fatigue testing is paced by the cycling rate limit of the test fixture for the main wing/fuselage/tail test article, as well as time perform teardown activities to inspect for cracks and determining initiation points for cracks when observed.

The FSFT consists of two lifetimes of Durability and one lifetime of Damage Tolerance (DaDT) testing on a complete airframe, and performed on statically determinant major components as separate stand-alone tests, to verify that the airframe structure meets DaDT requirements as defined in the Performance Based System Specification (PBSS).
FSFT consists of the Triton airframe into one (1) Full Assembly level test and 6 Minor Component level tests. The 1 Full Assembly Test is defined as the Full Airframe Test and includes a fully assembled wing, v-tail, nacelle, metallic fuselage, and composite aft fuselage. The six (6) minor tests are defined as the Ruddervator Control Surface, Aileron Control Surface, Spoiler Control Surface, Nose Landing Gear, Main Landing Gear, and Main Landing Gear Side Brace Actuator component tests.

JUSTIFICATION FOR BUDGET ACTIVITY: The FY 2024 funding is provided for System Demonstration Test Article (SDTA) vehicles and Fatigue Testing to support post-test teardown, inspections and reporting for portions of the full-scale test efforts. Additionally, the funding supports the execution of the Effects of Defects testing to retire limitations imposed by non-blueprint product, and various aircraft component performance improvements.

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. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	13.029	13.893	13.876	-	13.876
Current President's Budget	13.029	13.893	12.094	-	12.094
Total Adjustments	0.000	0.000	-1.782	-	-1.782
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	0.000	0.000	-1.800	-	-1.800
• Rate/Misc Adjustments	0.000	0.000	0.018	-	0.018

Change Summary Explanation

CHANGES:
Funding: FY 2024 was reduced by $1.782 million for Rate/Misc adjustments, as well as other minor programmatic adjustments.
Technical: N/A.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0305220N *I MQ-4C Triton*

Schedule: Full Scale Fatigue Study - N/A

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0305220N / *MQ-4C Triton*				Project (Number/Name) 4020 / *MQ-4C TRITON*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
4020: *MQ-4C TRITON*	3,526.543	13.029	13.893	12.094	-	12.094	15.747	14.115	14.345	14.633	45.622	3,670.021
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 373

A. Mission Description and Budget Item Justification

The MQ-4C Triton Unmanned Air System (UAS) is a high altitude-long endurance UAS designed to provide Fleet and combatant commanders with persistent maritime Intelligence, Surveillance and Reconnaissance (ISR) of nearly all the world's high-density sea-lanes, littorals, and areas of national interest. The MQ-4C air vehicle, mission control system, specialized sensors, and communications suite play a significant role in achieving the Navy's strategic vision for the 21st century. The Triton system provides persistent ISR and unparalleled situational awareness of the maritime battle space to the supported combatant commander and fleet commander. The system also serves as a Fleet response plan enabler with a persistent, global force offering to provide critical trip wire information for intelligence preparation of the environment. Triton provides the Warfighter with unprecedented levels of battlespace awareness to synchronize actions necessary to maintain maritime Full Spectrum Superiority. Teamed with its manned-capability counterpart, the P-8A Poseidon, Triton is a key component of the Navy's maritime domain awareness family of systems. MQ-4C Triton leverages Maritime Patrol and Reconnaissance Force manpower, training and maintenance efficiencies.

Triton Early Operational Capability (EOC) was successfully deployed in 2020. Following EOC, the MQ-4C Triton UAS continues to develop incremental capabilities within the ongoing acquisition program to meet program requirements in support of the 2011 National Defense Authorization Act (NDAA) enabling EP-3 Aries sundown and the Maritime Intelligence, Surveillance, Reconnaissance and Targeting (MISR-T) transition plan.

Increment 1 upgrades to the EOC system support program Initial Operational Capability (IOC) meeting NDAA 2011 requirements enabling MISR-T transition and EP-3 sundown. Increment 1 provides Multi-Intelligence capabilities, Counter Electronic Attack upgrades, and data dissemination across multiple classification domains and successfully completes in FY 2023.

Triton MQ-4C Unmanned Aerial Vehicle System (UAS) Full Scale Fatigue Test (FSFT), Effects of Defects (EoD) test efforts, and incorporating a stress report represent the effort required to complete the FSFT and EoD testing. Additionally, post-test activities necessary to fully verify and validate fatigue and damage tolerance requirements of the Performance Based System Specification (PBSS). Fatigue testing and the results are required to certify the airframe to its designed service life of 51,000 flight hours/2,029 landings. The duration of fatigue testing is paced by the cycling rate limit of the test fixture for the main wing/fuselage/tail test article, as well as time perform teardown activities to inspect for cracks and determining initiation points for cracks when observed.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**
Title: Product Development	12.682	13.546	11.747	0.000	11.747
Articles:	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305220N / *MQ-4C Triton*	**Project (Number/Name)** 4020 / *MQ-4C TRITON*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Description: Awarded contract in FY 2008 to initiate the MQ-4C Triton System Development and Demonstration (SDD) phase effort. The Prime Contractor is responsible for overall system development and performance, as well as associated management, engineering and logistics activities. ***FY 2023 Plans:*** Efforts within this PE continue on airframe fatigue testing and analysis and initiates performance improvement efforts for other aircraft components including, but not limited to, the engine and avionics systems. ***FY 2024 Base Plans:*** Efforts within this PE continue on airframe fatigue testing and analysis and initiates performance improvement efforts for other aircraft components including, but not limited to, the engine and avionics systems. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease of $1.799 from FY 2023 to continue airframe fatigue and analysis as well as performance improvements for other aircraft components.					
Title: ILS, Support, Studies & Analysis	0.305	0.305	0.305	0.000	0.305
Articles:	-	-	-	-	-
Description: Integrated Logistics Support, Studies and Analysis. ***FY 2023 Plans:*** Continue integrated logistics support, logistics supportability analyses and environmental planning, and development of technical data to support fielding of the MQ-4C Triton UAS capabilities. ***FY 2024 Base Plans:*** Continue integrated logistics support, logistics supportability analyses and environmental planning, and development of technical data to support fielding of the MQ-4C Triton UAS capabilities. ***FY 2024 OCO Plans:*** N/A					
Title: Test & Evaluation (T&E)	0.024	0.024	0.024	0.000	0.024
Articles:	-	-	-	-	-
Description: T&E efforts.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0305220N / *MQ-4C Triton*	Project (Number/Name) 4020 / *MQ-4C TRITON*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
FY 2023 Plans: Continue Developmental Test support of MQ-4C Triton fatigue testing. ***FY 2024 Base Plans:*** Continue Developmental Test support of MQ-4C Triton fatigue testing. ***FY 2024 OCO Plans:*** N/A					
Title: Program Management (PM) ***Articles:*** ***Description:*** PM support and travel. ***FY 2023 Plans:*** Continue the following: PM support and travel, development of milestone and acquisition-related documentation, capability refinement and open systems architecture development, resource justification, affordability assessments and cost analyses, risk reduction and risk management, system integration and interoperability planning, technology maturity reviews, program protection planning, corrosion prevention planning, and joint and international cooperation efforts. ***FY 2024 Base Plans:*** Continue the following: PM support and travel, development of milestone and acquisition-related documentation, capability refinement and open systems architecture development, resource justification, affordability assessments and cost analyses, risk reduction and risk management, system integration and interoperability planning, technology maturity reviews, program protection planning, corrosion prevention planning, and joint and international cooperation efforts. ***FY 2024 OCO Plans:*** N/A	0.018 -	0.018 -	0.018 -	0.000 -	0.018 -
Accomplishments/Planned Programs Subtotals	13.029	13.893	12.094	0.000	12.094

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305220N / *MQ-4C Triton*	**Project (Number/Name)** 4020 / *MQ-4C TRITON*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• RDTEN/0305421N: *RQ-4 Modernization*	134.323	150.093	300.378	-	300.378	431.346	363.789	152.967	122.562	0.000	2,717.051
• APN/0442: *MQ-4 Triton*	483.151	584.192	486.345	-	486.345	187.035	150.170	131.884	136.268	51.700	5,141.738
• APN/0605/J0442: *Spares and Repair Parts*	28.387	6.406	10.974	-	10.974	0.000	0.000	0.000	0.000	0.000	601.144
• APN/0596: *MQ-4 Series*	7.046	91.977	93.951	-	93.951	122.518	150.230	149.947	162.758	245.194	1,121.738
• OMN/1D4D: *Weapons Maintenance*	42.061	118.549	129.148	-	129.148	138.698	165.728	182.145	185.794	Continuing	Continuing

Remarks

D. Acquisition Strategy

The MQ-4C Triton acquisition approach supports the Navy's Maritime Intelligence, Surveillance, Reconnaissance, and Targeting (MISR-T) Transition Plan by providing a stable and effective baseline Early Operational Capability (EOC) in 2020 to facilitate Fleet introduction and learning while continuing development engineering and integrated test on Signals Intelligence (SIGINT), and other upgrades to deliver an Increment 1 configuration at Initial Operational Capability (IOC). Increment 1 development completes in FY2023, while air vehicle fatigue testing continues throughout the FYDP.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305220N / *MQ-4C Triton*	**Project (Number/Name)** 4020 / *MQ-4C TRITON*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	C/CPIF	Northrop Grumman : Rancho Bernardo, CA	2,873.102	12.001	Nov 2021	12.851	Nov 2022	11.054	Nov 2023	-		11.054	96.704	3,005.712	2,950.338
Systems Engineering	WR	NAWC-AD : Patuxent River, MD	247.518	0.681	Nov 2021	0.695	Nov 2022	0.693	Nov 2023	-		0.693	5.176	254.763	-
Prior Year Prod Dev no longer in the FYDP	Various	Various : Various	62.656	0.000		0.000		0.000		-		0.000	0.000	62.656	-
		Subtotal	3,183.276	12.682		13.546		11.747		-		11.747	101.880	3,323.131	N/A

Remarks

The Primary Hardware Development line resources Northrop Grumman for prime contractor activities, which include System Demonstration Test Article (SDTA) vehicles and Fatigue Testing. Decreased funding from FY 2023 to FY 2024 reflects the resources required to continue airframe fatigue testing and analysis as well as to support efforts to transition into post-test teardown, inspections and reporting for portions of the full-scale test effort, namely the outboard ruddervator and nose landing gear. Additionally, the funding supports the execution of the Effects of Defects testing to retire limitations imposed by non-blueprint product, and various aircraft component performance improvements.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics Support	Various	Various : Various	21.360	0.025	Nov 2021	0.025	Nov 2022	0.025	Nov 2023	-		0.025	0.196	21.631	-
Integrated Logistics Support	WR	NAWC-AD : Patuxent River, MD	55.539	0.280	Nov 2021	0.280	Nov 2022	0.280	Nov 2023	-		0.280	2.092	58.471	-
Prior year cost no longer funded in the FYDP	Various	Various : Various	32.336	0.000		0.000		0.000		-		0.000	0.000	32.336	-
		Subtotal	109.235	0.305		0.305		0.305		-		0.305	2.288	112.438	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0305220N / *MQ-4C Triton*	Project (Number/Name) 4020 / *MQ-4C TRITON*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	NAWC-AD : Patuxent River, MD	161.660	0.024	Nov 2021	0.024	Nov 2022	0.024	Nov 2023	-		0.024	0.168	161.900	-
Developmental Test & Evaluation (DT&E)	C/BA	Various : Various	35.687	0.000		0.000		0.000		-		0.000	0.000	35.687	-
		Subtotal	197.347	0.024		0.024		0.024		-		0.024	0.168	197.587	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	Allot	Various : Various	1.846	0.018	Nov 2021	0.018	Nov 2022	0.018	Nov 2023	-		0.018	0.126	2.026	-
Prior year cost no longer funded in the FYDP	Various	Various : Various	34.839	0.000		0.000		0.000		-		0.000	0.000	34.839	-
		Subtotal	36.685	0.018		0.018		0.018		-		0.018	0.126	36.865	N/A

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	3,526.543	13.029		13.893		12.094		-		12.094	104.462	3,670.021	N/A

Remarks

Prior to FY 2010, MQ-4C Triton, formerly known as RQ-4 Broad Area Maritime Surveillance (BAMS), was budgeted for in PE 0305205N: Endurance Unmanned Aer Veh.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305220N / *MQ-4C Triton*	**Project (Number/Name)** 4020 / *MQ-4C TRITON*

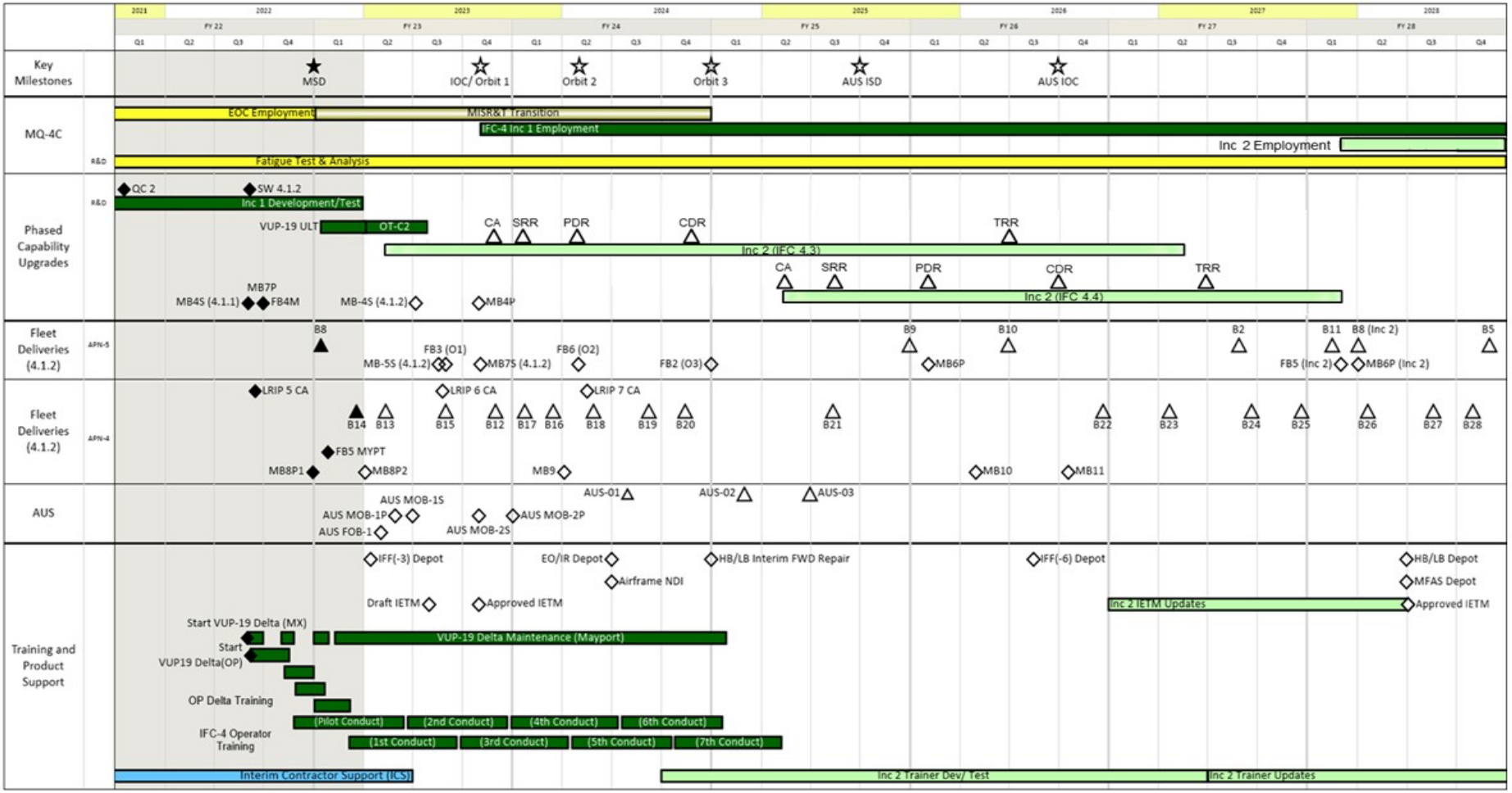

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305220N / *MQ-4C Triton*	**Project (Number/Name)** 4020 / *MQ-4C TRITON*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 4020				
Acquisition Milestones: Initial Operational Capability	4	2023	4	2023
System Development: Airframe Fatigue Testing and Analysis	1	2022	4	2028
System Development: Phased Capability Upgrades - Increment 1 Development / Test	1	2022	1	2023
System Development: Phased Capability Upgrades - Increment 2 Development / Test	3	2023	3	2027
Test & Evaluation Activities: Increment 1 Integrated Test (Combined/Developmental/ Operational)	1	2022	1	2023
Test & Evaluation Activities: Increment 1 Operational Test	1	2023	3	2023
Test & Evaluation Activities: Increment 2 Integrated Test (Combined/Developmental/ Operational)	3	2023	2	2028
Test & Evaluation Activities: Increment 2 Operational Test	3	2027	1	2028
Production Milestones: Contracts: Low Rate Initial Production Lot 5 Contract Award	3	2022	3	2022
Production Milestones: Contracts: Low Rate Initial Production Lot 6 Contract Award	3	2023	3	2023
Production Milestones: Contracts: Low Rate Initial Production Lot 7 Contract Award	2	2024	2	2024
Production Milestones: Deliveries: Low Rate Initial Production Lot 3 Delivery	2	2023	3	2023
Production Milestones: Deliveries: Low Rate Initial Production Lot 4 Delivery	1	2024	2	2024
Production Milestones: Deliveries: Low Rate Initial Production Lot 5 Delivery	3	2024	2	2027
Production Milestones: Deliveries: Low Rate Initial Production Lot 6 Delivery	3	2027	2	2028
Production Milestones: Deliveries: Low Rate Initial Production Lot 7 Delivery	3	2028	4	2028

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy												Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0305231N *I MQ-8 UAV*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	623.557	33.543	27.000	29.700	-	29.700	23.264	0.000	0.000	0.000	52.484	789.548
2768: *MQ-8 Fire Scout*	623.557	26.543	0.000	29.700	-	29.700	23.264	0.000	0.000	0.000	52.484	755.548
9999: *Congressional Adds*	0.000	7.000	27.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	34.000
Program MDAP/MAIS Code: **Project MDAP/MAIS Code(s):** 253												

A. Mission Description and Budget Item Justification

The MQ-8 Unmanned Air System is a Joint Military Intelligence Program.

The MQ-8 Unmanned Air System (Fire Scout) program achieved MS C in June 2017. MQ-8C Unmanned Air System declared Initial Operational Capability in June 2019 for the Endurance Baseline and in June 2022 for the Surface Warfare (SUW) Increment. The program includes MQ-8B air vehicles (AV), MQ-8C air vehicles (AV), and associated Mission Control Systems (MCS), Unmanned Aerial Vehicle Common Automatic Recovery Systems (UCARS) and support equipment. The MQ-8B variant of Fire Scout completed Sundown on 30 Sep 2022. Currently, the MQ-8C is the only remaining airframe for the program of record that maintain a limited segment of air vehicles to support the Littoral Combat Ship (LCS) SUW missions and future Mine Counter Measures (MCM) missions.

The MQ-8C Fire Scout is a vertical take-off and landing, expeditionary, unmanned aircraft system (UAS) capable of day/night ship and shore-based operations. Fire Scout provides an airborne, unmanned, sea-based, persistent intelligence, surveillance, reconnaissance and targeting (ISR-T) asset to the host LCS platform or suitably equipped air capable ships (SEACS) without the reliance on limited joint theater or national assets. The MQ-8C Fire Scout system of systems includes the MCS, UCARS (required for shipboard only), and Tactical Common Data Link (TCDL) for MQ-8C command & control and payload data transmission.

The MQ-8 launches and recovers vertically and can operate from suitably equipped air capable ships (SEACS), as well as confined area land bases. Interoperability is achieved via the Tactical Control System (TCS) software in the MCS, also referred to as a Ground Control Station (GCS), and the TCDL. The data from the MQ-8 is provided through standard DoD Command, Control, Communications, Computers and ISR-T (C4ISR-T) system architectures and protocols.

A deployed MQ-8 system includes AVs, payloads (i.e. electro-optical/infrared/laser designator-range finder, Automated Identification System, voice communications relay, Radar, and other specialty payloads), Mission Control Systems (with TCS and TCDL integrated for interoperability), a UCARS for automatic launch and recovery, and associated spares and support equipment. The schedules for MCS and UCARS components are based on host ship requirements, while schedules for AV components, support equipment, and training equipment are based on operational deployment plans. A limited number of land-based mission control systems support shore-based operations including training, pre-deployment or acceptance functional check flights, and depot-level maintenance/post-maintenance activities. MQ-8 systems support missions on LCS, Expeditionary Mobile Base (T-ESB), FFG(X), and/or SEACS. Quantities of air vehicles are derived from LCS deployment requirements for SUW and MCM mission sets.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0305231N *I MQ-8 UAV*

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	33.543	0.000	0.000	-	0.000
Current President's Budget	33.543	27.000	29.700	-	29.700
Total Adjustments	0.000	27.000	29.700	-	29.700
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	27.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	0.000	0.000	29.700	-	29.700

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2022	FY 2023
Project: 9999: *Congressional Adds*		
Congressional Add: *Data bus cybersecurity*	7.000	7.000
Congressional Add: *Datalink networks and software automation*	0.000	20.000
Congressional Add Subtotals for Project: 9999	7.000	27.000
Congressional Add Totals for all Projects	7.000	27.000

Change Summary Explanation

Funding: The FY 2024 request increased by $29.700M since the previous President's Budget submission due to incorporating development efforts of Optical Sensor System, Datalink Network and Minotaur in support of six (6) additional MQ-8C Air Vehicles removed from long term preservation for future deployment aboard and additional five (5) LCS.

Schedule: Updates reflect current planned dates for the software development increments in order to account for latest Fleet operational needs. Additionally, the schedule was updated to reflect continuing engineering and manufacturing development related to Mine Counter Measures; LCS Integration; and Payload, Obsolescence, Software, and Analysis as well as Test and Evaluation of Specialty Payloads. The schedule was also updated to add engineering and manufacturing development related to new development efforts.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0305231N / *MQ-8 UAV*	Project (Number/Name) 2768 / *MQ-8 Fire Scout*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2768: *MQ-8 Fire Scout*	623.557	26.543	0.000	29.700	-	29.700	23.264	0.000	0.000	0.000	52.484	755.548
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 253

A. Mission Description and Budget Item Justification

Funding is provided for development efforts in response to emerging fleet requirements through integration and improvements to Common Operational Picture (COP) capabilities, avionics, payloads, range, endurance, and targeting.

The MQ-8 Radar capability was the initial effort as part of the SUW Increment of the MQ-8C. A non-developmental maritime Radar was competitively selected and integrated into the MQ-8C Fire Scout System. The Radar provides the MQ-8 operators and the supported LCS, T-ESB and FFG(X) crew enhanced situational awareness of the Recognized Maritime Picture (RMP) by providing multiple operational modes to include surface search, track, Inverse Synthetic Aperture Radar (ISAR) maritime target classification, and Synthetic Aperture Radar (SAR) target classification capabilities. The maritime Radar is fully integrated with the Mission Control Systems (MCS) and ship's combat systems providing data in standardized format for ease of dissemination to other users. Integration of the Radar capability also includes integration of the Minotaur mission management software on both the AV and MCS.

Minotaur software was integrated as part of the Surface Warfare (SUW) Increment and provides the operator interface and command and control for the Radar, Electro-optical Infrared (EO/IR), and automatic information system (AIS) payloads and future mission payloads; map management; and sensor track correlation.

The MQ-8C data link network capability will disseminate sensor track data to other data link network participants contributing to the COP. Line-of-Sight (LOS) capability will connect Fleet users and disadvantaged users increasing situational awareness. Additionally, the data link network will be capable of passing weapons quality tracks and updates for Network Enabled Weapon Targeting (NEW-T) for Over-the-Horizon Targeting (OTH-T).

The optical sensor system will provide the MQ-8C the ability to land on ships during emissions control (EMCON) operations without requiring the use of UCARS, expanding the number of ships upon which the MQ-8C could land and mitigating reliability risks and operational risks with the UCARS system. The optical sensor system may also be utilized as part of a future due regard capability to detect potential air-to-air collision threats in time to react to them.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Hardware and System Development	11.575	0.000	25.256	0.000	25.256
Articles:	-	-	-	-	-
FY 2023 Plans: N/A					
FY 2024 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305231N / *MQ-8 UAV*	**Project (Number/Name)** 2768 / *MQ-8 Fire Scout*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Hardware and Software Non-Recurring Engineering for integration of the optical sensor and datalink network capabilities for MQ-8C. Development of Cyber security updates to MQ-8C software including Minotaur ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY24 increase of $25.256M provides support to LCS Aviation Detachments (AVDETs) for ship restoral and supports MQ-8 program wholeness.					
Title: Development/Operational Testing	4.250	0.000	0.500	0.000	0.500
Articles:	-	-	-	-	-
FY 2023 Plans: N/A ***FY 2024 Base Plans:*** Developmental test planning and coordination for optical sensor and datalink capabilities. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY24 increase of $0.500M provides government test and evaluation support to LCS AVDETs ship restoral for MQ-8 program wholeness.					
Title: Engineering and Technical Services	10.718	0.000	3.944	0.000	3.944
Articles:	-	-	-	-	-
FY 2023 Plans: N/A ***FY 2024 Base Plans:*** Funding provided for engineering, program technical management, logistics support of the MQ-8C. Acquisition planning and execution for integration of optical sensor and datalink network capability. Evaluation of other payloads, LCS integration, and system studies and design. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:***					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305231N / *MQ-8 UAV*	**Project (Number/Name)** 2768 / *MQ-8 Fire Scout*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
FY24 increase of $3.944M provides program management and government engineering support to LCS AVDETs ship restoral for MQ-8 program wholeness.					
Accomplishments/Planned Programs Subtotals	26.543	0.000	29.700	0.000	29.700

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• APN/0443: *MQ-8 UAV*	49.249	0.000	1.546	-	1.546	6.752	0.000	0.000	0.000	0.000	1,435.548
• APN/0588: *MQ-8 Series*	31.566	9.846	14.700	-	14.700	23.262	10.371	10.593	10.845	5.714	278.910

Remarks

D. Acquisition Strategy

The Navy's acquisition strategy capitalizes on prior Rapid Deployment Capability efforts, while leveraging existing program investments. The current Program of Record (PoR) acquisition strategy supports the revised MQ-8C Capability Production Document (CPD). The maritime radar was competitively selected and integrated via prime contracts with TCS and the MQ-8 Fire Scout AV. The Minotaur integration and the optical sensor system efforts will use DoD contracts. The Data Link acquisition strategy is planned to integrate existing DoD datalink hardware and software on the MQ-8C via prime OEM contracts.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0305231N / *MQ-8 UAV*	Project (Number/Name) 2768 / *MQ-8 Fire Scout*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development (MQ-8)	SS/CPIF	Northrop Grumman Corp : San Diego, CA	378.000	0.000		0.000		0.000		-		0.000	0.000	378.000	378.000
Primary Hardware Development (MQ-8)	SS/CPIF	Raytheon Corp : Falls Church, VA	28.239	0.000		0.000		0.000		-		0.000	0.000	28.239	28.239
Primary Hardware Development (RADAR)	C/FP	Leonardo MW : Edinburgh, United Kingdom	10.821	0.000		0.000		0.000		-		0.000	0.000	10.821	10.821
Primary Hardware Development (Minotaur)	C/CPFF	John Hopkins University : Laurel, MD	7.293	0.000		0.000		0.000		-		0.000	0.000	7.293	7.293
Primary Hardware Development (Link-16)	SS/CPIF	Northrop Grumman : San Diego, CA	14.201	8.425	Sep 2022	0.000		0.000		-		0.000	0.000	22.626	24.365
Primary Hardware Development (Link-16)	SS/CPFF	Raytheon Corp : Falls Church, VA	3.470	1.100	Sep 2022	0.000		0.000		-		0.000	0.000	4.570	3.880
Primary Hardware Development (Link-16)	C/CPFF	John Hopkins University : Laurel, MD	1.000	1.500	Sep 2022	0.000		0.000		-		0.000	0.000	2.500	7.750
Primary Hardware Development (Link-16)	IA	GSA -VIA SAT : Washington, DC	1.000	0.550	Dec 2021	0.000		0.000		-		0.000	0.000	1.550	4.050
Primary Hardware Development (Minotaur)	TBD	TBD : TBD	0.000	0.000		0.000		1.570	Mar 2024	-		1.570	0.000	1.570	17.777
Primary Hardware Development (Minotaur)	SS/CPFF	Raytheon Corp : Falls Church, VA	0.000	0.000		0.000		0.230	Mar 2024	-		0.230	0.000	0.230	2.700
Primary Hardware Development (Minotaur)	SS/CPFF	Northrop Grumman Corp : San Diego, CA	0.000	0.000		0.000		1.310	Mar 2024	-		1.310	0.000	1.310	2.000
Primary Software Development	SS/CPFF	Northrop Grumman : San Diego, CA	0.000	0.000		0.000		2.800	Jan 2024	-		2.800	0.000	2.800	-
Primary Hardware Development (Datalink Network)	TBD	TBD : TBD	0.000	0.000		0.000		11.136	Jun 2024	-		11.136	0.000	11.136	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305231N / *MQ-8 UAV*	**Project (Number/Name)** 2768 / *MQ-8 Fire Scout*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development (Optical Sensor System)	SS/CPFF	SSCI : Woburn, MA	0.000	0.000		0.000		8.210	Dec 2023	-		8.210	0.000	8.210	-
		Subtotal	444.024	11.575		0.000		25.256		-		25.256	0.000	480.855	N/A

Remarks

FY24 Product Development funding increase of $25.256M provides support to LCS AVDETs for ship restoral and supports MQ-8 program wholeness.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics Support	Various	Various : Various	5.720	0.900	Dec 2021	0.000		0.266	Nov 2023	-		0.266	0.000	6.886	-
		Subtotal	5.720	0.900		0.000		0.266		-		0.266	0.000	6.886	N/A

Remarks

FY24 ILS funding increase of $0.266M provides support to LCS AVDETs for ship restoral and supports MQ-8 program wholeness.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	NAWCAD : PAXRV, MD	37.359	3.500	Sep 2022	0.000		0.500	Nov 2023	-		0.500	0.000	41.359	-
Operational Test & Evaluation (OT&E)	WR	NAWC : Various	27.320	0.750	Nov 2021	0.000		0.000		-		0.000	0.000	28.070	-
Developmental Test & Evaluation (DT&E)	Various	Various : Various	1.646	0.000		0.000		0.000		-		0.000	0.000	1.646	-
		Subtotal	66.325	4.250		0.000		0.500		-		0.500	0.000	71.075	N/A

Remarks

FY24 Test and Evaluation-DT&E increase of $0.500M provides government test and evaluation support to LCS AVDETs ship restoral for MQ-8 program wholeness.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0305231N / *MQ-8 UAV*	Project (Number/Name) 2768 / *MQ-8 Fire Scout*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support	WR	NAWCAD : PAXRV, MD	76.629	5.962	Dec 2021	0.000		2.796	Nov 2023	-		2.796	0.000	85.387	-
Program Management Support	Various	Various : Various	25.814	3.756	Dec 2021	0.000		0.832	Nov 2023	-		0.832	0.000	30.402	-
Travel	WR	NAVAIR : PAXRV, MD	2.588	0.100	Dec 2021	0.000		0.050	Nov 2023	-		0.050	0.000	2.738	-
Prior years Mgmt Svcs no longer funded in the FYDP	Various	Various : Various	2.457	0.000		0.000		0.000		-		0.000	0.000	2.457	-
		Subtotal	107.488	9.818		0.000		3.678		-		3.678	0.000	120.984	N/A

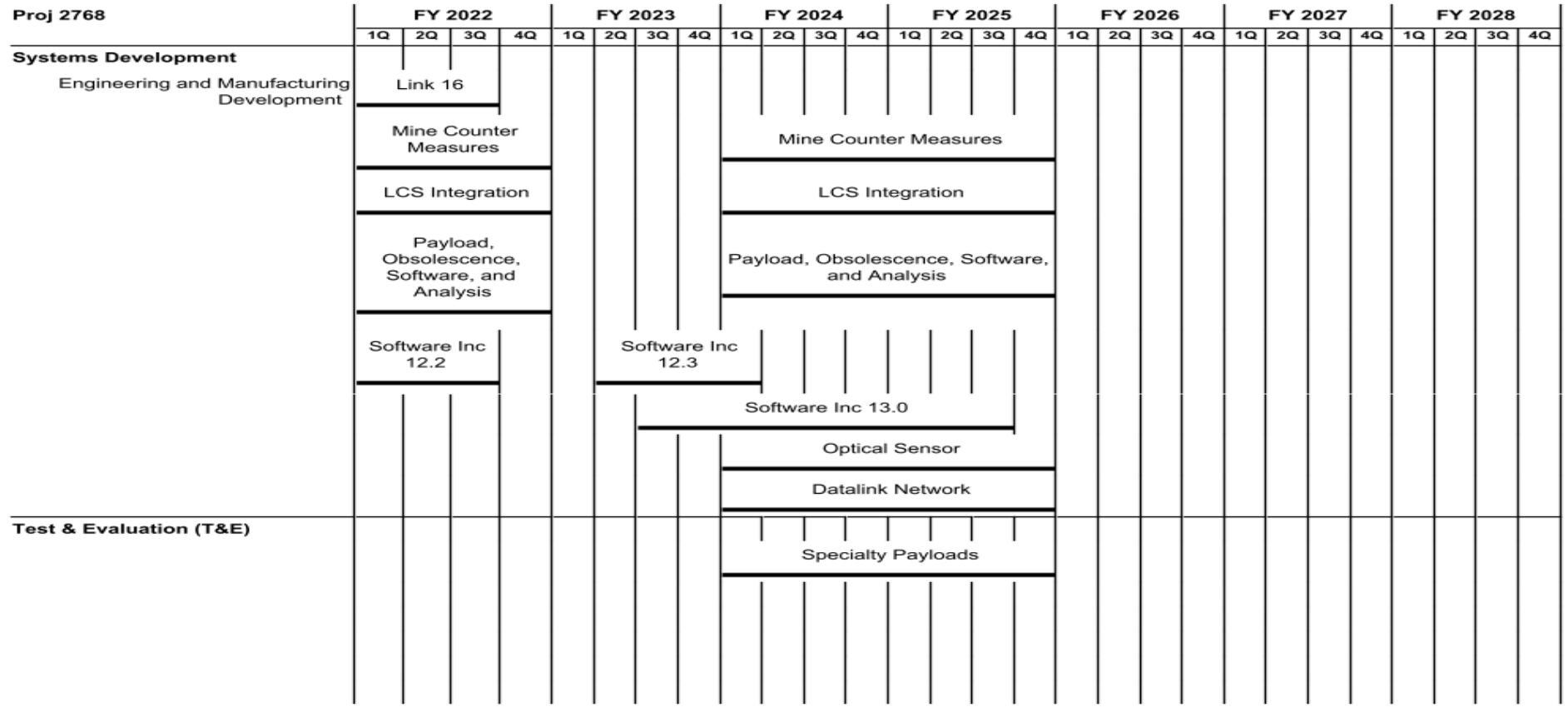
Remarks

FY24 Management Service increase of $3.678M provides program management, government engineering support, and travel to LCS AVDETs ship restoral for MQ-8 program wholeness.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	623.557	26.543		0.000		29.700		-		29.700	0.000	679.800	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305231N / *MQ-8 UAV*	**Project (Number/Name)** 2768 / *MQ-8 Fire Scout*



2024PB - 0305231N - 2768

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305231N / *MQ-8 UAV*	**Project (Number/Name)** 2768 / *MQ-8 Fire Scout*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2768				
Systems Development: Engineering and Manufacturing Development: Link 16	1	2022	3	2022
Systems Development: Engineering and Manufacturing Development: FY22 Mine Counter Measures	1	2022	4	2022
Systems Development: Engineering and Manufacturing Development: Mine Counter Measures	1	2024	4	2025
Systems Development: Engineering and Manufacturing Development: FY22 Littoral Combat Ship (LCS) Integration	1	2022	4	2022
Systems Development: Engineering and Manufacturing Development: Littoral Combat Ship (LCS) Integration	1	2024	4	2025
Systems Development: Engineering and Manufacturing Development: FY22 Payload, Obsolescence, Software, and Analysis	1	2022	4	2022
Systems Development: Engineering and Manufacturing Development: Payload, Obsolescence, Software, and Analysis	1	2024	4	2025
Systems Development: Engineering and Manufacturing Development: Software Increment 12.2	1	2022	3	2022
Systems Development: Engineering and Manufacturing Development: Software Increment 12.3	2	2023	1	2024
Systems Development: Engineering and Manufacturing Development: Software Increment 13.0	3	2023	3	2025
Systems Development: Engineering and Manufacturing Development: Optical Sensor System	1	2024	4	2025
Systems Development: Engineering and Manufacturing Development: Datalink Networks	1	2024	4	2025
Test & Evaluation (T&E): Specialty Payloads	1	2024	4	2025

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0305231N / *MQ-8 UAV*	Project (Number/Name) 9999 / *Congressional Adds*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
9999: *Congressional Adds*	0.000	7.000	27.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	34.000
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

FY23 Congressional Add funding provided for MQ-8C data bus cybersecurity, datalink network and software automation.

Cybersecurity is a mandatory requirement for C4ISR systems, and a data bus provides a medium for data and information exchange between all electronic systems within a weapon system - analogous to a Local Area Network (LAN), but for on-board internal electronic systems of a weapon system or platform. The data bus cybersecurity development effort will provide an integrated full-system cybersecurity solution inclusive of Intrusion Detection and Intrusion Prevention System (IDS/IPS) to legacy MIL-STD-1553 data buses on the MQ-8C Fire Scout.

The MQ-8C data link networks and software automation capability will disseminate Fire Scout Intelligence, Surveillance and Reconnaissance (ISR) data products and to provide increased data transfer rate between the AV and GCS to support transfer of the full Fire Scout ISR data set. Software automation efforts will reduce Air Vehicle Pilot (AVP)/Mission Payload Operator (MPO) workload by automating Naval Air Training and Operating Procedures Standardization (NATOPS) procedures such as air vehicle start, datalink configuration and link establishment.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023
Congressional Add: Data bus cybersecurity ***FY 2022 Accomplishments:*** Conduct market research, contract and acquisition planning, and release of data bus cybersecurity RFP. Initiate system specification development. ***FY 2023 Plans:*** Award data bus cybersecurity hardware NRE contract. Complete system specification development and conduct system requirements review and preliminary design review.	7.000	7.000
Congressional Add: Datalink networks and software automation ***FY 2022 Accomplishments:*** N/A ***FY 2023 Plans:*** Develop, test, and deliver a MQ-8C software build to reduce operator workload by automating procedures such as air vehicle start, datalink configuration and link establishment. Conduct trade studies to identify existing material solutions and integration approaches for a datalink network system. Conduct studies and prototype datalink network demonstration.	0.000	20.000
Congressional Adds Subtotals	7.000	27.000

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305231N / *MQ-8 UAV*	**Project (Number/Name)** 9999 / *Congressional Adds*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Acquisition strategy for Data bus cybersecurity effort is planned to be sole source using DoD contracts. Acquisition strategy for data link networks and software automation is to utilize existing sole source DOD and prime OEM contracts.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0305231N / *MQ-8 UAV*	Project (Number/Name) 9999 / *Congressional Adds*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development (Data Bus Cybersecurity)	SS/CPFF	Peraton Labs : Basking Ridge, NJ	0.000	6.257	May 2023	5.250	May 2023	0.000		-		0.000	0.000	11.507	7.000
Primary Hardware Development (Datalink)	C/CPFF	JHU/APL : Laurel, MD	0.000	0.000		0.125	Apr 2023	0.000		-		0.000	0.000	0.125	-
Primary Software Development (Datalink)	SS/CPIF	NGC : San Diego, CA	0.000	0.000		2.995	Apr 2023	0.000		-		0.000	0.000	2.995	-
Primary Software Development (Datalink)	SS/CPIF	Raytheon Corp : Falls Church, VA	0.000	0.000		0.175	Apr 2023	0.000		-		0.000	0.000	0.175	-
Primary Hardware Development (Datalink)	TBD	NGC : San Diego, CA	0.000	0.000		7.102	Apr 2024	0.000		-		0.000	0.000	7.102	-
Primary Hardware Development (Trade Study)	TBD	TBD : TBD: Not Specified	0.000	0.000		2.300	Apr 2023	0.000		-		0.000	0.000	2.300	-
Primary Hardware Development (Data Bus Cybersecurity)	SS/CPFF	NGC : San Diego, CA	0.000	0.000		1.000	Aug 2023	0.000		-		0.000	0.000	1.000	-
		Subtotal	0.000	6.257		18.947		0.000		-		0.000	0.000	25.204	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	Various	Various : Not Specified	0.000	0.000		4.010	Apr 2023	0.000		-		0.000	0.000	4.010	-
		Subtotal	0.000	0.000		4.010		0.000		-		0.000	0.000	4.010	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Support (Data Bus)	WR	NAWCAD : Patuxent River, MD	0.000	0.448	Oct 2022	0.550	Apr 2023	0.000		-		0.000	0.000	0.998	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0305231N / *MQ-8 UAV*	Project (Number/Name) 9999 / *Congressional Adds*	

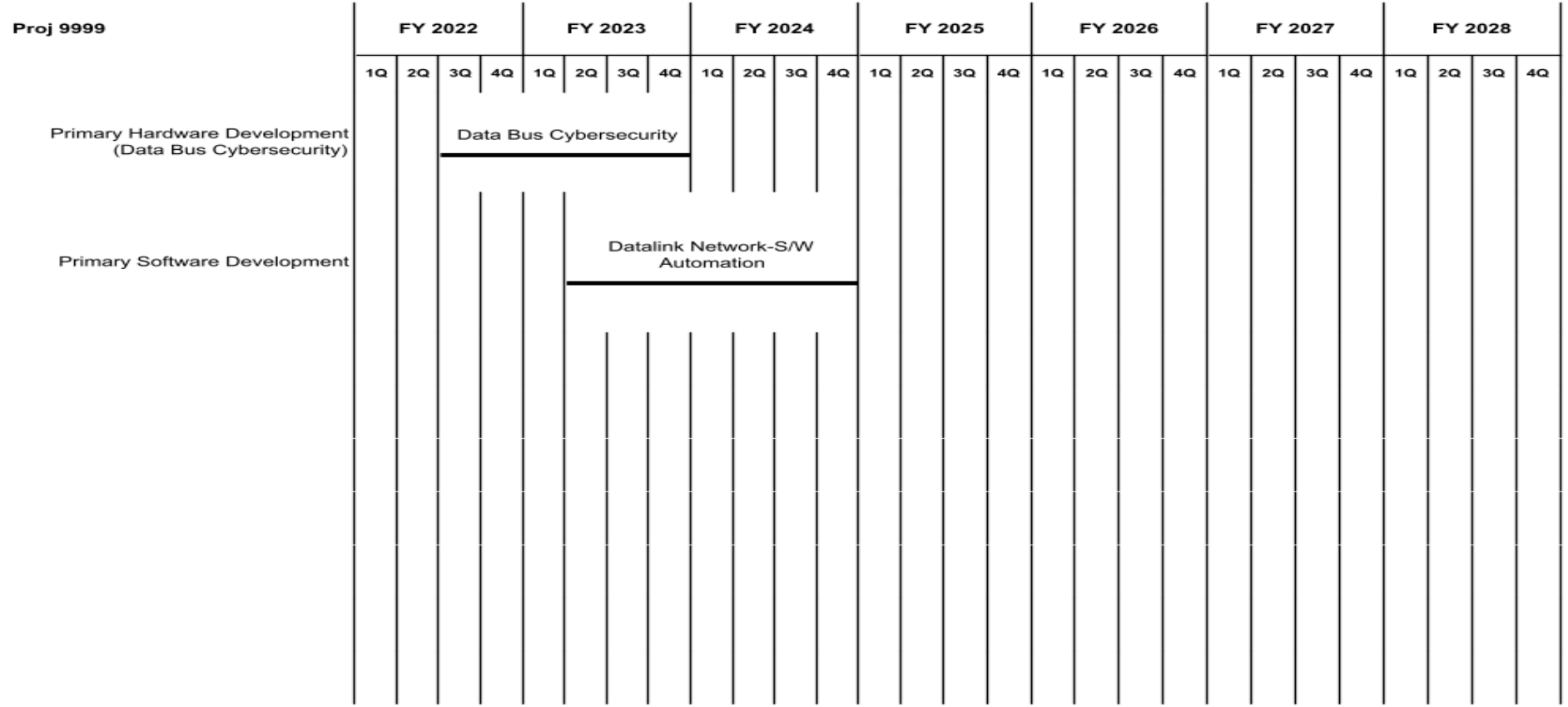
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management (Data Bus)	TBD	VARIOUS : Not Specified	0.000	0.295	Sep 2022	0.200	Jul 2023	0.000		-		0.000	0.000	0.495	-
Government Engineering Support (Data Link)	WR	NAWCAD : Patuxent River, MD	0.000	0.000		3.243	Apr 2023	0.000		-		0.000	0.000	3.243	-
Travel	WR	NAVAIR : Patuxent River, MD	0.000	0.000		0.050	Apr 2023	0.000		-		0.000	0.000	0.050	-
		Subtotal	0.000	0.743		4.043		0.000		-		0.000	0.000	4.786	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	7.000		27.000		0.000		-		0.000	0.000	34.000	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305231N / *MQ-8 UAV*	**Project (Number/Name)** 9999 / *Congressional Adds*



2024PB - 0305231N - 9999

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305231N / *MQ-8 UAV*	**Project (Number/Name)** 9999 / *Congressional Adds*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 9999				
Primary Hardware Development (Data Bus Cybersecurity): Data Bus Cybersecurity	3	2022	4	2023
Primary Software Development: Datalink Network-S/W Automation	2	2023	4	2024

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0305232M / *RQ-11 UAV*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	7.014	0.533	1.234	2.107	-	2.107	2.016	1.815	1.832	1.869	Continuing	Continuing
2292: *Unmanned Air Systems (Intel)*	7.014	0.533	1.234	2.107	-	2.107	2.016	1.815	1.832	1.869	Continuing	Continuing

A. Mission Description and Budget Item Justification

Family of Small Unmanned Aircraft Systems (FoSUAS) (formerly Small Unit Remote Scouting System (SURSS) is a Commandant of the Marine Corps Force Design 2030 initiative. FoSUAS consists of Short Range/Short Endurance (SR/SE), Medium Range/Medium Endurance (MR/ME) and Long Range/Long Endurance (LR/LE) systems. The FoSUAS program provides Small Unmanned Aircraft Systems (SUAS) for battalion/company/detachment level units with scalable airborne Reconnaissance, Surveillance, and Target Acquisition (RSTA) capabilities to aid in detecting, identifying, engaging, and/or avoiding enemy units. Although Force Design 2030 prioritizes Group 2 LR/LE capabilities, the requirements for SR/SE and MR/ME systems remain, to minimize operational risk and improve operational flexibility in asset allocation that maximizes economy of force across the conflict continuum. FoSUAS meets the validated operational requirements delineated in the Operational Requirements Document (ORD), Vertical Take Off and Landing (VTOL) Rapid Acquisition Top Level Requirements (TLR), and Long Range/Long Endurance (LR/LE) TLR.

SR/SE is a SUAS less than 10 pounds in weight, with 5-10 kilometer range and endurance up to 50 minutes. SR/SE systems address the need for situational awareness in urban and challenging terrain environments and reduce request-to- response timeframes for RSTA coverage.

MR/ME is a SUAS less than 20 pounds in weight, with 10-20 kilometer range and endurance up to 4 hours. MR/ME provides an organic, persistent RSTA capability to company level units, Route Clearance Platoons (RCP), and Combat Logistics Patrols (CLP) to enhance force protection, detect Improvised Explosive Devices (IEDs), provide laser targeting/marking/range finding, and communication relay.

LR/LE is a SUAS less than 55 pounds in weight, with 20-50 kilometer range and endurance up to 6 hours. LR/LE provides organic capabilities to battalion level units to satisfy Ground Combat Element RSTA needs. LR/LE SUAS are currently deployed to conduct multi-sensor RTSA operations for Marine Forces Special Operations Command and support Marine Corps fires and maneuver elements.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy					Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy* / BA 7: *Operational Systems Development*			R-1 Program Element (Number/Name) PE 0305232M / *RQ-11 UAV*		
B. Program Change Summary ($ in Millions)	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**
Previous President's Budget	0.533	1.234	2.107	-	2.107
Current President's Budget	0.533	1.234	2.107	-	2.107
Total Adjustments	0.000	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	0.000	0.000	0.000	-	0.000
• Rate/Misc Adjustments	0.000	0.000	0.000	-	0.000

Change Summary Explanation

The increase from FY 2023 to FY 2024 of $0.873M due to research and development of new capabilities required to meet the implementation of SRA and the increased quantities of LR/LE to meet Force Design 2030 initiatives. Additionally, the FY 2024 budget anticipates increased needs of Interim Flight Clearances (IFC), Authority To Operate (ATO), Cyber Testing, and extensive Market research.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0305232M / *RQ-11 UAV*	Project (Number/Name) 2292 / *Unmanned Air Systems (Intel)*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2292: *Unmanned Air Systems (Intel)*	7.014	0.533	1.234	2.107	-	2.107	2.016	1.815	1.832	1.869	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

In support of the Commandant of the Marine Corps (CMC) Planning Guidance and Force Design 2030, the Family of Small Unmanned Aircraft Systems (FoSUAS) program provides small unmanned aircraft systems (SUAS) for battalion/company/detachment level units with scalable airborne RSTA capabilities to aid in detecting, identifying, engaging, and/or avoiding enemy units. FoSUAS meet validated operational requirements delineated in the Operational Requirements Document (ORD), Vertical Take Off and Landing (VTOL) Rapid Acquisition Top Level Requirements (TLR), and Long Range/Long Endurance (LR/LE) TLR.

SUAS Reusable Architecture (SRA) capability will reduce the size, weight, and manpower required to operate a SUAS, increases the mobility of the operator, and improves digital interoperability. The SRA project, a technology improvement effort, will increase interoperability, protect cyber security, and reduce cyber security risk, decrease maintenance and sustainment costs, minimize risk and cost associated with technology insertion and improvement, and reduce manpower required to operate a FoSUAS. FoSUAS is developing SRA to establish reference implementations and industry guidance for all key SUAS interfaces, drastically improving interoperability by permitting industry, government, and academia to design-to-field hardware and software capabilities with well-defined integration and cybersecurity requirements up front. In addition to accelerating payload integration, SRA will allow portability of both software and hardware-based functionality across disparate platforms and control segments, as well as enable rapid integration of both open and closed-source artificial intelligence/machine learning (AI/ML) tools to inject autonomy and target recognition capabilities into FoSUAS. This effort will reduce duplicative engineering, training, integration, and sustainment efforts associated with closed, proprietary systems. SRA also seeks to authorize all SRA-compliant systems under a single service accreditation in order to define, address, and mitigate security vulnerabilities at the enterprise-level in current and future platforms.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Product Development	0.401	0.926	1.400	0.000	1.400
Articles:	-	-	-	-	-
FY 2023 Plans: -Maintain oversight/tracking of contracted and follow on phase of SRA efforts -Track and report on foregone mandatory recurring SUAS cyber assessments and required initial cyber assessments on new SUAS systems/component					
FY 2024 Base Plans: - Continue design of engineering solutions for mandatory SUAS cyber security assessments - Continue to design engineering solutions to for all new SUAS systems/components - Perform analysis on system interoperability and modularity					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305232M / *RQ-11 UAV*	**Project (Number/Name)** 2292 / *Unmanned Air Systems (Intel)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Integration efforts for SRA Project ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY 2023 to FY 2024 increase due to research and development of new capabilities required to meet the implementation of SRA and the increased requirement for LR/LE to meet Force Design 2030 initiatives. Additionally, the FY 2024 budget funds increased needs of Interim Flight Clearances (IFC), Authority To Operate (ATO), Cyber Testing, and extensive market research.					
Title: Support ***Articles:*** ***FY 2023 Plans:*** N/A ***FY 2024 Base Plans:*** - Contract follow on phase of SRA efforts to meet the updated requirements of FD2030 objectives - Research in relevant technical areas where SRA refinement and modernization is required ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY 2023 to FY 2024 increase reflects the breakout of Support from Product Development (above). Prior years included a single category for Product Development and Support.	0.000 -	0.000 -	0.507 -	0.000 -	0.507 -
Title: Test and Evaluation ***Articles:*** ***FY 2023 Plans:*** - Continue operational assessment of SUAS Reusable Architecture (SRA) for FoSUAS platforms. - Continue assessment of low cost, commercial available Unmanned Aerial Systems to inform future procurements, and determine potential adversary capabilities. ***FY 2024 Base Plans:*** - Continue operational assessment of SRA for FoSUAS platforms.	0.132 -	0.308 -	0.200 -	0.000 -	0.200 -

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305232M / *RQ-11 UAV*	**Project (Number/Name)** 2292 / *Unmanned Air Systems (Intel)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Continue assessment of low cost, commercial available UAS to inform future procurements, and determine potential adversary capabilities. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY 2023 to FY 2024 decrease is due to reduction in technology demonstration verification and validation efforts.					
Accomplishments/Planned Programs Subtotals	0.533	1.234	2.107	0.000	2.107

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• PMC/4757: *RQ-11 UAV*	24.299	42.249	52.273	-	52.273	63.793	63.285	98.190	100.153	Continuing	Continuing

Remarks

D. Acquisition Strategy

The program office continues to implement acquisition approaches to quickly field new technology and capabilities to meet requirements set forth by USMC in order to meet FD2030 objectives.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0305232M / *RQ-11 UAV*	Project (Number/Name) 2292 / *Unmanned Air Systems (Intel)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SRA Integration	WR	Various : Various	0.974	0.261	May 2022	0.400	May 2023	1.400	Jan 2024	-		1.400	Continuing	Continuing	Continuing
Prior Years Cumulative Funding	Various	Various : Various	2.976	0.000		0.000		0.000		-		0.000	0.000	2.976	-
		Subtotal	3.950	0.261		0.400		1.400		-		1.400	Continuing	Continuing	N/A

Remarks

FY 2023 to FY 2024 increase due to research and development of new capabilities required to meet the implementation of SRA and the increased quantities of LR/LE to meet FD2030 initiatives. Additionally, the FY 2024 budget funds increased needs of Interim Flight Clearances (IFC), Authority To Operate (ATO), Cyber Testing, and extensive market research.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Commercial UAS Analysis/ Cyber Security	WR	NAWCAD : Pax River, MD	0.515	0.140	Mar 2022	0.264	Mar 2023	0.253	May 2024	-		0.253	Continuing	Continuing	Continuing
Engineering Analysis	WR	NAWCAD : Pax River, MD	1.354	0.000		0.262	Nov 2022	0.254	Nov 2023	-		0.254	0.000	1.870	-
		Subtotal	1.869	0.140		0.526		0.507		-		0.507	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	Various : Various	0.647	0.132	May 2022	0.308	May 2023	0.200	Jan 2024	-		0.200	Continuing	Continuing	Continuing
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	Various	Various : Various	0.548	0.000		0.000		0.000		-		0.000	0.000	0.548	-
		Subtotal	1.195	0.132		0.308		0.200		-		0.200	Continuing	Continuing	N/A

Remarks

FY 2023 to FY 2024 decrease is due to reduction in technology demonstration verification and validation efforts.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0305232M / *RQ-11 UAV*	Project (Number/Name) 2292 / *Unmanned Air Systems (Intel)*	

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	7.014	0.533		1.234		2.107		-		2.107	Continuing	Continuing	N/A

Remarks

Overall increase is primarily attributed to research and development of new capabilities required to meet the implementation of SRA and the increased quantities of LR/LE to meet FD2030 initiatives. Additionally, the FY 2024 budget funds increased needs of Interim Flight Clearances (IFC), Authority To Operate (ATO), Cyber Testing, and extensive market research.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305232M / *RQ-11 UAV*	**Project (Number/Name)** 2292 / *Unmanned Air Systems (Intel)*

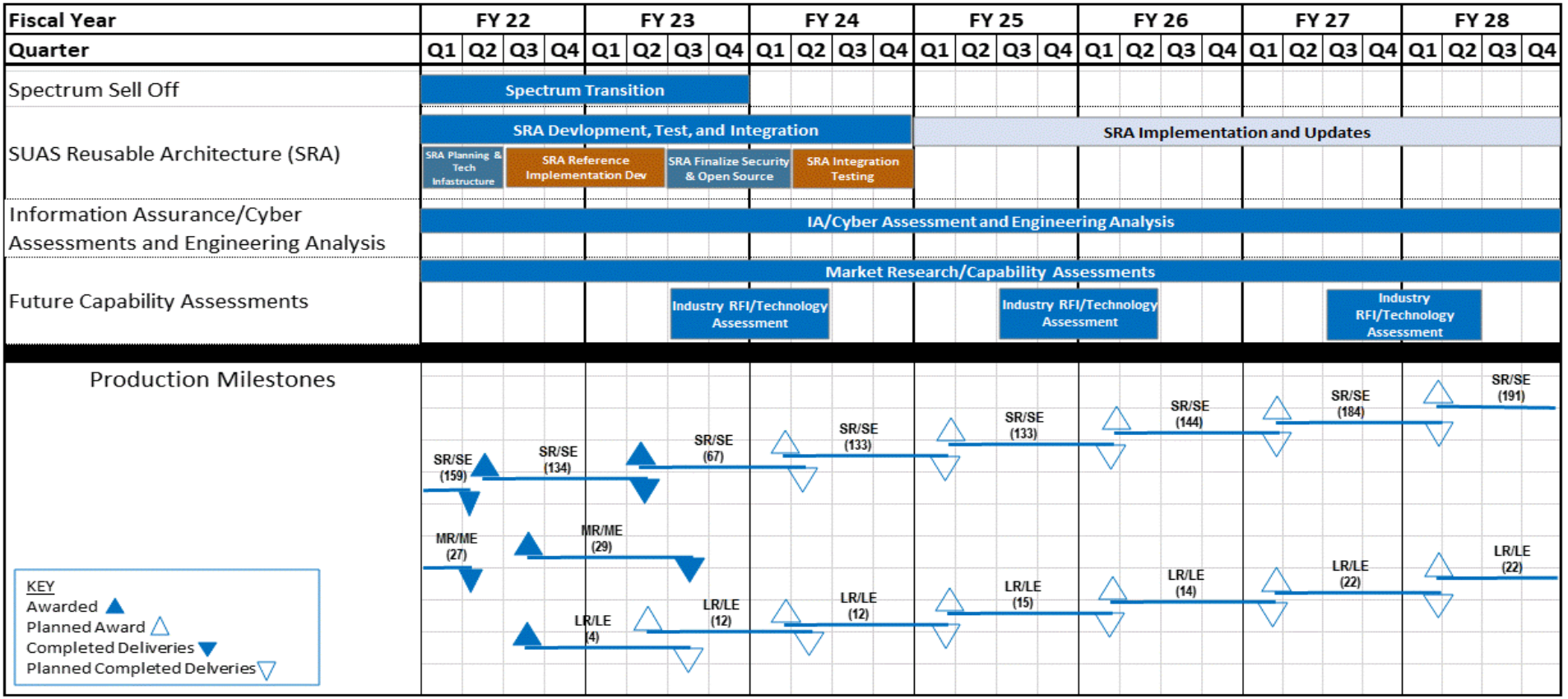


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305232M / *RQ-11 UAV*	**Project (Number/Name)** 2292 / *Unmanned Air Systems (Intel)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2292				
Spectrum Sell Off: Spectrum Transition	1	2022	4	2023
SUAS Reusable Architecture (SRA): SRA Development and Integration Verification	1	2022	4	2024
SUAS Reusable Architecture (SRA): SRA Implementation and Updates	1	2025	4	2028
SUAS Reusable Architecture (SRA): OTA Option 1	3	2022	3	2022
SUAS Reusable Architecture (SRA): OTA Option 2	1	2023	1	2023
SUAS Reusable Architecture (SRA): OTA Option 3	3	2023	3	2023
SUAS Reusable Architecture (SRA): Integration Testing	2	2024	2	2024
SUAS Reusable Architecture (SRA): Follow-On Contract	1	2025	1	2025
Future Capability Assessments/Cyber Assessments: Cyber Assessment	1	2022	4	2028
Future Capability Assessments/Cyber Assessments: Market Research/Capability Assessments	1	2022	4	2028
Future Capability Assessments/Cyber Assessments: FY23 Industry RFI/Technology Assessment	3	2023	2	2024
Future Capability Assessments/Cyber Assessments: FY25 Industry RFI/Technology Assessment	3	2025	2	2026
Future Capability Assessments/Cyber Assessments: FY27 Industry RFI/Technology Assessment	3	2027	2	2028
Production Milestones: MIPR Orders: FY22 MR/ME	3	2022	3	2022
Production Milestones: MIPR Orders: FY22 SR/SE	2	2022	2	2022
Production Milestones: MIPR Orders: FY22 LR/LE	3	2022	3	2022
Production Milestones: MIPR Orders: FY23 SR/SE	2	2023	2	2023
Production Milestones: MIPR Orders: FY23 LR/LE	1	2023	1	2023
Production Milestones: MIPR Orders: FY24 SR/SE	1	2024	1	2024

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305232M / *RQ-11 UAV*	**Project (Number/Name)** 2292 / *Unmanned Air Systems (Intel)*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Production Milestones: MIPR Orders: FY24 LR/LE	1	2024	1	2024
Production Milestones: MIPR Orders: FY25 SR/SE	1	2025	1	2025
Production Milestones: MIPR Orders: FY25 LR/LE	1	2025	1	2025
Production Milestones: MIPR Orders: FY26 SR/SE	1	2026	1	2026
Production Milestones: MIPR Orders: FY26 LR/LE	1	2026	1	2026
Production Milestones: MIPR Orders: FY27 SR/SE	1	2027	1	2027
Production Milestones: MIPR Orders: FY27 LR/LE	1	2027	1	2027
Production Milestones: MIPR Orders: FY28 SR/SE	1	2028	1	2028
Production Milestones: MIPR Orders: FY28 LR/LE	1	2028	1	2028

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0305234N *I Small (Level 0) Tactical UAS (STUASL0)*

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	107.315	1.772	3.761	2.999	-	2.999	0.000	0.000	0.000	0.000	0.000	115.847
3192: *RQ-21 BLACKJACK*	107.315	1.772	3.761	2.999	-	2.999	0.000	0.000	0.000	0.000	0.000	115.847

A. Mission Description and Budget Item Justification

The RQ-21A BLACKJACK (formerly known as The Small Tactical Unmanned Aircraft System (STUAS)) is a United States Navy (USN) program that provides persistent maritime and land-based tactical Intelligence, Surveillance, and Reconnaissance/Target Acquisition support for tactical level maneuver decisions and unit level force defense/force protection for Naval amphibious assault ships (multi-ship classes) and Navy forces. This system will support Naval Missions such as building the Recognized Maritime Picture, Maritime Security Operations, Maritime Interdiction Operations, and provide support for Naval Units operating from sea/shore in Overseas Contingency Operations. The RQ-21A BLACKJACK United States Marine Corps program (PE 0305239M) began divesting in FY21 in support of Marine Corps Force Design 2030. Per Deputy Commandant, Combat, Development and Integration (CD&I) directed divestment of RQ-21A via letter dated February 22, 2021 and will complete divestiture in FY23. Office of the Chief of Naval Operations (OPNAV), Naval Special Warfare Branch (N951), directed the United States Navy (USN) divestment of RQ-21A via letter dated 23 January 2023. USN divestment will complete at the conclusion of FY25.

The RQ-21A BLACKJACK will continue to correct safety related deficiencies to maintain current operations without loss of capability. Corrections of deficiencies may include Command and Control, Frequency Agile Communications Relay, Airborne Precision Engagement and Targeting, Digital Common Data Link, Launch and Recovery, and periodic refresh of the Electro-Optical/Infrared camera.

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. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	1.772	3.761	6.913	-	6.913
Current President's Budget	1.772	3.761	2.999	-	2.999
Total Adjustments	0.000	0.000	-3.914	-	-3.914
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	0.000	0.000	-3.913	-	-3.913
• Rate/Misc Adjustments	0.000	0.000	-0.001	-	-0.001

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0305234N *I Small (Level 0) Tactical UAS (STUASL0)*

Change Summary Explanation

Schedule: Revised to reflect the program's latest procurement funding profile.

FY 2024 funding request was reduced by $3.914M since the previous President's Budget submission to account for Marine Corps divestment and thus solely support NSW requirements.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0305234N / *Small (Level 0) Tactical UAS (STUASL0)*	Project (Number/Name) 3192 / *RQ-21 BLACKJACK*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
3192: *RQ-21 BLACKJACK*	107.315	1.772	3.761	2.999	-	2.999	0.000	0.000	0.000	0.000	0.000	115.847
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The RQ-21A BLACKJACK (formerly known as The Small Tactical Unmanned Aircraft System (STUAS)) is a United States Navy (USN) program that provides persistent maritime and land-based tactical Intelligence, Surveillance, and Reconnaissance/Target Acquisition support for tactical level maneuver decisions and unit level force defense/force protection for Naval amphibious assault ships (multi-ship classes) and Navy. This system will support Naval Missions such as building the Recognized Maritime Picture, Maritime Security Operations, Maritime Interdiction Operations, and provide support for Naval Units operating from sea/shore in Overseas Contingency Operations. The RQ-21A BLACKJACK United States Marine Corps program (PE 0305239M) began divesting in FY21 in support of Marine Corps Force Design 2030. Per Deputy Commandant, Combat, Development and Integration (CD&I) directed divestment of RQ-21A via letter dated February 22, 2021. Office of the Chief of Naval Operations (OPNAV), Naval Special Warfare Branch (N951), directed the United States Navy (USN) divestment of RQ-21A via letter dated 23 January 2023. USN divestment will complete at the conclusion of FY25.

The RQ-21A BLACKJACK will continue to correct safety related deficiencies to maintain current operations without loss of capability. Corrections of deficiencies may include Command and Control, Frequency Agile Communications Relay, Airborne Precision Engagement and Targeting, Digital Common Data Link, Launch and Recovery, and periodic refresh of the Electro-Optical/Infrared camera.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Product Development/Upgrade Efforts	1.000	2.766	2.000	0.000	2.000
Articles:	-	-	-	-	-
FY 2023 Plans: The program will perform investigations, studies, and continue prototype efforts for an Airborne Precision Engagement and Targeting capability, and Weapons integration capability for RQ-21A platform. The program will improve the ability of the RQ-21A air vehicle to recover in a GPS denied environment and continue upgrades to command and control, reduce recovery damage, increase Propulsion Module Unit (PMU) performance and reliability, improved turret optics and target acquisition capability, and decreasing the system's expeditionary footprint. The program will perform software development and trade studies to correct deficiencies identified from test as well as enable additional capabilities such as Command and Control.					
FY 2024 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305234N / *Small (Level 0) Tactical UAS (STUASL0)*	**Project (Number/Name)** 3192 / *RQ-21 BLACKJACK*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
The program will perform software development and trade studies to correct safety deficiencies identified from tests. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease from FY2023 to FY2024 of $0.766M is due to the completion of Alticam 14.					
Title: Engineering Support	0.772	0.995	0.999	0.000	0.999
Articles:	-	-	-	-	-
FY 2023 Plans: The program will perform investigations, studies, and continue prototype efforts for an Airborne Precision Engagement and Targeting capability, and Weapons integration capability for RQ-21A platform. The program will improve the ability of the RQ-21A air vehicle to recover in a GPS denied environment and continue upgrades to command and control, reduce recovery damage, increase Propulsion Module Unit (PMU) performance and reliability, improved turret optics and target acquisition capability, and decreasing the system's expeditionary footprint. The program will perform software development and trade studies to correct deficiencies from test as well as enable additional capabilities such as Extended Range and enable a block upgrade of multiple system components at a time. ***FY 2024 Base Plans:*** The program will perform software development and trade studies to correct deficiencies from tests. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY2023 to FY2024 of $0.004K is due to the increase in cost of engineering support.					
Accomplishments/Planned Programs Subtotals	1.772	3.761	2.999	0.000	2.999

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• APN/0444: *STUASLO*	13.151	2.703	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	342.280
• APN/0598: *RQ-21 Series*	14.069	6.576	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	106.164

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305234N / *Small (Level 0) Tactical UAS (STUASL0)*	**Project (Number/Name)** 3192 / *RQ-21 BLACKJACK*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost

Remarks

D. Acquisition Strategy

The program office has utilized a competitive acquisition approach for award of the Engineering and Manufacturing Development effort to field a capability that meets threshold requirements. Low Rate Initial Production (LRIP) test article was utilized to successfully complete Initial Operational Test and Evaluation (IOT&E). The program is in operations and sustainment.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305234N / *Small (Level 0) Tactical UAS (STUASL0)*	**Project (Number/Name)** 3192 / *RQ-21 BLACKJACK*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Upgrade Efforts/Correction of Deficiencies	C/BOA	Insitu, Inc : Bingen, WA	21.517	1.000	Mar 2022	2.766	Mar 2023	2.000	Mar 2024	-		2.000	0.000	27.283	27.283
Prior year Prod Devt no longer funded in the FYDP	Various	Various : Various	29.125	0.000		0.000		0.000		-		0.000	0.000	29.125	-
		Subtotal	50.642	1.000		2.766		2.000		-		2.000	0.000	56.408	N/A

Remarks

Product development corresponds to R-2A Upgrade Efforts. Decrease from FY2023 to FY2024 of $0.766M is due to the completion of Alticam 14.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Software Engineering Support	WR	NAWC-WD : China Lake, CA	17.330	0.293	Dec 2021	0.330	Dec 2022	0.336	Dec 2023	-		0.336	0.000	18.289	-
Government Engineering Support	WR	Various : Various	16.048	0.061	Dec 2021	0.086	Dec 2022	0.087	Dec 2023	-		0.087	0.000	16.282	-
Prior year Support no longer funded in the FYDP	Various	Various : Various	8.482	0.000		0.000		0.000		-		0.000	0.000	8.482	-
		Subtotal	41.860	0.354		0.416		0.423		-		0.423	0.000	43.053	N/A

Remarks

Support is included within R-2A Engineering Support.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	Various : Various	4.524	0.131	Jul 2022	0.155	Jul 2023	0.154	Jul 2024	-		0.154	0.000	4.964	-
Operational Test & Evaluation (OT&E)	WR	Various : Various	0.434	0.022	Dec 2021	0.039	Dec 2022	0.037	Dec 2023	-		0.037	0.000	0.532	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305234N / *Small (Level 0) Tactical UAS (STUASL0)*	**Project (Number/Name)** 3192 / *RQ-21 BLACKJACK*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	4.958	0.153		0.194		0.191		-		0.191	0.000	5.496	N/A

Remarks

Test and Evaluation is included within R-2A Engineering Support.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	MIPR	Various : Various	3.847	0.100	Mar 2022	0.180	Mar 2023	0.183	Mar 2024	-		0.183	0.000	4.310	4.310
Program Management Support	C/CPFF	Bowhead : Patuxent River, MD	3.057	0.125	Jan 2022	0.152	Jan 2023	0.151	Jan 2024	-		0.151	0.000	3.485	3.485
Travel	WR	Various : Various	0.602	0.040	Oct 2021	0.053	Oct 2022	0.051	Oct 2023	-		0.051	0.000	0.746	-
Prior Year Mgmt Svcs no longer funded in the FYDP	Various	Various : Various	2.349	0.000		0.000		0.000		-		0.000	0.000	2.349	-
		Subtotal	9.855	0.265		0.385		0.385		-		0.385	0.000	10.890	N/A

Remarks

Management Services is included within R-2A Engineering Support.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	107.315	1.772		3.761		2.999		-		2.999	0.000	115.847	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305234N / *Small (Level 0) Tactical UAS (STUASL0)*	**Project (Number/Name)** 3192 / *RQ-21 BLACKJACK*

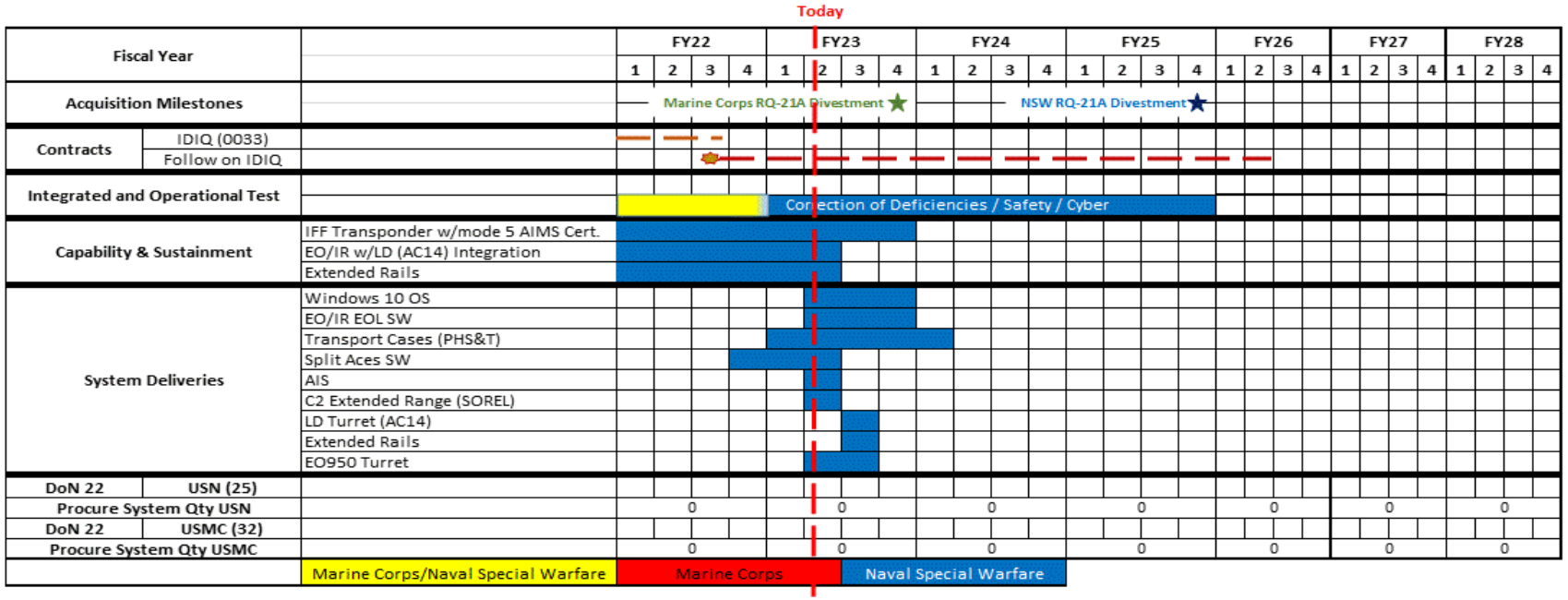


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305234N / *Small (Level 0) Tactical UAS (STUASL0)*	**Project (Number/Name)** 3192 / *RQ-21 BLACKJACK*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
RQ-21A				
Integrated and Operational Test: Integrated and Operational Test - Payloads (Correction of Deficiencies, Safety, Cybersecurity)	1	2022	4	2025
Capability Development & Sustainment: IFF Transponder w/mode 5 AIMS Cert	1	2022	4	2023
Capability Development & Sustainment: EO/IR w/LD (AC14) Intergration	1	2022	2	2023
Capability Development & Sustainment: Extended Rails	1	2022	2	2023
Systems Deliveries: Windows 10 OS	2	2023	4	2023
Systems Deliveries: EO/IR EOL SW	2	2023	4	2023
Systems Deliveries: PHS&T (Transport Cases)	1	2023	1	2024
Systems Deliveries: Split Aces SW	4	2022	2	2023
Systems Deliveries: AIS	2	2023	2	2023
Systems Deliveries: C2 Extended Range (SOREL)	2	2023	2	2023
Systems Deliveries: LD Turrett (AC14)	3	2023	3	2023
Systems Deliveries: Extended Rails	3	2023	3	2023
Systems Deliveries: EO950 Turret	2	2023	3	2023

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0305241N *I Multi-Intelligence Sensor Development*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	59.252	56.261	49.460	-	49.460	55.025	54.248	53.078	54.144	Continuing	Continuing
3258: *Minotaur*	0.000	16.437	21.918	20.921	-	20.921	23.430	22.960	22.529	22.982	Continuing	Continuing
3329: *ISR&T Sensor Payloads*	0.000	15.389	12.499	12.891	-	12.891	11.425	11.259	11.178	11.402	Continuing	Continuing
3383: *P-8 Quick Reaction Capability (QRC)*	0.000	27.426	21.844	15.648	-	15.648	20.170	20.029	19.371	19.760	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 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	59.252	56.261	53.888	-	53.888
Current President's Budget	59.252	56.261	49.460	-	49.460
Total Adjustments	0.000	0.000	-4.428	-	-4.428
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Rate/Misc Adjustments	0.000	0.000	-4.428	-	-4.428

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy												Date: March 2023
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0305241N / *Multi-Intelligence Sensor Development*				Project (Number/Name) 3258 / *Minotaur*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
3258: *Minotaur*	0.000	16.437	21.918	20.921	-	20.921	23.430	22.960	22.529	22.982	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0305241N / *Multi-Intelligence Sensor Development*				Project (Number/Name) 3329 / *ISR&T Sensor Payloads*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
3329: *ISR&T Sensor Payloads*	0.000	15.389	12.499	12.891	-	12.891	11.425	11.259	11.178	11.402	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy												Date: March 2023
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0305241N / *Multi-Intelligence Sensor Development*				Project (Number/Name) 3383 / *P-8 Quick Reaction Capability (QRC)*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
3383: *P-8 Quick Reaction Capability (QRC)*	0.000	27.426	21.844	15.648	-	15.648	20.170	20.029	19.371	19.760	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0305242M *I Unmanned Aerial Systems (UAS) Payloads*

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	5.000	9.274	9.780	13.005	-	13.005	13.402	10.175	11.910	11.336	Continuing	Continuing
8277: *UAS Payloads*	5.000	9.274	9.780	13.005	-	13.005	13.402	10.175	11.910	11.336	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Unmanned Aircraft Systems (UAS) Sensor Payload program provides the capability to develop, integrate, field, and sustain Intelligence, Surveillance, and Reconnaissance (ISR) and non-ISR payloads for the USMC Family of UAS. These payloads will alleviate Marine Corps ISR capability gaps caused by changes in mission, threats, and technologies and will increase the versatility of UAS in support of MAGTF mission accomplishment. In support of Force Design 2030 initiative, tactical UAS Reconnaissance, Survivability, and Target Acquisition (RSTA) is primarily focused on Marine Littoral Regiments (MLR) and on Marine Expeditionary Units (MEU) to enhance their ability to operate within an operating environment characterized by Great Power Competition.

In support of the Commandant of the Marine Corps Planning Guidance and Force Design 2030 requirements, UAS sensor payloads provide modular, low-cost, aerial sensing technologies to achieve the Maritime Domain Awareness required by MLRs and MEUs in support of the Joint Forces Maritime Component Command (JFMCC). Within the context of Maritime Domain Operations, Marine forces executing Expeditionary Advanced Base Operations (EABO) require the organic capability to establish and maintain awareness of adversaries and potential adversary activities in communications and navigation degraded or denied environments. UAS Payloads enable sensing of threat indicators across the electromagnetic spectrum, gravimetric, chemical, nuclear, and acoustic spectrums and within the visual and physical domain and radar spectrum, with reduced signature, and minimized risk to personnel. The incorporation of advanced technology enablers such as artificial intelligence/machine learning (AI/ML) and precision geolocation provide automated recognition, identification, tracking, advanced networks, advanced communications, and cross-cueing in support of accelerated battlespace awareness and targeting. As an essential element of the kill chain, UAS payloads are critical to the JFMCC targeting process to find, fix, track, target, engage, and assess the effects of lethal and non-lethal fires.

Employment of UAS payloads on platforms distributed across the MLRs and MEUs during EABO allows for greater distribution of forces while maintaining persistent awareness, enhances the security of tactical units and personnel moving across the battlespace, and enables the rapid transition between positions necessary for force survivability.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0305242M *I Unmanned Aerial Systems (UAS) Payloads*

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	9.274	9.780	9.472	-	9.472
Current President's Budget	9.274	9.780	13.005	-	13.005
Total Adjustments	0.000	0.000	3.533	-	3.533
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	0.000	0.000	-1.751	-	-1.751
• Rate/Misc Adjustments	0.000	0.000	5.284	-	5.284

Change Summary Explanation

The increase of $3.225M from FY 2023 to FY 2024 is for efforts within the schedule associated with the Signals Intelligence (SIGINT)/Electronic Warfare Support (ES), Synthetic Aperture Radar (SAR)/Moving Target Indicator (MTI), Artificial Intelligence (AI)/Machine Learning (ML), Wide Area Maritime Target Detection and Classification (WAMTDC), SUAS Reusable Architecture (SRA)/Common Sensor Workstation (CSW), Acoustic Battlefield capabilities, and Government Engineering. There will be an increase in deficiency corrections and enhancements for the SIGINT/ES, SAR/MTI, AI/ML, and WAMTDC capabilities. SRA implementation will be conducted in 2 phases: payload capabilities vendor integration and platform integration.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0305242M / *Unmanned Aerial Systems (UAS) Payloads*	Project (Number/Name) 8277 / *UAS Payloads*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
8277: *UAS Payloads*	5.000	9.274	9.780	13.005	-	13.005	13.402	10.175	11.910	11.336	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Unmanned Aircraft Systems (UAS) Sensor Payload program provides the capability to develop, integrate, field, and sustain Intelligence, Surveillance, and Reconnaissance (ISR) and non-ISR payloads for the USMC Family of UAS. These payloads will alleviate Marine Corps ISR capability gaps caused by changes in mission, threats, and technologies and will increase the versatility of UAS in support of MAGTF mission accomplishment.

In support of the Commandant of the Marine Corps (CMC) Planning Guidance and Force Design 2030 requirements, UAS Sensor Payloads provide modular, low-cost aerial sensing technologies to achieve the Maritime Domain Awareness required by MLRs and MEUs in support of the Joint Forces Maritime Component Command (JFMCC). Within the context of Maritime Domain Operations, Marine forces executing Expeditionary Advanced Base Operations (EABO) require the organic capability to establish and maintain awareness of adversaries and potential adversary activities in communications and navigation degraded or denied environments. UAS Payloads enable sensing of threat indicators across the electromagnetic spectrum, gravimetric, chemical, nuclear, and acoustic spectrums and within the visual and physical domain and radar spectrum, with reduced signature, and minimized risk to personnel. The incorporation of advanced technology enablers such as artificial intelligence/ machine learning (AI/ML) and precision geolocation provide automated recognition, identification, tracking, advanced networks, advanced communications, and cross-cueing in support of accelerated battlespace awareness and targeting. As an essential element of the kill chain, UAS payloads are critical to the JFMCC targeting process to find, fix, track, target, engage, and assess the effects of lethal and non-lethal fires.

Employment of UAS Sensor Payloads on platforms distributed across the MLRs and MEUs during EABO allows for greater distribution of forces while maintaining persistent awareness, enhances the security of tactical units and personnel moving across the battlespace, and enables the rapid transition between positions necessary for force survivability.

The program prototypes, develops, integrates, and transitions strategic and tactical sensors, payloads, and communication capabilities for the areas of Signals Intelligence (SIGINT)/Electronic Warfare Support (ES), Synthetic Aperture Radar/Moving Target Indicator (SAR/MTI), Multiple Intelligence (Multi-INT), Wide Area Surveillance (WAS)/Wide Area Motion Imagery (WAMI), Artificial Intelligence/Machine Learning (AI/ML), Wide Area Maritime Target Detection and Classification (WAMTDC), Advanced EO/Infrared (IR)/Multi-spectral (MSI)/Hyperspectral (HSI) sensors, Autonomous operations, Advanced processors, Chemical, biological, radiological, and nuclear (CBRN) sensors, Light Detection and Ranging (LiDAR), Alt-Nav, Acoustics, Cross Domain Solutions (CDS) for all sensor modalities, interfaces for payloads, including SUAS Reusable Architecture (SRA) and Common Sensor Workstation (CSW), Gravimetric, Communications, and Advanced Networks capabilities.

SIGINT/ES - Detect, locate, target, and exploit adversary Signals of Interest (SOI), ability to cue other ISR sensors to specific target geolocations.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305242M / *Unmanned Aerial Systems (UAS) Payloads*	**Project (Number/Name)** 8277 / *UAS Payloads*

SAR/MTI - Locate and track surface targets day or night under a wide range of atmospheric conditions and at stand-off ranges exceeding those of EO/IR Full Motion Video (FMV) technologies.

Multi-INT - Simultaneous area of regard ISR data collection and functionality of sensors operating in widely disparate modalities such as Communications Relay, EW/ES, SIGINT, Radar, and EO/IR. Enables the collection of synchronized data that maximizes the effective employment envelope by collectively decreasing uncertainties, such as geolocation accuracy, simultaneously prosecuting multiple targets of interest and maximizing datalink capability across a varied range of environments and temporal periods.

Wide Area Surveillance (WAS)/Wide Area Motion Imagery (WAMI) - Imaging over wide areas (multiple square kilometers, city size area) at very spatial and temporal resolution at substantial stand-off distances using various sensor modalities, with full motion video (FMV) access, picture in picture user defined watch boxes, and ability to cue other ISR sensors to specific target geolocations. Ability to monitor and disseminate processed imagery data and static full field of view or user defined watch box imagery and disseminate to ground-based disadvantaged users. Mission applications include battlefield situational awareness and monitoring, providing the capability to assure access and hold at risk, as well as enabling power projection in environments that are not currently accessible.

AI/ML - This effort will place AI/ML edge processing on a small UAS to perform object detection, classification, and identification of targets of interest in the data stream in real time. Edge processing technologies enable minimization of the physical footprint of the UAS system with enhanced mission capabilities and the sharing and merging of data across multiple domains. AI and Automated Processing supports the rapid detection, tracking, and characterization in all ISR data types and provides actionable information for fusion and tracking exploitation systems and processes.

Wide Area Maritime Target Detection and Classification (WAMTDC) - System that observes a wide area simultaneously, autonomously detecting objects on the water and identification of targets of interest.

Common Sensor Workstation (CSW) - Ruggedized ground station payload operator designed to support multiple payloads and capabilities on low side.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Product Development	8.494	8.884	12.029	0.000	12.029
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue SIGINT/ES product correction of deficiencies, requested enhancements, and integration - Continue SAR/MTI product correction of deficiencies, requested enhancements, and integration - Continue to improve lab capabilities - Continue Integrating AI/ML capability - Continue Integrating WAMTDC capability					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305242M / *Unmanned Aerial Systems (UAS) Payloads*	**Project (Number/Name)** 8277 / *UAS Payloads*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Continue to transition Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) of advanced technologies and payloads to UAS programs. - Continue to evaluate new sensor technologies and prototype design and fabrication in support of the development and fielding operations of UAS platforms and payloads. - Continue to utilize additive manufacturing techniques, tools, processes and requirements to enable installation production capability for UAS components. - Initiate development of Alt-Nav/PNT capability for STUAS platforms ***FY 2024 Base Plans:*** - Continue SIGINT/ES product correction of deficiencies, requested enhancements, and integration - Continue SAR/MTI product correction of deficiencies, requested enhancements, and integration - Continue to integrate AI/ML capability - Continue to integrate WAMTDC capability - Continue to transition C4ISR of advanced technologies and payloads to UAS programs. - Continue to evaluate new sensor technologies and prototype design and fabrication in support of the development and fielding operations of UAS platforms and payloads. - Continue to utilize additive manufacturing techniques, tools, processes and requirements to enable installation production capability for UAS components. - Continue to develop Alt-Nav/PNT capability for STUAS platforms - Develop Common Sensor Workstation (CSW) and integrate with Payloads - Platform integration efforts for Small UAS (SUAS) Reusable Architecture (SRA) ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase due to a ramp up in efforts associated with SIGINT/ES, SAR/MTI, WAMTDC, SRA/CSW and Government Engineering capabilities.					
Title: Support	0.611	0.536	0.546	0.000	0.546
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue government engineering technical support, other government support, program management support.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305242M / *Unmanned Aerial Systems (UAS) Payloads*	**Project (Number/Name)** 8277 / *UAS Payloads*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Continue Integrated Logistics Support (ILS), training concept development and data management/ documentation. ***FY 2024 Base Plans:*** - Continue government engineering technical support, other government support, program management support. - Continue Integrated Logistics Support (ILS), training concept development and data management/ documentation. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** No significant change.					
Title: Test and Evaluation	0.050	0.200	0.300	0.000	0.300
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue developmental and operational payload testing ***FY 2024 Base Plans:*** - Continue developmental and operational payload testing ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase is due to additional Test and Evaluation planned in FY 2024 in support of product fielding decisions.					
Title: Management Services	0.119	0.160	0.130	0.000	0.130
Articles:	-	-	-	-	-
FY 2023 Plans: Government program management support of the development and integration of sensor payloads. Management Services will account for Cross-Organization travel funding requirements. ***FY 2024 Base Plans:*** Government program management support of the development and integration of sensor payloads.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305242M / *Unmanned Aerial Systems (UAS) Payloads*	**Project (Number/Name)** 8277 / *UAS Payloads*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Management Services will account for Cross-Organization travel funding requirements. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease Management Services is due to a reduction in contract program management support.					
Accomplishments/Planned Programs Subtotals	9.274	9.780	13.005	0.000	13.005

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• PMC/4787: *UAS Payloads*	3.074	8.619	19.088	-	19.088	17.189	16.844	12.761	11.392	0.000	130.935

Remarks

D. Acquisition Strategy

UAS Sensor Payload leverages work conducted by small business as well as large commercial industry vendors, academic and Federally Funded Research and Development Centers (FFRDC), and various government laboratories such as the Office of Naval Research (ONR), Defense Advanced Research Projects Agency (DARPA), Marine Corps Warfighting Laboratory (MCWL), Air Force Research Lab (AFRL), Joint Improvised Threat Defeat Agency (JIDA), the National Security Agency (NSA), and the National Geospatial Agency (NGA). The UAS payloads portfolio consists of a family of capabilities and spans a broad spectrum of capability areas. Capabilities are transitioned from variously sourced, high (5-7) Technology Readiness Level (TRL) science and technology (S&T) projects to the UAS Payloads portfolio for completion of RDTE of the capability, systems engineering development into payload suites, and entrance into the fielding process for integration into Unmanned Aircraft Systems (UAS). Payload suites provide capabilities that facilitate the critical functions of the Marine Corps Intelligence, Surveillance, and Reconnaissance Enterprise (MCISRE) across the range of military operations.

UAS Sensor Payload execution is inclusive of three (3) phases, each marked by a decision gate. Phase I establishes the preliminary integration design concept and conduct of technology demonstration with validation of a Technology Readiness Level (TRL) 6/7 as the decision gate for entry into Phase II. Phase II establishes full payload-to-Unmanned Aircraft System (UAS) integration during which time all necessary program management, engineering, fabrication, test, and evaluations activities are conducted to achieve Test Article Fabrication, System Test and Evaluation, Integrated Logistics Support (ILS) and Training Concept development, and Data Management and Documentation. Validation of funding, derived requirements, project risks, cost and schedule estimates, contracting strategy and achievement of TRL 9 constitute the decision gate for entry into Phase III. Phase III is a transition which supports a production decision based on the exit criteria from Phase II.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305242M / *Unmanned Aerial Systems (UAS) Payloads*	**Project (Number/Name)** 8277 / *UAS Payloads*

The UAS Sensor Payload program partners with UAS programs to identify required payloads. This includes the following: conduct RDTE processes to develop capability into TRL9 payload and production level prototypes; conduct Developmental and Operational testing (DT/OT); production kits delivered to receiving UAS platform program with initial year sustainment and for long-term sustainment funding.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305242M / *Unmanned Aerial Systems (UAS) Payloads*	**Project (Number/Name)** 8277 / *UAS Payloads*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering SIGINT/ES	MIPR	Various : Various	0.396	0.846	Dec 2021	1.000	Dec 2022	1.260	Dec 2023	-		1.260	Continuing	Continuing	Continuing
Systems Engineering SAR/ MTI	SS/BOA	Various : Various	0.874	0.836	Dec 2021	0.500	Dec 2022	0.750	Dec 2023	-		0.750	Continuing	Continuing	Continuing
Systems Engineering AI/ ML	MIPR	Various : Various	0.350	2.225	Apr 2022	1.000	Feb 2023	1.604	Jan 2024	-		1.604	Continuing	Continuing	Continuing
Systems Engineering Wide Area Maritime Target Detection and Classification	MIPR	Various : Various	0.000	1.029	Apr 2022	1.000	Nov 2023	1.350	Feb 2024	-		1.350	0.000	3.379	-
Government Engineering	MIPR	Various : Various	0.317	0.788	Dec 2021	1.415	Dec 2022	1.750	Dec 2023	-		1.750	Continuing	Continuing	Continuing
Lab	MIPR	DTIC Troop Support : Ft. Belvoir, VA	1.441	0.265	Aug 2022	0.000		0.675	Dec 2023	-		0.675	0.000	2.381	-
DTIC	MIPR	DTIC Troop Support : Ft. Belvoir, VA	0.000	0.670	Apr 2022	1.000	Jan 2023	1.000	Jan 2024	-		1.000	Continuing	Continuing	Continuing
SRA	MIPR	Various : Various	0.350	0.367	Aug 2022	1.500	Jun 2023	0.700	Jun 2024	-		0.700	0.000	2.917	-
CSW	MIPR	Various : Various	0.000	0.850	Aug 2022	0.000		2.240	Feb 2024	-		2.240	0.000	3.090	-
Alt Nav / PNT	MIPR	Various : Various	0.497	0.618	Aug 2022	0.469	Dec 2022	0.500	Dec 2023	-		0.500	0.000	2.084	-
Acoustic Battlefield	SS/BOA	Various : Various	0.000	0.000		1.000	Feb 2023	0.200	Feb 2024	-		0.200	0.000	1.200	-
		Subtotal	4.225	8.494		8.884		12.029		-		12.029	Continuing	Continuing	N/A

Remarks

Increase is due to the ramp up of multiple efforts as initial payloads continue development. FY 2024 funds Product Development efforts associated with CSW, CDS, and MLR FOC to meet Force Design 2030 priorities.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305242M / *Unmanned Aerial Systems (UAS) Payloads*	**Project (Number/Name)** 8277 / *UAS Payloads*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Engineering Support	Various	Various : Various	0.398	0.611	Dec 2021	0.536	Dec 2022	0.546	Dec 2023	-		0.546	Continuing	Continuing	Continuing
		Subtotal	0.398	0.611		0.536		0.546		-		0.546	Continuing	Continuing	N/A

Remarks

No significant change; increase due to inflation.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	MIPR	NAWCAD : Patuxent River, MD	0.294	0.050	Dec 2021	0.200	Dec 2022	0.300	Dec 2023	-		0.300	Continuing	Continuing	Continuing
		Subtotal	0.294	0.050		0.200		0.300		-		0.300	Continuing	Continuing	N/A

Remarks

Increase is due to additional Test and Evaluation planned in FY 2024 in support of product fielding decisions.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Services	MIPR	NAWCAD : Patuxent River, MD	0.063	0.099	Dec 2021	0.140	Dec 2022	0.100	Dec 2023	-		0.100	Continuing	Continuing	Continuing
Travel	Various	Various : Various	0.020	0.020	Oct 2021	0.020	Oct 2022	0.030	Dec 2023	-		0.030	Continuing	Continuing	Continuing
		Subtotal	0.083	0.119		0.160		0.130		-		0.130	Continuing	Continuing	N/A

Remarks

Decrease in Management Services is due to a reduction in contract program management support.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0305242M / *Unmanned Aerial Systems (UAS) Payloads*	Project (Number/Name) 8277 / *UAS Payloads*	

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	5.000	9.274		9.780		13.005		-		13.005	Continuing	Continuing	N/A

Remarks

Overall increase due to a ramp up in efforts associated with SIGINT/ES, SAR/MTI, WAMTDC, SRA, prioritization of the CSW and Government Engineering capabilities.

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305242M / *Unmanned Aerial Systems (UAS) Payloads*	**Project (Number/Name)** 8277 / *UAS Payloads*

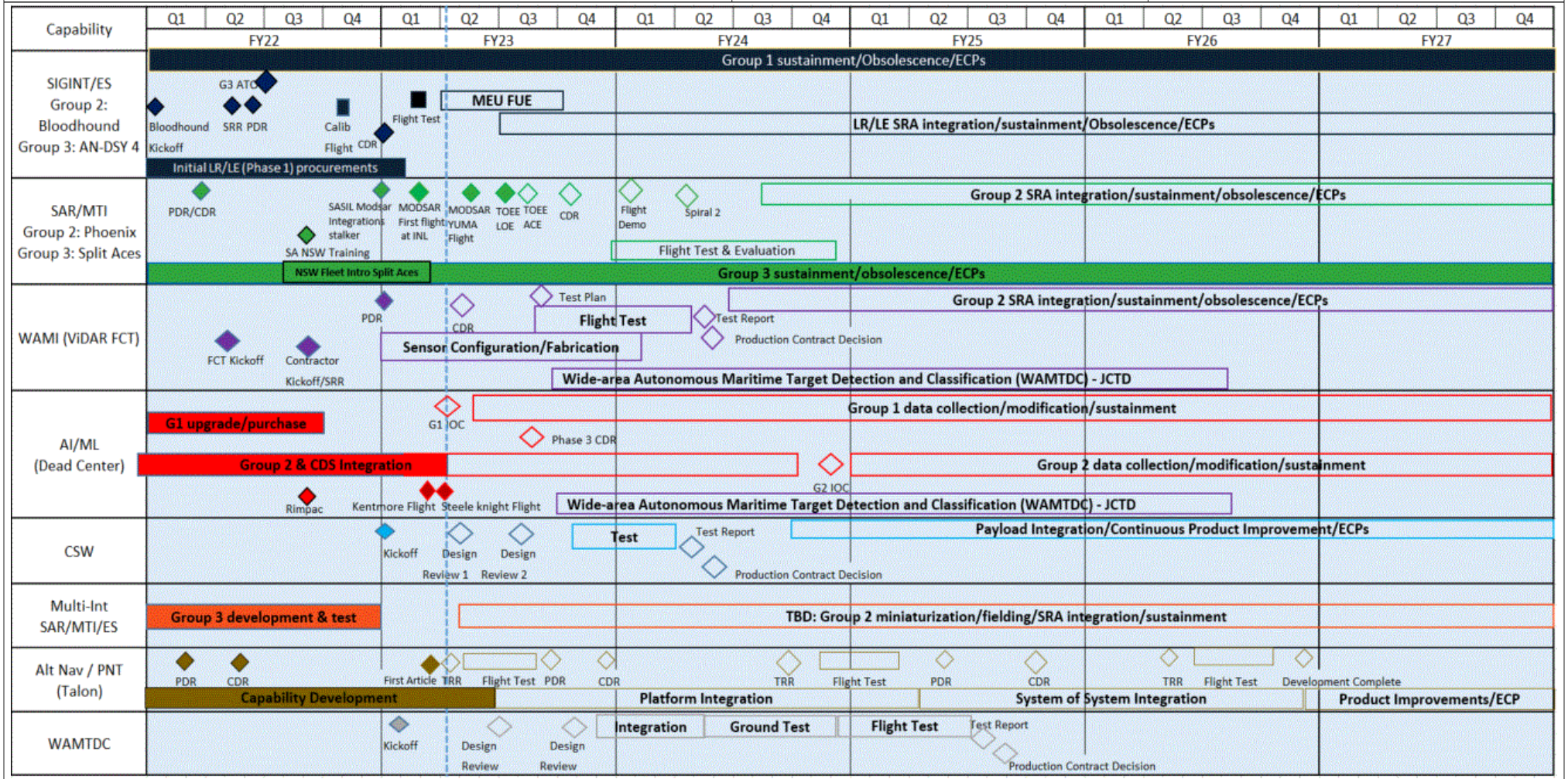

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305242M / *Unmanned Aerial Systems (UAS) Payloads*	**Project (Number/Name)** 8277 / *UAS Payloads*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 8277				
SIGINT/ES: SIGINT/ES Bloodhound Kickoff	1	2022	1	2022
SIGINT/ES: SIGINT/ES SRR	2	2022	2	2022
SIGINT/ES: SIGINT/ES PDR	2	2022	2	2022
SIGINT/ES: SIGINT/ES CDR	1	2023	1	2023
SIGINT/ES: SIGINT/ES Flight Test	1	2023	1	2023
SIGINT/ES: SIGINT/ES FUE	1	2023	4	2023
SIGINT/ES: SIGINT/ES Continuous Product Improvement/ECPs	2	2023	4	2028
SIGINT/ES: SIGINT/ES MEU FUE LR/LE Procurements	1	2022	1	2023
SAR/MTI: SAR/MTI PDR/CDR	1	2022	1	2022
SAR/MTI: SAR/MTI Critical Design Review	4	2023	4	2023
SAR/MTI: SAR/MTI Flight Demo	1	2024	1	2024
SAR/MTI: SAR/MTI Spiral 2 Release	2	2024	2	2024
SAR/MTI: SAR/MTI T&E	4	2023	4	2024
Wide Area Maritime Target Detection and Classification (WAMTDC): WAMTDC Kickoff/SRR	2	2022	2	2022
Wide Area Maritime Target Detection and Classification (WAMTDC): WAMTDC Design Review	1	2023	1	2023
Wide Area Maritime Target Detection and Classification (WAMTDC): WAMTDC Integration/Flight Test	3	2023	2	2024
Wide Area Maritime Target Detection and Classification (WAMTDC): WAMTDC Continuous Product Improvement/ECPs	2	2024	4	2028
Artificial Intelligence/Machine Learning (AI/ML): AI/ML G1 Upgrade/Purchase	1	2022	3	2022

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305242M / *Unmanned Aerial Systems (UAS) Payloads*	**Project (Number/Name)** 8277 / *UAS Payloads*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Artificial Intelligence/Machine Learning (AI/ML): AI/ML G1 IOC	2	2023	2	2023
Artificial Intelligence/Machine Learning (AI/ML): AI/ML Platform & CDS Integration	1	2022	4	2024
Artificial Intelligence/Machine Learning (AI/ML): AI/ML G2 IOC	4	2024	4	2024
Artificial Intelligence/Machine Learning (AI/ML): AI/ML Continuous Product Improvement/ECPs	1	2025	4	2028
Common Sensor Workstation (CSW): CSW Kickoff	1	2023	1	2023
Common Sensor Workstation (CSW): CSW Design Review 1	2	2023	2	2023
Common Sensor Workstation (CSW): CSW Design Review 2	3	2023	3	2023
Common Sensor Workstation (CSW): CSW Test	4	2023	2	2024
Common Sensor Workstation (CSW): CSW Payload Integration/Continuous Product Improvement/ECPs	3	2024	4	2028
Common Sensor Workstation (CSW): CSW Production Contract Decision	2	2024	2	2024
Alt Nav/PNT: Alt Nav/PNT Capability Development	1	2022	2	2023
Alt Nav/PNT: Alt Nav/PNT Capability Development PDR	1	2022	1	2022
Alt Nav/PNT: Alt Nav/PNT Capability Development CDR	2	2022	2	2022
Alt Nav/PNT: Alt Nav/PNT Capability Development TRR	2	2023	2	2023
Alt Nav/PNT: Alt Nav/PNT Capability Development Flight Test	2	2023	3	2023
Alt Nav/PNT: Alt Nav/PNT Platform Integration	2	2023	2	2025
Alt Nav/PNT: Alt Nav/PNT Platform Integration PDR	3	2023	3	2023
Alt Nav/PNT: Alt Nav/PNT Platform Integration CDR	4	2023	4	2023
Alt Nav/PNT: Alt Nav/PNT Platform Integration TRR	3	2024	3	2024
Alt Nav/PNT: Alt Nav/PNT Platform Integration Flight Test	4	2024	1	2025
Alt Nav/PNT: Alt Nav/PNT System of System Integration	2	2025	4	2026
Alt Nav/PNT: Alt Nav/PNT System of System Integration PDR	2	2025	2	2025
Alt Nav/PNT: Alt Nav/PNT System of System Integration CDR	4	2025	4	2025
Alt Nav/PNT: Alt Nav/PNT System of System Integration TRR	2	2026	2	2026

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305242M / *Unmanned Aerial Systems (UAS) Payloads*	**Project (Number/Name)** 8277 / *UAS Payloads*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Alt Nav/PNT: Alt Nav/PNT System of System Integration Flight Test	2	2026	4	2026
Alt Nav/PNT: Alt Nav/PNT Development Complete	4	2026	4	2026
Alt Nav/PNT: Alt Nav/PNT Continuous Product Improvement/ECPs	4	2026	4	2028

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0305251N *I CYBERSPACE OPERATIONS FORCES & FORCE SPT*

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	33.454	34.977	36.505	2.000	-	2.000	0.000	0.000	0.000	0.000	0.000	106.936
2952: *Cyber Mission Force*	0.000	0.000	36.505	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	36.505
2958: *Cyberspace Activities*	33.454	34.977	0.000	2.000	-	2.000	0.000	0.000	0.000	0.000	0.000	70.431

A. Mission Description and Budget Item Justification

Develop Navy foundational and specialized cyber tools in support of the Cyber Mission Force in accordance with requirements, guidance, and previous work completed, focusing on the following activities:
- Cyberspace additional support facilities and infrastructure
- Program office, program management, engineering, administrative, and security support
- Specialized Cyberspace technical, engineering, and management capabilities
- Expand Cyberspace Activities development network and network support
- Cyberspace hardware and software reverse engineering development
- Research and Development (R&D) activities leading to cyber tool opportunities and vulnerabilities
- Cyberspace tool development of Foundational and Reserve Tool Kits
- Cyberspace activity logistics support

(Additional details held at a higher classification)

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	36.378	36.505	2.946	-	2.946
Current President's Budget	34.977	36.505	2.000	-	2.000
Total Adjustments	-1.401	0.000	-0.946	-	-0.946
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.401	0.000			
• Program Adjustments	0.000	0.000	-0.946	-	-0.946
• Rate/Misc Adjustments	0.000	0.000	0.000	-	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0305251N / *CYBERSPACE OPERATIONS FORCES & FORCE SPT*	Project (Number/Name) 2952 / *Cyber Mission Force*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2952: *Cyber Mission Force*	0.000	0.000	36.505	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	36.505
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

In FY24 Project 2952 funds transfer and will be included in DoD, U.S. CYBERCOM Defense-Wide budget request, RDTE 0306250JCY, Project CY06 Cyber Weapons/ Tools.

A. Mission Description and Budget Item Justification

Project 2952 delivers offensive cyber weapons to prosecute the current target set and increase the lethality of the Cyber Mission Forces (CMF). Delivery of these weapons will increase the volume and frequency of cyberspace operations allowing the CMF to keep pace with the Great Power Competition (GPC) and specialized target networks in support U.S Indo-Pacific Command (USINDOPACOM) top priority requirements. The project is comprised of three main lines of effort: Access, Maneuver and Development Support. Access provides initial entry into a target network. Maneuver describes projects that allow an operator to move from one device to another within a target network. Development support provides resources to enable in-house cyber development such as manpower, hardware, and software.

Additional details can be found in the TS//SCI addendum.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: New Accomplishment/Planned Program Entry	0.000	36.505	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2023 Plans: 1. Access: Additional details can be found in the TS//SCI addendum. 2. Maneuver: The Maneuver Line of Effort is primarily focused on the Pacific Alternate-Access Networks Data Acquisition Toolkit (PANDATK). PANDATK is a specialized toolkit designed to operate in constrained environments. The toolkit provides capability against endpoint devices and enterprise routers found in target networks and also includes integration across all tools; test and evaluation of the tools; and equipment purchases. The specific capabilities of each tool can be found in the TS//SCI addendum. -Endpoint Device Tools: --CRACKEDDUKE -Enterprise Router Tools: --RED ALPHA					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305251N / *CYBERSPACE OPERATIONS FORCES & FORCE SPT*	**Project (Number/Name)** 2952 / *Cyber Mission Force*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
--CORNERPIPE --STUNNINGORANGUTAN --STUNNINGPLATYPUS --STUNNINGVIPER -Integrator - The integrator of the endpoint device tools and enterprise routers tools will ensure common language protocol across the unique toolsets. -Maneuver Support includes test and evaluation for each of the ten (10) expected software releases in FY23 and equipment for RED ALPHA, CORNERPIPE, and STUNNINGVIPER. 3. Development Operations Support: - Vulnerability Research (VR) and Development, Security and Operations (DEVSECOPs): Provides 6.54 Full Time Equivalents to provide technical coaching on DEVSECOPs tools and associated infrastructures and to provide platform functional research and analysis of global technology and adoption to further organic development efforts. - Cyber Development Support (CDS): Provides seven contracted software developers and three DEVSECOPs engineers to augment the Cyber Mission Force tool developers. - Automated Testing: Provides three automated testers to augment and enhance Cyber Mission Force developers by supporting new tool testing capabilities, development of automated testing pipelines and creation of test environments from code. - Development Networks: Provides 87 unclassified and 115 classified Rapid Cyber Development Network (RCDN) seats for CMF tool developers. ***FY 2024 Base Plans:*** N/A ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY23 funding moved from project 2958 to project 2952. In FY24 the funding transferred to United States Cyber Command (USCC) for FY24 and out as part of Enhanced Budget Control (EBC). Plans provided above assume last known control within Navy total obligation authority.					
Accomplishments/Planned Programs Subtotals	0.000	36.505	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305251N / *CYBERSPACE OPERATIONS FORCES & FORCE SPT*	**Project (Number/Name)** 2952 / *Cyber Mission Force*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

This project is designated non-Acquisition Category (ACAT).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305251N / *CYBERSPACE OPERATIONS FORCES & FORCE SPT*	**Project (Number/Name)** 2952 / *Cyber Mission Force*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Access	MIPR	TBD : TBD	0.000	0.000		2.500	Jan 2023	0.000		-		0.000	0.000	2.500	-
CRACKEDDUKE	C/CPFF	Classified : Classified	0.000	0.000		2.600	Dec 2022	0.000		-		0.000	0.000	2.600	-
REDALPHA	MIPR	DMEA : McCellan, CA	0.000	0.000		2.037	Nov 2022	0.000		-		0.000	0.000	2.037	-
CORNERPIPE	MIPR	NIWC PAC : San Diego, CA	0.000	0.000		2.625	Mar 2023	0.000		-		0.000	0.000	2.625	-
STUNNINGORANGUTAN	MIPR	NIWC PAC : San Diego, CA	0.000	0.000		2.625	Mar 2023	0.000		-		0.000	0.000	2.625	-
STUNNINGPLATYPUS	MIPR	DMEA : McClellan, CA	0.000	0.000		5.040	Dec 2022	0.000		-		0.000	0.000	5.040	-
STUNNINGVIPER	MIPR	TBD : TBD	0.000	0.000		2.780	Dec 2022	0.000		-		0.000	0.000	2.780	-
Integrator	MIPR	TBD : TBD	0.000	0.000		2.000	Jan 2023	0.000		-		0.000	0.000	2.000	-
Maneuver Support	MIPR	Various : Various	0.000	0.000		0.830	Dec 2022	0.000		-		0.000	0.000	0.830	-
		Subtotal	0.000	0.000		23.037		0.000		-		0.000	0.000	23.037	N/A

Remarks

- See classified Addendum for more details.
- FY2020 activities reflected on project 2958, PE 0204575N RDOC. In FY23 the funds were transferred to 2952.
- FY2021-2022 activities reflected were on project 2958, PE 0305251N RDOC. In FY23 the funds were transferred to 2952.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Vulnerability Research & DEVOPs	MIPR	AFLCMC : Hanscom AFB, MA	0.000	0.000		3.000	Jan 2023	0.000		-		0.000	0.000	3.000	-
Cyber Development Support	C/CPFF	Classified : Classified	0.000	0.000		4.218	Feb 2023	0.000		-		0.000	0.000	4.218	-
Automated Testing	MIPR	AFRL : Rome, NY	0.000	0.000		0.856	Dec 2022	0.000		-		0.000	0.000	0.856	-
Development Networks	MIPR	TSMO : Huntsville, AL	0.000	0.000		2.295	Oct 2022	0.000		-		0.000	0.000	2.295	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305251N / *CYBERSPACE OPERATIONS FORCES & FORCE SPT*	**Project (Number/Name)** 2952 / *Cyber Mission Force*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	0.000	0.000		10.369		0.000		-		0.000	0.000	10.369	N/A

Remarks

- See classified Addendum for more details.
- FY2020 activities reflected on project 2958, PE 0204575N RDOC. In FY23 the funds were transferred to 2952.
- FY2021-2022 activities reflected on project 2958, PE 0305251N RDOC. In FY23 the funds were transferred to 2952.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	Various	Classified : Classified	0.000	0.000		3.099	Jan 2023	0.000		-		0.000	0.000	3.099	-
		Subtotal	0.000	0.000		3.099		0.000		-		0.000	0.000	3.099	N/A

Remarks

1-Due to classification category, may not be on General Service (GENSER) classified exhibits. FY2020 activities reflected on project 2958, PE 0204575N RDOC. In FY23 the funds were transferred to 2952. In FY24 Project 2952 funds transfer and will be included in DoD, U.S. CYBERCOM Defense-Wide budget request, RDTE 0306250JCY, Project CY06 Cyber Weapons/Tools.

- FY2021-2022 activities reflected on project 2958, PE 0305251N RDOC.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		36.505		0.000		-		0.000	0.000	36.505	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305251N / *CYBERSPACE OPERATIONS FORCES & FORCE SPT*	**Project (Number/Name)** 2952 / *Cyber Mission Force*

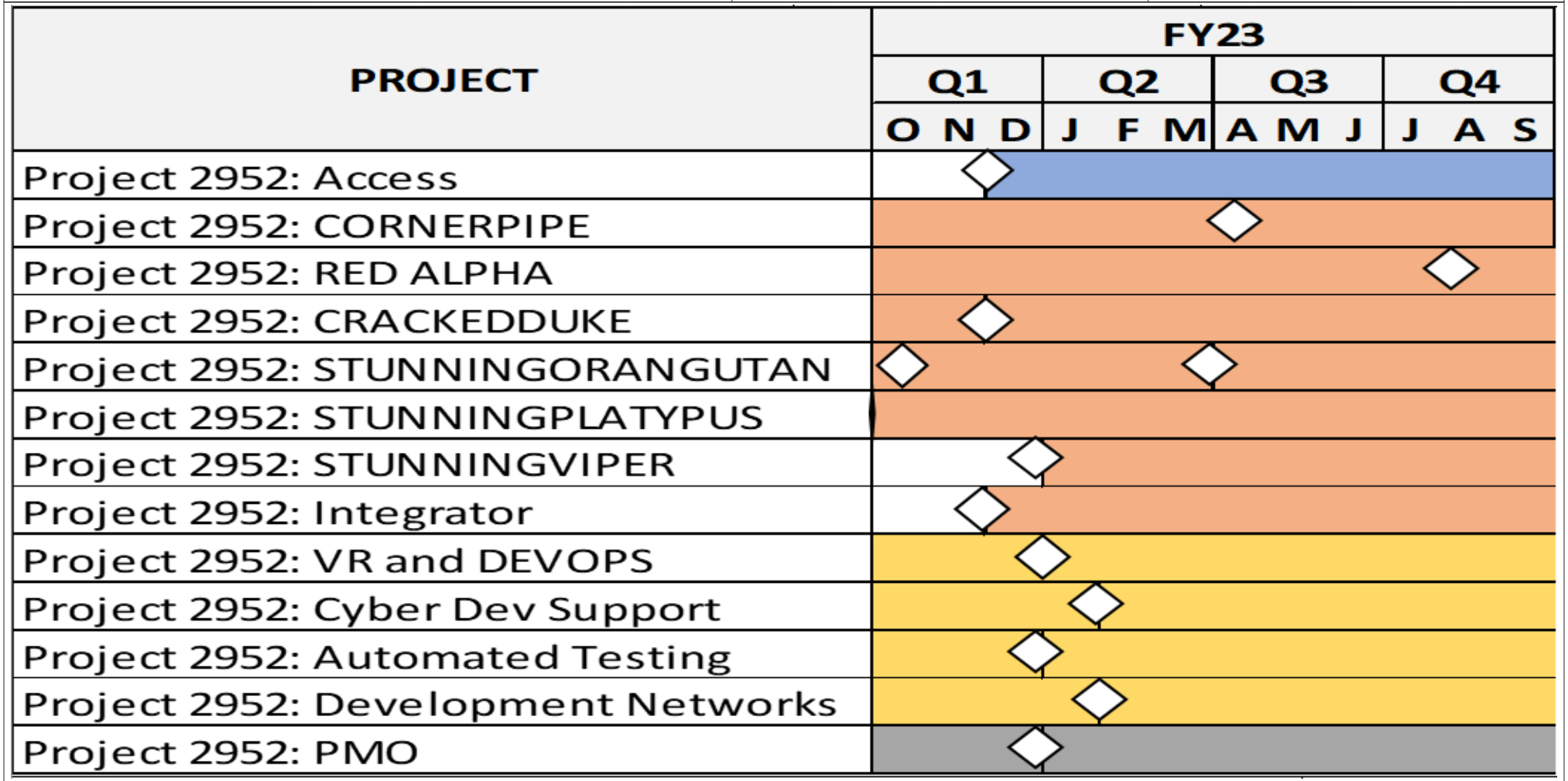


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305251N / *CYBERSPACE OPERATIONS FORCES & FORCE SPT*	**Project (Number/Name)** 2952 / *Cyber Mission Force*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2952				
Project 2952: Access	1	2023	4	2023
Project 2952: CORNERPIPE	1	2023	4	2023
Project 2952: REDALPHA	1	2023	4	2023
Project 2952: CRACKEDDUKE	1	2023	4	2023
Project 2952: STUNNINGORANGUTAN	1	2023	4	2023
Project 2952: STUNNINGPLATYPUS	1	2023	4	2023
Project 2952: STUNNINGVIPER	2	2023	4	2023
Project 2952: Integrator	1	2023	4	2023
Project 2952: VR and DEVOPs	1	2023	4	2023
Project 2952: Cyber Development Support	1	2023	4	2023
Project 2952: Automated Testing	1	2023	4	2023
Project 2952: Development Networks	1	2023	4	2023
Project 2952: Program Management	1	2023	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0305251N / *CYBERSPACE OPERATIONS FORCES & FORCE SPT*	Project (Number/Name) 2958 / *Cyberspace Activities*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2958: *Cyberspace Activities*	33.454	34.977	0.000	2.000	-	2.000	0.000	0.000	0.000	0.000	0.000	70.431
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

In FY24, $2M for Fleet Cyber Command to study Joint Common Access Platform off-net access in coordination with U.S. CYBERCOM (FY24 $6M RDTE,DW 0208085JCY) and Air Force (FY24 $2M RDTE,AF 0208087F). Additional details held at a higher classification.

A. Mission Description and Budget Item Justification

This project developed foundational and specialized offensive cyber tools in support of the Cyber Mission Force as directed by Joint Force Headquarters-Cyber (JFHQ-C) Navy, including:
-Vulnerability research
-Reverse engineering
-Development of foundational toolkit #1 and #2
-Development of cyber tool enablers
-Development of specialized toolkit
-Development network expansion and maintenance
-Development operations coaching
Additional details can be found in the classified addendum.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Cyber Mission Activities	34.977	0.000	2.000	0.000	2.000
Articles:	-	-	-	-	-
FY 2023 Plans: Funding provided under project 2952.					
FY 2024 Base Plans: Funding realigned to United States Cyber Command (USCC).					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305251N / *CYBERSPACE OPERATIONS FORCES & FORCE SPT*	**Project (Number/Name)** 2958 / *Cyberspace Activities*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
FY24 funding details are provided at a higher classification.					
Accomplishments/Planned Programs Subtotals	34.977	0.000	2.000	0.000	2.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

This project is designated non-Acquisition Category (ACAT).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305251N / *CYBERSPACE OPERATIONS FORCES & FORCE SPT*	**Project (Number/Name)** 2958 / *Cyberspace Activities*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Support Development	C/FP	CWG-6 : Maryland	1.873	0.551	Dec 2021	0.000		0.000		-		0.000	0.000	2.424	-
Hardware and Software Engineering (1)	C/CPFF	Cassified : Classified	2.390	2.700	Mar 2022	0.000		0.000		-		0.000	0.000	5.090	-
Development (1)	Various	Classified : Classified	12.540	26.710	Jul 2022	0.000		0.000		-		0.000	0.000	39.250	-
Development	C/CPFF	USCC : Washington DC	8.125	0.000		0.000		0.000		-		0.000	0.000	8.125	-
Development & Software	MIPR	USAF : Classified	4.050	0.100	Jan 2022	0.000		0.000		-		0.000	0.000	4.150	-
Foundational Toolkit	Various	Classified : Classified	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Specialized Toolkit	Various	Classified : Classified	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Cyber Tools Enablers	Various	Classified : Classified	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
		Subtotal	28.978	30.061		0.000		0.000		-		0.000	0.000	59.039	N/A

Remarks

- See classified Addendum for more details.
- Foundational toolkit increase in FY22 reflects addition of the second toolkit.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support	C/FFP	Various : Various	0.303	0.000		0.000		0.000		-		0.000	0.000	0.303	-
Dev OPs Support (1)	C/CPFF	Classified : Classified	1.173	1.835	Feb 2022	0.000		0.000		-		0.000	0.000	3.008	-
Development Operations	Various	Classified : Classified	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Development Networks	Various	Classified : Classified	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
		Subtotal	1.476	1.835		0.000		0.000		-		0.000	0.000	3.311	N/A

Remarks

- See classified Addendum for more details.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305251N / *CYBERSPACE OPERATIONS FORCES & FORCE SPT*	**Project (Number/Name)** 2958 / *Cyberspace Activities*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Service (1)	Various	Classified : Classified	3.000	3.081	Jan 2022	0.000		0.000		-		0.000	0.000	6.081	-
Study	TBD	NIWC LANT : Charleston, SC	0.000	0.000		0.000		2.000	Mar 2024	-		2.000	0.000	2.000	-
		Subtotal	3.000	3.081		0.000		2.000		-		2.000	0.000	8.081	N/A

Remarks

1-Due to classification category, may not be on Defense Message System General Service (GENSER) classified exhibits. FY2020 activities reflected on project 2958, PE 0204575N RDOC. In FY24, $2M for Fleet Cyber Command to study Joint Common Access Platform off-net access in coordination with U.S. CYBERCOM (FY24 $6M RDTE,DW 0208085JCY) and Air Force (FY24 $2M RDTE,AF 0208087F). Additional details held at a higher classification.

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	33.454	34.977		0.000		2.000		-		2.000	0.000	70.431	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305251N / *CYBERSPACE OPERATIONS FORCES & FORCE SPT*	**Project (Number/Name)** 2958 / *Cyberspace Activities*

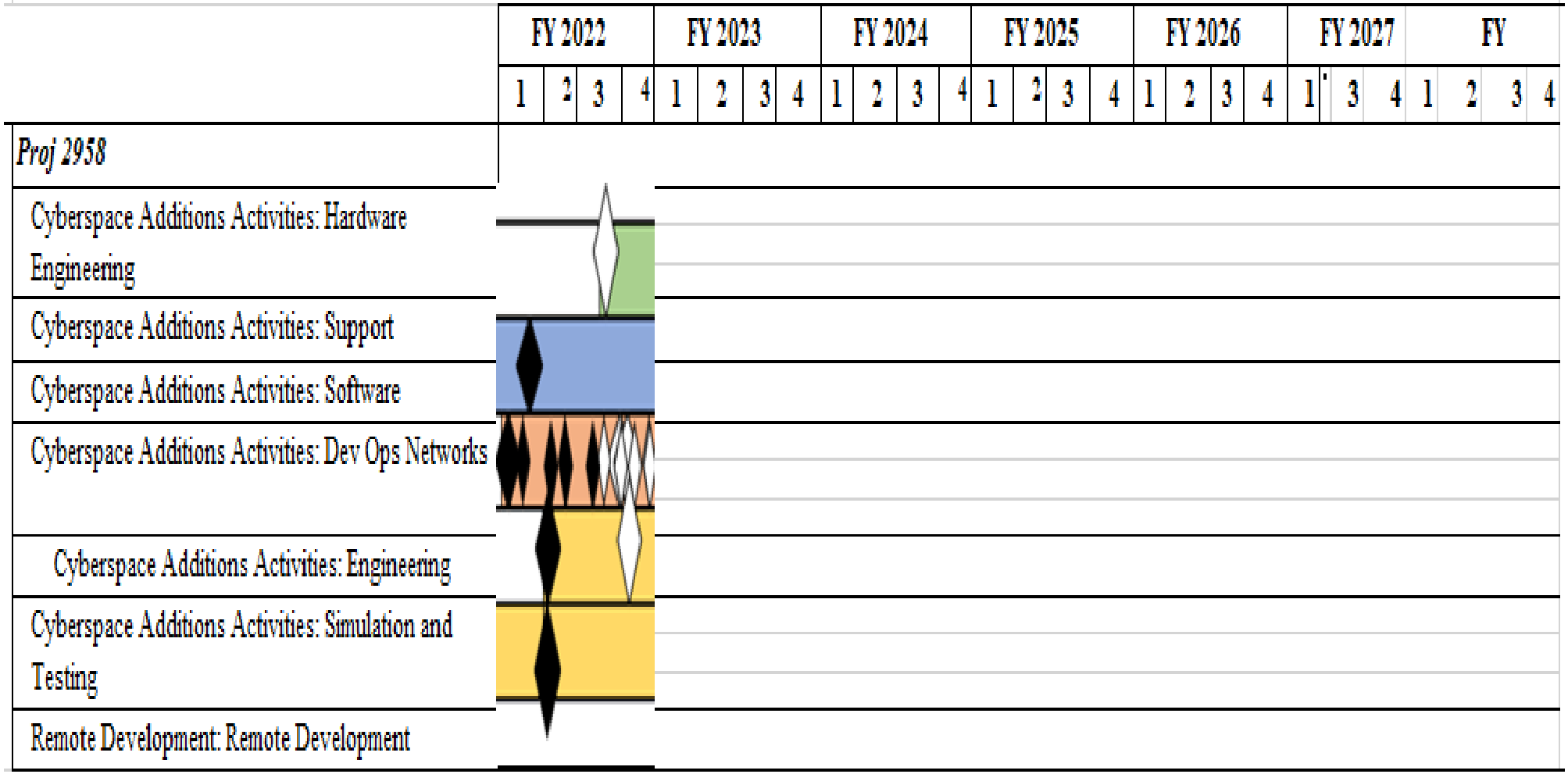


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305251N / *CYBERSPACE OPERATIONS FORCES & FORCE SPT*	**Project (Number/Name)** 2958 / *Cyberspace Activities*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2958				
Cyberspace Additions Activities: Hardware Engineering	1	2022	4	2022
Cyberspace Additions Activities: Support	1	2022	4	2022
Cyberspace Additions Activities: Software	1	2022	4	2022
Cyberspace Additions Activities: Dev Ops Networks	1	2022	4	2022
Cyberspace Additions Activities: Engineering	1	2022	4	2022
Cyberspace Additions Activities: Simulation and Testing	1	2022	4	2022
Remote Development: Remote Development	1	2022	4	2022

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy												Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0305421N *I RQ-4 Modernization*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	1,061.593	134.323	150.093	300.378	-	300.378	431.346	363.789	152.967	122.562	0.000	2,717.051
2939: *RQ-4 Modernization*	1,061.593	134.323	150.093	300.378	-	300.378	431.346	363.789	152.967	122.562	0.000	2,717.051

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): 373

Note

MQ-4C Triton RDT&E efforts segregated into two distinct Program Elements. PE 0305220N, PU 4020 Baseline, supported developmental efforts from the inception of the program and continues to fund fatigue testing, and other assessments that may initiate performance improvement efforts for other aircraft components associated. PE 0305421N, PU 2939 Modernization, supports the development of advanced radar modes inclusive of Ground Moving Target Indicator (GMTI), Enhanced Electro-Optic/Infrared (EO/IR) detection in support of GEOINT for increased maritime domain awareness, Integration of High Gain Aperture (HGA) for improved SIGINT, communications and networks resiliency in denied environments, implementation of multi-UA Command and Control (C2), and implementation of Sense and Avoid (SAA) traffic and weather capability for increased mission availability and airspace integration.

A. Mission Description and Budget Item Justification

MISSION:
The MQ-4C Triton MQ-4C Triton Unmanned Air System (UAS) is a high altitude-long endurance UAS designed to provide Fleet and combatant commanders with persistent maritime Intelligence, Surveillance and Reconnaissance (ISR) of nearly all the world's high-density sea-lanes, littorals, and areas of national interest. The MQ-4C air vehicle, mission control system, specialized sensors, and communications suite play a significant role in achieving the Navy's strategic vision for the 21st century. The Triton system provides persistent ISR and unparalleled situational awareness of the maritime battle space to the supported combatant commander and fleet commander. The system also serves as a Fleet response plan enabler with a persistent, global force offering to provide critical trip wire information for intelligence preparation of the environment. Triton provides the Warfighter with unprecedented levels of battlespace awareness to synchronize actions necessary to maintain maritime Full Spectrum Superiority. Teamed with its manned-capability counterpart, the P-8A Poseidon, Triton is a key component of the Navy's maritime domain awareness family of systems. MQ-4C Triton leverages Maritime Patrol and Reconnaissance Force manpower, training and maintenance efficiencies.

Triton Early Operational Capability (EOC) was successfully deployed in 2020. Following EOC, the MQ-4C Triton UAS continues to develop incremental capabilities within the ongoing acquisition program to meet program requirements in support of the 2011 National Defense Authorization Act (NDAA) enabling EP-3 Aries sundown and the Maritime Intelligence, Surveillance, Reconnaissance and Targeting (MISR-T) transition plan.

Increment 1 upgrades to the EOC system support program Initial Operational Capability (IOC) meeting NDAA 2011 requirements enabling MISR-T transition and EP-3 sundown. Increment 1 provides Multi-Intelligence capabilities, Counter Electronic Attack upgrades, and data dissemination across multiple classification domains and successfully completes in FY 2023.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0305421N *I RQ-4 Modernization*

Increment 2 initiated during FY 2023, will develop advanced radar modes inclusive of Ground Moving Target Indicator (GMTI), Enhanced Electro-Optic/Infrared (EO/IR) detection in support of Geographic Intelligence (GEOINT) for increased maritime domain awareness, Integration of High Gain Aperture (HGA) for improved Signal Intelligence (SIGINT), communications and networks resiliency in denied environments, implementation of multi-UA Command and Control (C2), and implementation of Sense and Avoid (SAA) traffic and weather capability for increased mission availability and airspace integration, as well as addressing required Diminishing Manufacturing Source (DMS) and cyber security updates.

The full MQ-4C Triton sensor suite provides near worldwide coverage through a network of orbits inside and outside continental United States, with sufficient air vehicles to remain airborne for 24 hours a day, 7 days a week, out to ranges of 2,000 nautical miles. Onboard sensors provide detection, classification, tracking and identification of maritime targets and include maritime radar, electro-optical/infra-red and SIGINT/ systems. Additionally, the MQ-4C communications relay capability links dispersed forces in the theater of operations and allows Triton to serve as a node in the Navy's networked strategy. Tactical-level data analysis occurs in real-time at shore-based mission control sites connected to the air vehicle via satellite communications. Further intelligence exploitation can be conducted at Fleet shore-based sites or aboard aircraft carriers and other ships.

JUSTIFICATION FOR BUDGET ACTIVITY: The FY 2024 funding is provided for the incorporation of incremental capability upgrades improving mission effectiveness, execution, and survivability through incorporation of Multi-UA command and control, weather avoidance overlays, expanded flight envelope through icing conditions, Sense and Avoid (SAA), M-Code integration, J11 message set for weapons targeting, Multi-Function Active Sensor (MFAS) Radar upgrades, Joint Signal Processor (JSP), High Gain Aperture (HGA), and Alternative Networks. Additional supportability improvements will address required Diminishing Manufacturing Source (DMS) and cyber security updates.

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. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	134.323	163.277	259.254	-	259.254
Current President's Budget	134.323	150.093	300.378	-	300.378
Total Adjustments	0.000	-13.184	41.124	-	41.124
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-13.184			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustments	0.000	0.000	40.526	-	40.526
• Rate/Misc Adjustments	0.000	0.000	0.598	-	0.598

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0305421N *I RQ-4 Modernization*

Change Summary Explanation

CHANGES:

Funding: FY 2024 was increased by $0.598M for various miscellaneous economic adjustments. Additionally, the program received an increase of $40.526M to support development of advanced radar modes, Enhanced Electro-Optic/Infrared (EO/IR) detection for increased maritime domain awareness, as well as integration improved Signal Intelligence, communications and networks resiliency in denied environments to support increased mission availability.

Technical: N/A.

Schedule: Phased Capability Upgrades - Increment 2 Development Start 3QFY2023;

- Continuation of Radar Signal Processor (RSP) re-design enhancement efforts, High Gain Aperture for improved SIGINT development, and multi-UA Command and Control.
- 4.2 Identification Friend or Foe (IFF)/ Traffic Alert and Collision Avoidance System (TCAS) certification required by 2Q FY24
- Sense and Avoid (SAA) PDR 2QFY24, CDR 4QFY24

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0305421N / *RQ-4 Modernization*	Project (Number/Name) 2939 / *RQ-4 Modernization*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2939: *RQ-4 Modernization*	1,061.593	134.323	150.093	300.378	-	300.378	431.346	363.789	152.967	122.562	0.000	2,717.051
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 373

A. Mission Description and Budget Item Justification

The MQ-4C Triton MQ-4C Triton Unmanned Air System (UAS) is a high altitude-long endurance UAS designed to provide Fleet and combatant commanders with persistent maritime Intelligence, Surveillance and Reconnaissance (ISR) of nearly all the world's high-density sea-lanes, littorals, and areas of national interest. The MQ-4C air vehicle, mission control system, specialized sensors, and communications suite play a significant role in achieving the Navy's strategic vision for the 21st century. The Triton system provides persistent ISR and unparalleled situational awareness of the maritime battle space to the supported combatant commander and fleet commander. The system also serves as a Fleet response plan enabler with a persistent, global force offering to provide critical trip wire information for intelligence preparation of the environment. Triton provides the Warfighter with unprecedented levels of battlespace awareness to synchronize actions necessary to maintain maritime Full Spectrum Superiority. Teamed with its manned-capability counterpart, the P-8A Poseidon, Triton is a key component of the Navy's maritime domain awareness family of systems. MQ-4C Triton leverages Maritime Patrol and Reconnaissance Force manpower, training and maintenance efficiencies.

Triton Early Operational Capability (EOC) was successfully deployed in 2020. Following EOC, the MQ-4C Triton UAS continues to develop incremental capabilities within the ongoing acquisition program to meet program requirements in support of the 2011 National Defense Authorization Act (NDAA) enabling EP-3 Aries sundown and the Maritime Intelligence, Surveillance, Reconnaissance and Targeting (MISR-T) transition plan.

Increment 1 upgrades to the EOC system support program Initial Operational Capability (IOC) meeting NDAA 2011 requirements enabling MISR-T transition and EP-3 sundown. Increment 1 provides Multi-Intelligence capabilities, Counter Electronic Attack upgrades, and data dissemination across multiple classification domains and successfully completes in FY 2023.

Increment 2 initiated during FY 2023, will develop advanced radar modes inclusive of Ground Moving Target Indicator (GMTI), Enhanced Electro-Optic/Infrared (EO/IR) detection in support of Geographic Intelligence (GEOINT) for increased maritime domain awareness, Integration of High Gain Aperture (HGA) for improved Signal Intelligence (SIGINT), communications and networks resiliency in denied environments, implementation of multi-UA Command and Control (C2), and implementation of Sense and Avoid (SAA) traffic and weather capability for increased mission availability and airspace integration, as well as addressing required Diminishing Manufacturing Source (DMS) and cyber security updates.

The full MQ-4C Triton sensor suite provides near worldwide coverage through a network of orbits inside and outside continental United States, with sufficient air vehicles to remain airborne for 24 hours a day, 7 days a week, out to ranges of 2,000 nautical miles. Onboard sensors provide detection, classification, tracking and identification of maritime targets and include maritime radar, electro-optical/infra-red and SIGINT/ systems. Additionally, the MQ-4C communications relay capability links dispersed forces in the theater of operations and allows Triton to serve as a node in the Navy's networked strategy. Tactical-level data analysis occurs in real-time at shore-based

mission control sites connected to the air vehicle via satellite communications. Further intelligence exploitation can be conducted at Fleet shore-based sites or aboard aircraft carriers and other ships.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Product Development	97.224	111.920	267.875	0.000	267.875
Articles:	-	-	-	-	-
Description: MQ-4C Triton Unmanned Air System (UAS) modernization effort for incorporation of incremental capability upgrades. The prime contractor is responsible for integration of upgrades into the Triton UAS including associated management, engineering and logistics activities. Capability upgrades will also include development of system payloads directly with original equipment manufacturers.					
FY 2023 Plans: FY 2023 completes the testing, integration, and Correction of Deficiencies (COD) of Increment 1 capabilities and transition to Q4 FY 2023 IOC. Follow-on Increment 2 development efforts beginning in Q3 FY 2023 address Multi-UA command and control, weather avoidance overlays, expanded flight envelope through icing conditions, Sense and Avoid (SAA), J11 message set for weapons targeting, Multi-Function Active Sensor (MFAS) Radar upgrades, Joint Signal Processor (JSP), High Gain Aperture (HGA), and Alternative Networks, as well as addressing required Diminishing Manufacturing Source (DMS) and cyber security updates.					
FY 2024 Base Plans: FY 2024 continues Increment 2 development efforts to provide advanced radar modes inclusive of Ground Moving Target Indicator (GMTI), Enhanced Electro-Optic/Infrared (EO/IR) detection in support of GEOINT for increased maritime domain awareness, Integration of High Gain Aperture (HGA) for improved SIGINT, communications and networks resiliency in denied environments, implementation of multi-UA Command and Control (C2), and implementation of Sense and Avoid (SAA) traffic and weather capability for increased mission availability and airspace integration, as well as addressing required Diminishing Manufacturing Source (DMS) and cyber security updates.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: Increase from FY 2023 to FY 2024 aligns to required funding for hardware development, systems engineering, and correction of deficiencies resulting from the program's development efforts in support of Increment 2 capability.					
Title: ILS, Support, Studies & Analysis	3.006	3.067	4.040	0.000	4.040
Articles:	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305421N / *RQ-4 Modernization*	**Project (Number/Name)** 2939 / *RQ-4 Modernization*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Description: Integrated Logistics Support, Studies and Analysis. ***FY 2023 Plans:*** Funding continues in FY 2023 to support the development and integration of logistics and product support considerations for Triton's modernization upgrade. Efforts include integrated logistics support, technical engineering services, sensor reliability and maintainability risk reduction, logistics supportability analyses and environmental planning, modeling and simulation, development of manpower and basing assessments, and development of technical data to support fielding of the MQ-4C Triton UAS modernization capabilities. ***FY 2024 Base Plans:*** Funding continues in FY 2024 to support the development and integration of logistics and product support considerations for Triton's modernization upgrade. Efforts include integrated logistics support, technical engineering services, sensor reliability and maintainability risk reduction, logistics supportability analyses and environmental planning, modeling and simulation, development of manpower and basing assessments, and development of technical data to support fielding of the MQ-4C Triton UAS modernization capabilities. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY 2023 to FY 2024 reflects ILS support associated with Increment 2 capability.					
Title: Test & Evaluation (T&E)	32.182	33.138	25.938	0.000	25.938
Articles:	-	-	-	-	-
Description: T&E efforts. ***FY 2023 Plans:*** Funding continues in FY 2023 to support OT activities, including integrated test team labor to reduce risk in design and development, perform subsystem level ground and acceptance testing, obtain the necessary satellite communications required for testing and execute OT support to allow test and fielding of the MQ-4C Triton UAS increment 1 capability in accordance with the program schedule. To support Increment 1 IOC, the program continues System Level II and III testing, Post-QC2 flight test, validates EMI corrective actions and Corrections of Deficiencies (CODs). ***FY 2024 Base Plans:***					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305421N / *RQ-4 Modernization*	**Project (Number/Name)** 2939 / *RQ-4 Modernization*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Funding continues in FY 2024 to support integrated test team labor to reduce risk in design and development, perform subsystem level ground and acceptance testing, obtain the necessary satellite communications required for testing and execute OT support to allow test and fielding of the MQ-4C Triton UAS increment 2 capability in accordance with the program schedule. To support Increment 2, the program continues System Level II and III testing, Software Build flight test, and Corrections of Deficiencies (CODs). ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease from FY 2023 to FY 2024 reflects completion of Increment 1 capability development.					
Title: Program Management (PM) ***Articles:*** ***Description:*** PM support and travel. ***FY 2023 Plans:*** Continue the following: PM support and travel, development of milestone and acquisition-related documentation, capability refinement and open systems architecture development, resource justification, affordability assessments and cost analyses, risk reduction and risk management, system integration and interoperability planning, technology maturity reviews, program protection planning, corrosion prevention planning, and joint and international cooperation efforts. Planning, coordination, and award of initial contract for Increment 2. ***FY 2024 Base Plans:*** Continue the following: PM support and travel, development of milestone and acquisition-related documentation, capability refinement and open systems architecture development, resource justification, affordability assessments and cost analyses, risk reduction and risk management, system integration and interoperability planning, technology maturity reviews, program protection planning, corrosion prevention planning, and joint and international cooperation efforts. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY 2023 to FY 2024 provides for post award contract initiation and management activities for Increment 2.	1.911 -	1.968 -	2.525 -	0.000 -	2.525 -
Accomplishments/Planned Programs Subtotals	134.323	150.093	300.378	0.000	300.378

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305421N / *RQ-4 Modernization*	**Project (Number/Name)** 2939 / *RQ-4 Modernization*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• RDT&E/0305220N: *(U)MQ-4C Triton*	13.029	13.893	12.094	-	12.094	15.747	14.115	14.345	14.633	45.622	3,670.021
• APN/0442: *MQ-4 Triton*	483.151	584.192	486.345	-	486.345	187.035	150.170	131.884	136.268	51.700	5,141.738
• APN/0605/J0442: *Spares and Repair Parts*	26.387	6.406	10.974	-	10.974	0.000	0.000	0.000	0.000	0.000	538.440
• APN/0596: *MQ-4 Series*	7.046	91.977	93.951	-	93.951	122.518	150.230	149.947	162.758	245.194	1,121.738
• OMN/1D4D: *Weapons Maintenance*	42.061	118.549	129.148	-	129.148	138.698	165.728	182.145	185.794	Continuing	Continuing

Remarks

D. Acquisition Strategy

The MQ-4C Triton acquisition approach supports the Navy's Maritime Intelligence, Surveillance, Reconnaissance, and Targeting (MISR-T) Transition Plan by providing a stable and effective baseline Early Operational Capability (EOC) in 2020 to facilitate Fleet introduction and learning while continuing development engineering and integrated test on Signals Intelligence (SIGINT), and other upgrades to deliver an Increment 1 configuration at Initial Operational Capability (IOC). Following the completion of Increment 1 development in FY2023, Increment 2 capability development initiated without a gap in development. Increment 2 capability will directly support full MQ-4C Triton requirements and address correction of deficiencies, cyber security updates, and obsolescence issues to ensure the Navy maintains persistent Intelligence, Surveillance and Reconnaissance dominance through the system's lifecycle.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0305421N / *RQ-4 Modernization*	Project (Number/Name) 2939 / *RQ-4 Modernization*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prime Hardware Development - Increment 1 NGCAS	C/CPFF	Various : Various	716.757	76.200	Nov 2021	74.584	Nov 2022	0.000		-		0.000	0.000	867.541	867.541
Primary Hardware Development - Increment 1	WR	NSWC-Crane : Crane, Indiana	35.630	0.050	Nov 2021	0.050	Nov 2022	0.000		-		0.000	0.000	35.730	-
Multi-UA, Sense and Avoid Hardware Development & Aircraft System Integration - Increment 2	C/CPFF	Northrop Grumman : Rancho Bernardo, CA	0.000	0.000		5.408	Jul 2023	89.023	Oct 2023	-		89.023	360.624	455.055	455.055
Sub-Tier ARC-210 Radio System Integration - Increment 2	C/CPFF	Northrop Grumman : Kerny Mesa, CA	0.000	0.000		0.276	Mar 2023	6.141	Nov 2023	-		6.141	21.646	28.063	28.063
Sub-Tier Electro-Optic/Infrared System Development - Increment 2	C/CPFF	Raytheon : McKinney, TX	0.000	0.000		1.987	Mar 2023	44.219	Nov 2023	-		44.219	155.848	202.054	202.054
Sub-Tier High Gain Aperature System Development - Increment 2	C/CPFF	L3 Harris : Salt Lake City, UT	0.000	0.000		0.386	Mar 2023	8.598	Nov 2023	-		8.598	30.304	39.288	-
Sub-Tier Alternative Networks System Development - Increment 2	C/CPFF	L3 Harris : Salt Lake City, UT	0.000	0.000		2.097	Mar 2023	46.675	Nov 2023	-		46.675	164.507	213.279	-
Sub-Tier M-Code System Development - Increment 2	C/CPFF	Northrop Grumman : Woodland Hills, CA	0.000	0.000		0.883	Mar 2023	19.653	Oct 2023	-		19.653	69.266	89.802	-
Radar Signal Processor Hardware Development - Increment 2	C/CPFF	Northrop Grumman : Baltimore, MD	0.000	0.000		8.000	Jul 2023	16.000	Oct 2023	-		16.000	0.000	24.000	-
Mission Management Software Development - Increment 2	C/CPFF	JHU/APL : Laurel, MD	0.000	0.000		0.000		5.871	Nov 2023	-		5.871	23.484	29.355	29.355
High Band SIGINT Software Development - Increment 2	C/CPFF	Sierra Nevada Corporation : Beaver Creek, OH	0.000	0.000		0.000		0.904	Nov 2023	-		0.904	3.617	4.521	4.522
Cybersecurity & Classified Networks Software Development - Increment 2	C/CPFF	Ticom Geomatics : Austin, TX	0.000	0.000		0.000		7.210	Nov 2023	-		7.210	31.069	38.279	38.279

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305421N / *RQ-4 Modernization*	**Project (Number/Name)** 2939 / *RQ-4 Modernization*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Low Band SIGINT Software Development - Increment 2	C/CPFF	Boeing Argon ST : Fairfax, VA	0.000	0.000		0.000		1.365	Nov 2023	-		1.365	5.459	6.824	6.824
Systems Engineering - Increment 1	Various	Various : Various	58.995	2.000	Nov 2021	1.501	Nov 2022	0.000		-		0.000	0.000	62.496	62.496
Systems Engineering - Increment 1	WR	NAWC-AD : Patuxent River, MD	114.797	18.974	Nov 2021	15.937	Nov 2022	0.000		-		0.000	0.000	149.708	-
Systems Engineering - Increment 2	C/CPFF	Various : Various	0.000	0.000		0.499	Nov 2022	2.318	Nov 2023	-		2.318	8.671	11.488	20.159
Systems Engineering - Increment 2	WR	NAWC-AD : Patuxent River, MD	0.000	0.000		5.312	Nov 2022	19.896	Nov 2023	-		19.896	85.735	110.943	196.677
Prior Year Prod Dev no longer in the FYDP	Various	Various : Various	45.107	0.000		0.000		0.000		-		0.000	0.000	45.107	-
		Subtotal	971.286	97.224		116.920		267.873		-		267.873	960.230	2,413.533	N/A

Remarks

FY2024 increase above FY2023 levels supports Increment 2 Product Development requirements. As the airframe prime contractor and systems integrator, Northrop Grumman is tasked with supporting integration and design efforts associated with various capabilities to enable the MQ-4C Triton to provide detection, classification, tracking and identification of maritime targets. The capabilities associated with maritime radar, electro-optical/infra-red and SIGINT radar, communications relays and nodes supporting the Navy?s networked strategy is half of a critical partnership with the P-8A Poseidon program for the collection and dissemination of critical intelligence.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development Support - Increment 1	Various	Various : Various	3.434	0.255	Nov 2021	0.195	Nov 2022	0.000		-		0.000	0.000	3.884	-
Integrated Logistics Support - Increment 1	Various	Various : Various	4.490	0.613	Nov 2021	0.470	Nov 2022	0.000		-		0.000	0.000	5.573	-
Integrated Logistics Support - Increment 1	WR	NAWC-AD : Patuxent River, MD	8.623	2.138	Nov 2021	1.636	Nov 2022	0.000		-		0.000	0.000	12.397	-
Development Support - Increment 2	Various	Various : Various	0.000	0.000		0.065	Nov 2022	1.265	Nov 2023	-		1.265	5.451	6.781	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0305421N / *RQ-4 Modernization*	Project (Number/Name) 2939 / *RQ-4 Modernization*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics Support - Increment 2	Various	Various : Various	0.000	0.000		0.156	Nov 2022	1.550	Nov 2023	-		1.550	1.400	3.106	-
Integrated Logistics Support - Increment 2	WR	NAWC-AD : Patuxent River, MD	0.000	0.000		0.545	Nov 2022	1.225	Nov 2023	-		1.225	3.569	5.339	-
		Subtotal	16.547	3.006		3.067		4.040		-		4.040	10.420	37.080	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	Various	Various : Various	7.730	1.751	Nov 2021	1.793	Nov 2022	2.501	Nov 2023	-		2.501	2.573	16.348	-
Developmental Test & Evaluation (DT&E)	WR	NAWC-AD : Patuxent River, MD	50.236	21.919	Nov 2021	22.578	Nov 2022	21.927	Nov 2023	-		21.927	74.899	191.559	-
Operational Test & Evaluation (OT&E)	Various	Various : Various	2.980	8.512	Nov 2021	3.767	Nov 2022	1.510	Nov 2023	-		1.510	14.176	30.945	-
		Subtotal	60.946	32.182		28.138		25.938		-		25.938	91.648	238.852	N/A

Remarks

FY 2024 Test & Evaluation funding provides for Increment 2 Software Build flight test events to verify the system meets Capability Development Document (CDD) requirements in support of Increment 2 program schedule.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management - Increment 1	Various	Various : Various	1.199	0.188	Nov 2021	0.145	Nov 2022	0.000		-		0.000	0.000	1.532	-
Travel - Increment 1	Allot	Various : Various	0.244	0.037	Nov 2021	0.029	Nov 2022	0.000		-		0.000	0.000	0.310	-
Program Management Support - Increment 1	C/CPFF	Ausley : Lexington Park, MD	11.371	1.686	Nov 2021	1.303	Nov 2022	0.000		-		0.000	0.000	14.360	14.360
Program Management - Increment 2	Various	Various : Various	0.000	0.000		0.048	May 2023	0.697	May 2024	-		0.697	0.540	1.285	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0305421N / *RQ-4 Modernization*	Project (Number/Name) 2939 / *RQ-4 Modernization*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel - Increment 2	Allot	Various : Various	0.000	0.000		0.009	May 2023	0.043	May 2024	-		0.043	0.163	0.215	-
Program Management Support - Increment 2	C/CPFF	Precise : Lexington Park, MD	0.000	0.000		0.434	May 2023	1.787	May 2024	-		1.787	7.663	9.884	9.886
		Subtotal	12.814	1.911		1.968		2.527		-		2.527	8.366	27.586	N/A

	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	1,061.593	134.323		150.093		300.378		-		300.378	1,070.664	2,717.051	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305421N / *RQ-4 Modernization*	**Project (Number/Name)** 2939 / *RQ-4 Modernization*

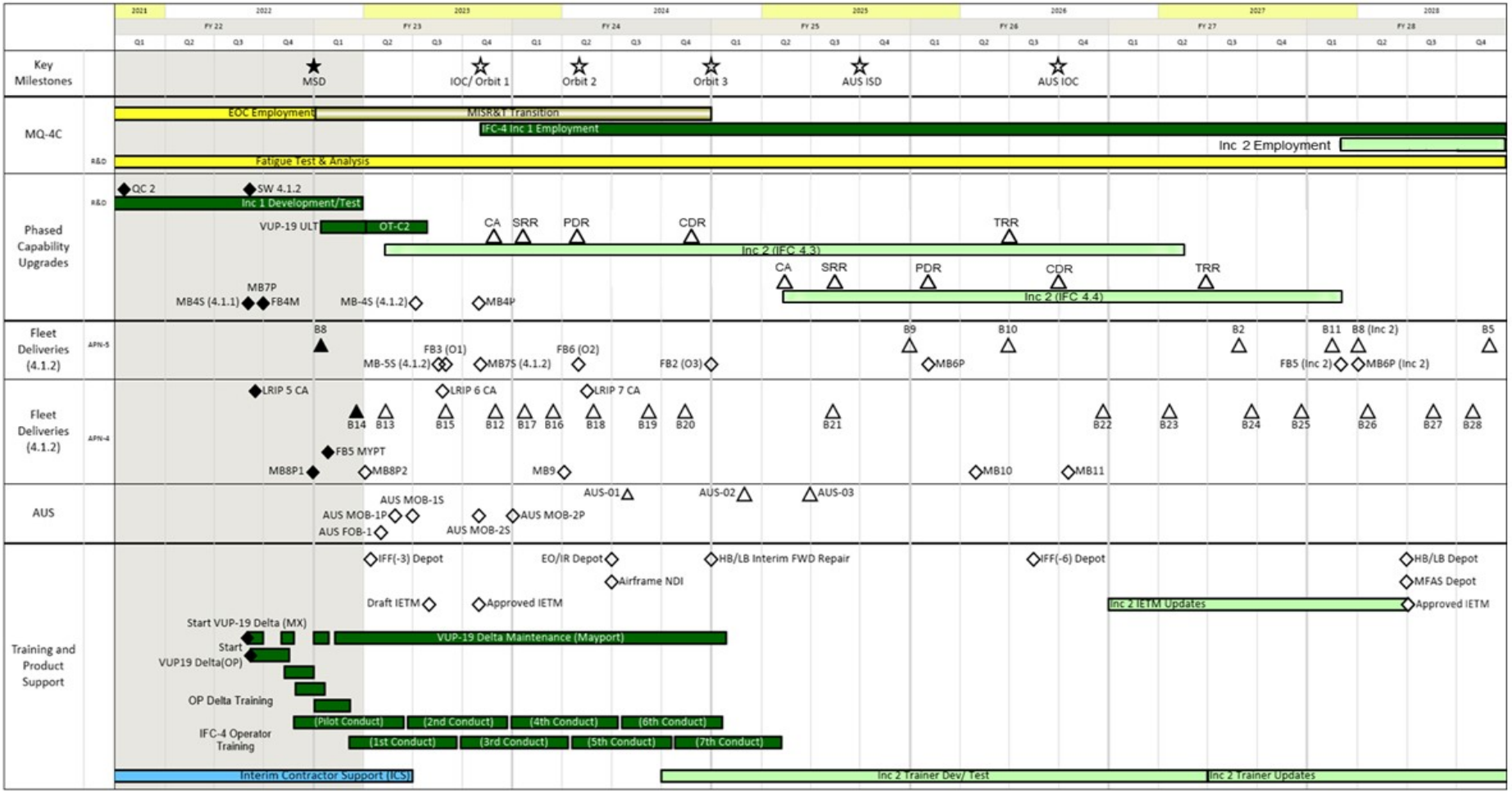


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0305421N / *RQ-4 Modernization*	**Project (Number/Name)** 2939 / *RQ-4 Modernization*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2939				
Acquisition Milestones: Initial Operational Capability	4	2023	4	2023
System Development: Airframe Fatigue Testing and Analysis	1	2022	4	2028
System Development: Phased Capability Upgrades - Increment 1 Development / Test	1	2022	1	2023
System Development: Phased Capability Upgrades - Increment 2 Development / Test	3	2023	3	2027
Test & Evaluation Activities: Increment 1 Integrated Test (Combined/Developmental/ Operational)	1	2022	1	2023
Test & Evaluation Activities: Increment 1 Operational Test	1	2023	3	2023
Test & Evaluation Activities: Increment 2 Integrated Test (Combined/Developmental/ Operational)	3	2023	2	2028
Test & Evaluation Activities: Increment 2 Operational Test	3	2027	1	2028
Production Milestones: Contracts: Low Rate Initial Production Lot 5 Contract Award	3	2022	3	2022
Production Milestones: Contracts: Low Rate Initial Production Lot 6 Contract Award	3	2023	3	2023
Production Milestones: Contracts: Low Rate Initial Production Lot 7 Contract Award	2	2024	2	2024
Production Milestones: Deliveries: Low Rate Initial Production Lot 3 Delivery	2	2023	3	2023
Production Milestones: Deliveries: Low Rate Initial Production Lot 4 Delivery	1	2024	2	2024
Production Milestones: Deliveries: Low Rate Initial Production Lot 5 Delivery	3	2024	2	2027
Production Milestones: Deliveries: Low Rate Initial Production Lot 6 Delivery	3	2027	2	2028
Production Milestones: Deliveries: Low Rate Initial Production Lot 7 Delivery	3	2028	4	2028

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy* / BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0307577N / *Intelligence Mission Data (IMD)*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	0.000	0.907	0.851	0.788	-	0.788	0.793	0.807	0.821	0.837	Continuing	Continuing
3580: *Acquisition Intelligence Requirements Task Force*	0.000	0.907	0.851	0.788	-	0.788	0.793	0.807	0.821	0.837	Continuing	Continuing

Note

Project 3580 Acquisition Intelligence Requirements Task Force was previously funded in Program Element (PE) 0305192N Military Intelligence Program (MIP) Activities in FY 2020 and transferred to PE 0307577N Intelligence Mission Data (IMD) with no funding in FY 2021.

A. Mission Description and Budget Item Justification

This project addresses intelligence projects under the Navy Modeling and Simulation (M&S) Office. It supports the Intelligence community through the integration, interoperability, prioritization and trades on threat data/modeling of intelligence data being fielded throughout the Naval enterprise. Efforts will migrate and leverage previous results to conduct analysis on threat data support to ashore and afloat Naval platforms and systems across all domains, and include Space, Air Force and Army interoperability and integration considerations. These efforts will support various afloat and ashore Navy programs and systems to modernize, digitally transform and integrate intelligence information into more agile software focused environments.

Efforts are focused on supporting intelligence data impact on complex mission performance and conduct trades on threat data/modeling prioritization.

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	0.907	0.851	0.771	-	0.771
Current President's Budget	0.907	0.851	0.788	-	0.788
Total Adjustments	0.000	0.000	0.017	-	0.017
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Rate/Misc Adjustments	0.000	0.000	0.017	-	0.017

Change Summary Explanation

Funding: No significant changes.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0307577N *I Intelligence Mission Data (IMD)*

Technical: No significant changes.

SCHEDULE: Activities and milestones clarified to better show synchronization of Project 3580 activities and deliverables in support of digital warfighting transformation initiatives.

FINANCIAL: No significant changes.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0307577N / *Intelligence Mission Data (IMD)*	Project (Number/Name) 3580 / *Acquisition Intelligence Requirements Task Force*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
3580: *Acquisition Intelligence Requirements Task Force*	0.000	0.907	0.851	0.788	-	0.788	0.793	0.807	0.821	0.837	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Project 3580 Acquisition Intelligence Requirements Task Force was previously funded in Program Element (PE) 0305192N Military Intelligence Program (MIP) Activities in FY 2020 and transferred to PE 0307577N Intelligence Mission Data (IMD) with no funding in FY 2021.

A. Mission Description and Budget Item Justification

This project supports the Intelligence community through the integration, interoperability, prioritization and trades on threat data/modeling of intelligence data being fielded throughout the Naval enterprise. Efforts will migrate and leverage previous results to conduct analysis on threat data support to ashore and afloat Naval platforms and systems across all domains, and include Space, Air Force and Army interoperability and integration considerations. These efforts will support M&S standards, threat system enhancements supporting M&S information systems and portals, virtual environments, and T&E / laboratory augmentation in support of warfighting decision-making.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Aquisition Intelligence Requirements Task Force	0.907	0.851	0.788	0.000	0.788
Articles:	-	-	-	-	-
FY 2023 Plans: - Continue to develop improvements to tools, data structures and data visualizations to enable analysis of Intelligence data impact on complex mission performances. - Continue to develop improvements to Command and Control EW simulations to allow rapid incorporation of Intelligence collections into reprogramming, engineering, and test environments. - Continue to develop integration requirements for M&S tools to support joint intelligence data integration, interoperability and prioritization of threat data of intelligence data. - Develop and integrate M&S Tools leveraging the Naval Integrated Modeling Environment to support joint platforms intelligence data integration, interoperability and prioritization of threat data of intelligence data.					
FY 2024 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0307577N / *Intelligence Mission Data (IMD)*	**Project (Number/Name)** 3580 / *Acquisition Intelligence Requirements Task Force*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Identify Threat Artifacts used during Acquisition Program Execution - Develop Process for Coordinating Technical Data Analysis of Threats - Identify the required criteria for threat data - Validate standardized risk assessments for threat models/data and applied to all Threat models/data used (IC and Non-IC) - Establish Configuration Management of Threat data from all producers to allow rapid incorporation of Intelligence collections into reprogramming, engineering, and test environments. - Complete the develop improvements to tools, data structures and data visualizations to enable analysis of Intelligence data impact on complex mission performances. - Complete the develop improvements to Command and Control EW simulations to allow rapid incorporation of Intelligence collections into reprogramming, engineering, and test environments. - Complete the develop integration requirements for M&S tools to support joint intelligence data integration, interoperability and prioritization of threat data of intelligence data. - Complete the development and integrate M&S Tools leveraging the Naval Integrated Modeling Environment to support joint platforms intelligence data integration, interoperability and prioritization of threat data of intelligence data. improvements to tools, data structures and data visualizations to enable analysis of Intelligence data impact on complex mission performances. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding decrease of $63K from FY 2023 to FY 2024 is due to the focus of the work shifting from development to implementation.					
Accomplishments/Planned Programs Subtotals	0.907	0.851	0.788	0.000	0.788

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0307577N / *Intelligence Mission Data (IMD)*	**Project (Number/Name)** 3580 / *Acquisition Intelligence Requirements Task Force*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

This is a non-ACAT program. Project includes analysis to support development of IMD requirements and integration documents to deliver M&S tools and associated data environments focused on integration, interoperability, prioritization and trades on threat data/modeling of intelligence data being fielded. Project efforts will support various afloat and ashore Navy programs and systems to modernize, digitally transform and integrate intelligence information into more agile software focused environments to extend and mature current kill chains and develop integrated capabilities.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0307577N / *Intelligence Mission Data (IMD)*	**Project (Number/Name)** 3580 / *Acquisition Intelligence Requirements Task Force*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Digital Warfighting Platform - Modeling & Simulation	Various	Various : Various	0.000	0.289	Nov 2021	0.309	Nov 2022	0.000		-		0.000	Continuing	Continuing	Continuing
Digital Warfighting Design-Modeling & Simulation	Various	Various : Various	0.000	0.308	Dec 2021	0.277	Dec 2022	0.000		-		0.000	Continuing	Continuing	Continuing
Digital Warfighting Applications - Modeling & Simulation	Various	Various : Various	0.000	0.310	Nov 2021	0.265	Nov 2022	0.000		-		0.000	Continuing	Continuing	Continuing
Modeling & Simulation	Various	Various : Various	0.000	0.000		0.000		0.276	Nov 2023	-		0.276	Continuing	Continuing	Continuing
Integration of Platforms	Various	Various : Various	0.000	0.000		0.000		0.222	Nov 2023	-		0.222	Continuing	Continuing	Continuing
Operate & Sustain	Various	Various : Various	0.000	0.000		0.000		0.290	Nov 2023	-		0.290	Continuing	Continuing	Continuing
		Subtotal	0.000	0.907		0.851		0.788		-		0.788	Continuing	Continuing	N/A

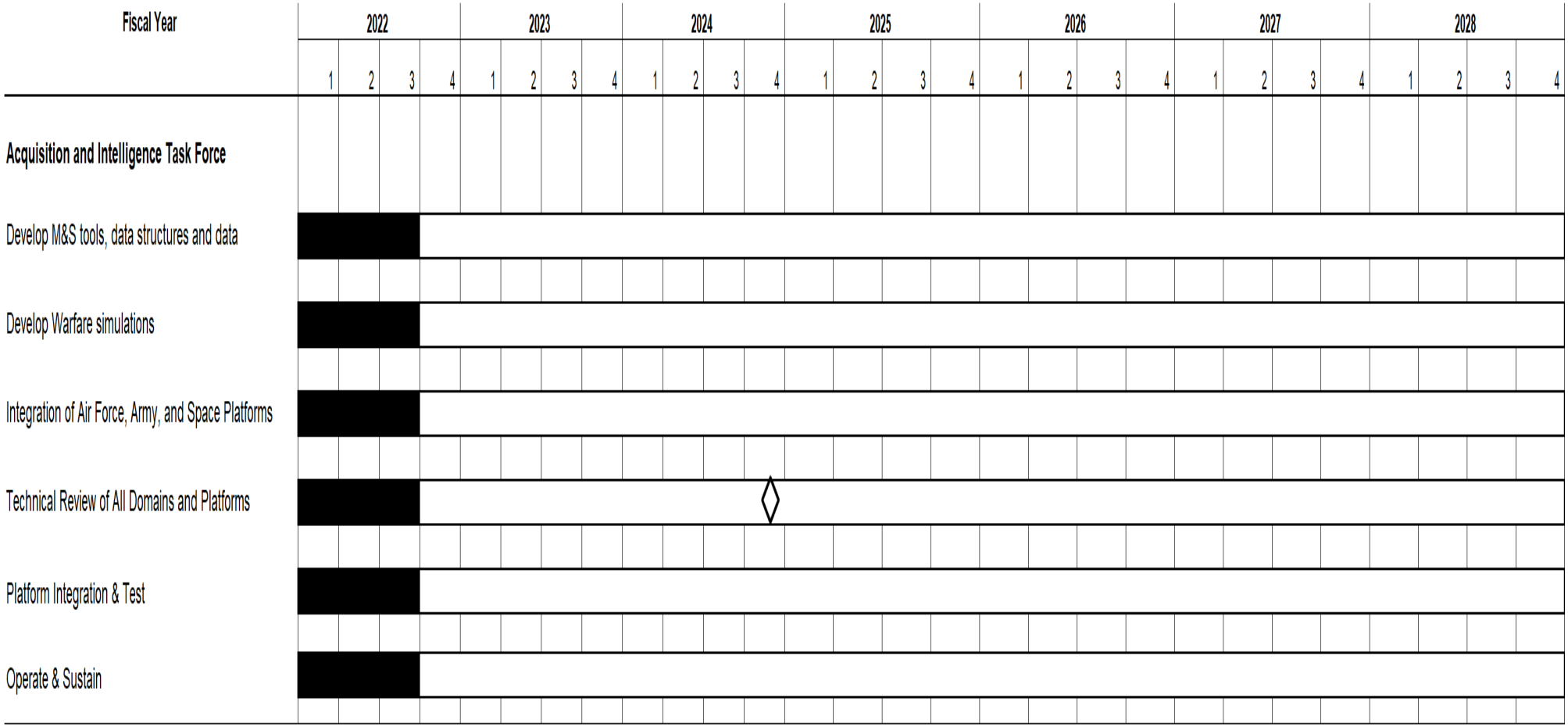
Remarks

In FY23 and out, support cost category alignments have been updated to better match R-2A activities and categories.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.907		0.851		0.788		-		0.788	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0307577N / *Intelligence Mission Data (IMD)*	**Project (Number/Name)** 3580 / *Acquisition Intelligence Requirements Task Force*



Note: Specifics have been removed due to Classified nature of the Project

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0307577N / *Intelligence Mission Data (IMD)*	**Project (Number/Name)** 3580 / *Acquisition Intelligence Requirements Task Force*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3580				
Acquisition and Intelligence Task Force: Develop M&S tools, data structures and data visualization	1	2022	4	2028
Acquisition and Intelligence Task Force: Develop Warfare simulations	1	2022	4	2028
Acquisition and Intelligence Task Force: Integration of Air Force, Army and Space Platforms	1	2022	4	2028
Acquisition and Intelligence Task Force: Technical Review of All Domains and Platforms	1	2022	4	2028
Acquisition and Intelligence Task Force: Platform Integration & Test	1	2022	4	2028
Acquisition and Intelligence Task Force: Operate & Sustain	1	2022	4	2028

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0308601N *I Modeling & Simulation Support*

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	67.055	9.479	9.437	10.994	-	10.994	10.924	10.772	10.957	11.180	Continuing	Continuing
2222: *Modeling & Simulation*	67.055	9.479	9.437	10.994	-	10.994	10.924	10.772	10.957	11.180	Continuing	Continuing

A. Mission Description and Budget Item Justification

This Program Element addresses projects under the Navy Modeling and Simulation (M&S) Office (NMSO). It supports technical and management initiatives with the aim of bringing organization, focus, and efficiency to the development and use of M&S throughout the Navy and DoD. It provides a central organization for the formulation and implementation of policy and guidance in M&S, and represents Navy interests in Joint and other agency initiatives. It funds efforts to define and coordinate the corporate Navy M&S policy, M&S execution, and guidance to evolve an interoperable and reusable core M&S capability consistent with the M&S technical framework prescribed by DoD across the FYDP.

DON M&S priorities include Systems Engineering and Integration, Model Based Systems Engineering (MBSE), and Interoperability and Requirements Development to determine the required networks, infrastructure, and data needed to support enterprise DON M&S capabilities which also leverage M&S standards, information systems, virtual environments, and T&E Augmentation in support of warfighting decision-making.

Efforts are organized around three product areas:
(1) Core Services: This activity provides essential planning, program management, coordination, and execution of Navy M&S efforts with other Services, the Office of Secretary of Defense (OSD), the Joint Staff, and other agencies to including policies and procedures necessary to support the creation of a robust and credible capability to create synthetic environments, accurately represent platforms and systems, predict outcomes, and provide inputs to Naval decision makers and operational users in support of numerous areas, including acquisition, analysis, training, and experimentation.

(2) Community Services: This activity provides M&S community-wide services and digital ecosystems/venues to M&S policies, standards, VV&A, collaborative digital engineering and support discoverability/reuse across the DON, acquisition, analytics, training, and experimentation communities.

(3) Community Experiments and Prototypes: This activity executes experiments and prototypes focusing on the advancement of M&S capabilities and technology to increase M&S efficiency and/or effectiveness in key war fighting areas.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy					Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*			R-1 Program Element (Number/Name) PE 0308601N *I Modeling & Simulation Support*		
B. Program Change Summary ($ in Millions)	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**
Previous President's Budget	9.772	9.437	10.763	-	10.763
Current President's Budget	9.479	9.437	10.994	-	10.994
Total Adjustments	-0.293	0.000	0.231	-	0.231
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.293	0.000			
• Rate/Misc Adjustments	0.000	0.000	0.231	-	0.231

Change Summary Explanation

FUNDING: No significant change.

TECHNICAL: No significant change.

SCHEDULE: Activities and milestones clarified to better show synchronization of Projects 2222 activities and deliverables for each product area.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0308601N / *Modeling & Simulation Support*				Project (Number/Name) 2222 / *Modeling & Simulation*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
2222: *Modeling & Simulation*	67.055	9.479	9.437	10.994	-	10.994	10.924	10.772	10.957	11.180	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Program Element addresses projects under the Navy Modeling and Simulation (M&S) Office (NMSO). It supports technical and management initiatives with the aim of bringing organization, focus, and efficiency to the development and use of M&S throughout the Navy and DoD. It provides a central organization for the formulation and implementation of policy and guidance in M&S, and represents Navy interests in Joint and other agency initiatives. It funds efforts to define and coordinate the corporate Navy M&S policy, M&S execution, and guidance to evolve an interoperable and reusable core M&S capability consistent with the M&S technical framework prescribed by DoD across the FYDP.

DON M&S priorities include Systems Engineering and Integration, Model Based Systems Engineering (MBSE), and Interoperability and Requirements Development to determine the required networks, infrastructure, and data needed to support enterprise DON M&S capabilities which also leverage M&S standards, information systems, virtual environments, and T&E Augmentation in support of warfighting decision-making.

Efforts are organized around three product areas:
(1) Core Services: This activity provides essential planning, program management, coordination, and execution of Navy M&S efforts with other Services, the Office of Secretary of Defense (OSD), the Joint Staff, and other agencies to including policies and procedures necessary to support the creation of a robust and credible capability to create synthetic environments, accurately represent platforms and systems, predict outcomes, and provide inputs to Naval decision makers and operational users in support of numerous areas, including acquisition, analysis, training, and experimentation.

(2) Community Services: This activity provides M&S community-wide services and digital ecosystems/venues to M&S policies, standards, VV&A, collaborative digital engineering and support discoverability/reuse across the DON, acquisition, analytics, training, and experimentation communities.

(3) Community Experiments and Prototypes: This activity executes experiments and prototypes focusing on the advancement of M&S capabilities and technology to increase M&S efficiency and/or effectiveness in key war fighting areas.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**
Title: CORE SERVICES	1.092	1.147	1.344	0.000	1.344
Articles:	-	-	-	-	-
Description: This activity provides essential planning, program management, coordination, and execution of Navy M&S efforts with other Services, the Office of Secretary of Defense (OSD), the Joint Staff, and other					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0308601N / *Modeling & Simulation Support*	**Project (Number/Name)** 2222 / *Modeling & Simulation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
agencies that to including policies and procedures necessary to support the creation of a robust and credible capability to create synthetic environments, accurately represent platforms and systems, predict outcomes, and provide inputs to Naval decision makers and operational users in support of numerous areas, including acquisition, analysis, training, and experimentation. These core services support the community-wide alignment planning and execution of NMSO community services and experiments and prototypes. It manages and maintains the Modeling and Simulation Quality Assurance (VV&A) process and integration with Navy Commands and the Fleet experiments and demonstration and includes guidelines for constructing, applying, and documenting modeling, simulation, and data, including establishment and implementation of VV&A training curriculum for developers and Accreditation Agents. It also includes development and updates of Navy M&S policies and standards. ***FY 2023 Plans:*** - Continue to promote consistent application of M&S "Best Practices" and associated technologies to improve support across the DON Enterprise. - Develop and sustain core M&S tools, architecture, performance metrics, and models supporting cross-domain kill-chain level analysis at a system of systems level. - Leverage cloud technologies, Automated Test/Re-Test (ATRT), data pipelining efforts, AI/ML, and Modular Open Software Architecture (MOSA) capabilities to scale Navy M&S capabilities in support of enterprise sandbox/LVC technologies. - Support the sustainment of core modeling capabilities and develop modeling growth capabilities into cloud environments at all security levels leveraging the Naval Integrated Modeling Environment (IME). ***FY 2024 Base Plans:*** - Continue to promote consistent application of M&S "Best Practices" and associated technologies to improve support across the DON Enterprise, DOD and other services to increase M&S efficiency and effectiveness. - Continue the execution of advancement of VV&A policy, training and education across the community. - Continue to work with DOD and other services to develop and/or refine M&S related standards to support cross-program and cross-service interoperability.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0308601N / *Modeling & Simulation Support*	**Project (Number/Name)** 2222 / *Modeling & Simulation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Planning, aligning and management of NMSO core services, community services and experiments and prototypes across the DON, DOD and other services. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** There is no significant funding change from FY 2023 to FY 2024.					
Title: COMMUNITY SERVICES	2.260	2.296	2.683	0.000	2.683
Articles:	-	-	-	-	-
Description: This activity provides M&S community-wide services and digital ecosystems/venues to develop and implement M&S policies, standards, VV&A, collaborative digital engineering and support discoverability/ reuse across the DON, acquisition, analytics, training, and experimentation communities. This activity promotes M&S reuse through cooperative Community M&S activities which identify and prioritize M&S capability requirements between and across Communities. This coordination includes the leveraging M&S standards, information systems, virtual environments, and T&E Augmentation in support of warfighting decision-making. It manages and maintains the Naval-Leveraging Innovations, Frameworks, and Technologies (LIFT) Environment as the central Naval M&S information resource to support informed M&S design, development, integration, and reuse across the Navy. LIFT provides collaboration spaces for M&S Plans and Policy; Education and Training; Verification, Validation, and Accreditation (VV&A) amongst other areas that are critical to M&S. It also supports the development and use of core modeling capabilities and digital engineering ecosystems/cloud capabilities environments such as the Naval Integrated Modeling Environment (IME). It also supports M&S related educational efforts such as the Naval Postgraduate School (NPS), Modeling Virtual Environments and Simulation (MOVES) curriculum which qualifies officers to fill 6202-P coded billets. ***FY 2023 Plans:*** - Continue to support subject matter expert support to and "best practices" development and expansion of M&S tools via open standards and interfaces, enterprise reference architectures, common data and track management and related enterprise sandbox technologies. - Continue subject matter expert support to and development and expansion of M&S tools to support Fleet priority capabilities by considering integration of Artificial Intelligence (AI)/Machine Learning (ML) open standards into appropriate enterprise sandbox platforms.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0308601N / *Modeling & Simulation Support*	**Project (Number/Name)** 2222 / *Modeling & Simulation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Continue and expand integration with M&S via the Integrated Modeling Environment (IME), with associated open standards and policy guidance. ***FY 2024 Base Plans:*** - Continue expansion and improvements of collaboration and discoverability tools and efforts such as the Naval-Leveraging Innovations, Frameworks, and Technologies (LIFT) Environment. - Continue expansion and improvements of core modeling capabilities and digital engineering ecosystems/cloud capabilities environments such as the Naval Integrated Modeling Environment (IME). - Continue updates of and improved access to authoritative M&S data sources such as Threat and Blue data. - Continue all efforts not noted as completed. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY2023 to FY2024 to better reflect program phasing plan adjustments and maintain alignment with supported programs and systems.					
Title: COMMUNITY EXPERIMENTS and PROTOTYPES	6.127	5.994	6.967	0.000	6.967
Articles:	-	-	-	-	-
Description: This activity executes experiments and prototypes focusing on the advancement of M&S capabilities and technology, to increase achieve M&S efficiency and/or effectiveness in key war fighting areas. This activity executes the development of tools necessary to enable the access and use of operationally relevant M&S products to support Navy training, warfare assessments and acquisition requirements focusing on supporting Navy war fighting priorities such as Long Range Fires and Naval Operational Architecture (NOA). Individual efforts focus on developing or evaluating approaches to optimize training, assessments and acquisition functional, mission objectives through more efficient development and use of M&S. This funding also includes efforts on areas such as virtual environments and LVC/T&E Augmentation in support of warfighting decision-making.					
FY 2023 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0308601N / *Modeling & Simulation Support*	**Project (Number/Name)** 2222 / *Modeling & Simulation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Expand and develop M&S tools, policy and processes, and Live/Virtual/Constructive laboratory infrastructure to allow the secure exchange of data enabling the effective development, modernization, and utilization of M&S Tools and Analytics and associated enterprise sandbox technologies. - Continue and expand upon M&S development tool sets with open standards and interfaces to support priority mission capabilities and related enterprise sandbox technologies. - Support M&S experiments and prototype events and generation of validated performance metrics, models, design, system-of-system requirements and enterprise mission areas, employing applicable enterprise sandbox technologies. - Advance and efficiently integrate leading edge M&S capabilities in response to complex emerging threats and future warfighting environments. ***FY 2024 Base Plans:*** - Improvements in the ability to model and simulate threat systems and environments that span application areas across force level analysis, high fidelity applications, digital engineering applications, and test and evaluation. - Prototype means, methods, and processes that apply artificial intelligence and/or machine learning to enhance simulation and simulation environments - Continue development of M&S capabilities to efficiently examine all domain warfighting capabilities and concepts to advanced, system of systems maritime warfighting. - Advancing cross-system and cross-service LVC interoperability and interface enhancements - Improvement and enhancements in ability to conduct physics-based modeling in support of naval application such as: fluid/structure interaction for severe conditions, dispersion of energy, multi-body interactions, multi-physics phenomena - Complete the develop M&S tools, policy and processes, and Live/Virtual/Constructive laboratory infrastructure to allow the secure exchange of data enabling the effective development, modernization, and utilization of M&S Tools and Analytics and associated enterprise sandbox technologies.					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0308601N / *Modeling & Simulation Support*	**Project (Number/Name)** 2222 / *Modeling & Simulation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Complete M&S development tool sets with open standards and interfaces to support priority mission capabilities and related enterprise sandbox technologies. - Complete Support M&S experiments and prototype events and generation of validated performance metrics, models, design, system-of-system requirements and enterprise mission areas, employing applicable enterprise sandbox technologies. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Increase from FY2023 to FY2024 due to project execution moving to higher impact as enterprise solutions to account for updated task phasing and required deliverables to support aligned enterprise M&S scaling for complex emerging threats and future warfighting requirements.					
Accomplishments/Planned Programs Subtotals	9.479	9.437	10.994	0.000	10.994

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

This is a non-ACAT program. The focus of the Navy Modeling and Simulation (M&S) efforts is to facilitate and enable the efficient use of M&S by minimizing duplication of M&S efforts and maximize the reuse of M&S and data. The Navy's Enterprise M&S is being extended and scaled for applicability across the Department of the Navy to enable open, affordable and rapid integrated M&S capability development.

This effort synergizes with and leverages/supports other funded efforts including Intelligence Mission Data (IMD) (RDTEN/PE 0307577N), Digital Warfare (RDTEN/PE 0604027N), Advanced Combat Systems Tech (RDTEN/PE 0603382N/Proj 0324), and Modeling & Simulation Support (OMN/4B3N).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0308601N / *Modeling & Simulation Support*	Project (Number/Name) 2222 / *Modeling & Simulation*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Infrastructures, integration and testing	Various	Various : Various	12.544	0.000		0.000		0.000		-		0.000	0.000	12.544	-
Analysis, policies, plans interoperability	Various	Various : Various	17.625	0.000		0.000		0.000		-		0.000	0.000	17.625	-
User interfaces, modeling modules, tactical software	Various	Various : Various	2.439	0.000		0.000		0.000		-		0.000	0.000	2.439	-
DWP-T - SYSCOMS	Various	Various : Various	0.874	1.001	Nov 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
DWP-T - Warfare Centers	WR	Various : Various	0.832	0.875	Nov 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
DWP-T - Other, Govt	Various	Various : Various	0.312	0.338	Mar 2022	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Digital Warfare Design (DWD) - SYSCOMS	Various	Various : Various	0.871	1.008	Nov 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Digital Warfare Design (DWD) - Warfare Centers	WR	Various : Various	0.830	0.936	Nov 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Digital Warfare Design (DWD) - Other, Govt	Various	Various : Various	0.312	0.350	Mar 2022	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Digital Warfare Applications (DWA) - SYSCOMS	Various	Various : Various	0.871	0.756	Nov 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Digital Warfare Applications (DWA) - Warfare Centers	WR	Various : Various	0.830	0.935	Nov 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Digital Warfare Applications (DWA) - Other, Govt	Various	Various : Various	0.312	0.350	Mar 2022	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Core Services	Various	Various : Various	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Community Services	Various	Various : Various	0.000	0.000		0.453	Nov 2022	0.360	Nov 2023	-		0.360	Continuing	Continuing	Continuing
Community Experiments and Prototypes	Various	Various : Various	0.000	0.000		3.597	Nov 2022	3.545	Nov 2023	-		3.545	Continuing	Continuing	Continuing
		Subtotal	38.652	6.549		4.050		3.905		-		3.905	Continuing	Continuing	N/A

Remarks

In FY23 and out, Modeling and Simulation support cost category alignments have been updated to better match R-2A activities and categories.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0308601N / *Modeling & Simulation Support*	**Project (Number/Name)** 2222 / *Modeling & Simulation*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Infrastructures, integration and testing	Various	Various : Various	7.305	0.000		0.000		0.000		-		0.000	0.000	7.305	-
Analysis, policies, plans interoperability	Various	Various : Various	2.770	0.000		0.000		0.000		-		0.000	0.000	2.770	-
User interfaces, modeling modules, tactical software	Various	Various : Various	1.109	0.000		0.000		0.000		-		0.000	0.000	1.109	-
Digital Warfare Platform (DWP) - SYSCOMS	Various	Various : Various	0.240	0.255	Nov 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Digital Warfare Platform (DWP) - Warfare Centers	WR	Various : Various	0.214	0.227	Dec 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Digital Warfare Platform (DWP) - Other, Govt	Various	Various : Various	0.080	0.085	Mar 2022	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Digital Warfare Design (DWD) - SYSCOMS	Various	Various : Various	0.240	0.255	Nov 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Digital Warfare Design (DWD) - Warfare Centers	WR	Various : Various	0.214	0.226	Dec 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Digital Warfare Design (DWD) - Other, Govt	Various	Various : Various	0.080	0.085	Mar 2022	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Digital Warfare Applications (DWA) - SYSCOMS	Various	Various : Various	0.240	0.256	Nov 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Digital Warfare Applications (DWA) - Warfare Centers	WR	Various : Various	0.212	0.226	Dec 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Digital Warfare Applications (DWA) - Other, Govt	Various	Various : Various	0.080	0.085	Mar 2022	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Core Services	Various	Various : Various	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Community Services	Various	Various : Various	0.000	0.000		1.843	Nov 2022	2.323	Nov 2023	-		2.323	Continuing	Continuing	Continuing
Community Experiments and Prototypes	Various	Various : Various	0.000	0.000		2.397	Nov 2022	3.422	Nov 2023	-		3.422	Continuing	Continuing	Continuing
		Subtotal	12.784	1.700		4.240		5.745		-		5.745	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0308601N / *Modeling & Simulation Support*	Project (Number/Name) 2222 / *Modeling & Simulation*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

In FY23 and out, Modeling and Simulation support cost category alignments have been updated to better match R-2A activities and categories.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Infrastructures, integration and testing	Various	Various : Various	9.740	0.000		0.000		0.000		-		0.000	0.000	9.740	-
Analysis, policies, plans interoperability	Various	Various : Various	3.592	0.000		0.000		0.000		-		0.000	0.000	3.592	-
User interfaces, modeling modules, tactical software	Various	Various : Various	1.437	0.000		0.000		0.000		-		0.000	0.000	1.437	-
Digital Warfare Platform (DWP) - SYSCOMS	Various	Various : Various	0.130	0.178	Nov 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Digital Warfare Platform (DWP) - Warfare Centers	WR	Various : Various	0.104	0.167	Mar 2022	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Digital Warfare Platform (DWP) - Other, Govt	Various	Various : Various	0.050	0.063	Dec 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Digital Warfare Design (DWD) - SYSCOMS	Various	Various : Various	0.130	0.177	Mar 2022	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Digital Warfare Design (DWD) - Warfare Centers	WR	Various : Various	0.104	0.166	Nov 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Digital Warfare Design (DWD) - Other, Govt	Various	Various : Various	0.050	0.063	Dec 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Digital Warfare Applications (DWA) - SYSCOMS	Various	Various : Various	0.130	0.188	Dec 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Digital Warfare Applications (DWA) - Warfare Centers	WR	Various : Various	0.102	0.166	Nov 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0308601N / *Modeling & Simulation Support*	**Project (Number/Name)** 2222 / *Modeling & Simulation*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Digital Warfare Applications (DWA) - Other, Govt	Various	Various : Various	0.050	0.062	Mar 2022	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Core Services	Various	Various : Various	0.000	0.000		1.147	Nov 2022	1.344	Nov 2023	-		1.344	Continuing	Continuing	Continuing
Community Services	Various	Various : Various	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
Community Experiments and Prototypes	Various	Various : Various	0.000	0.000		0.000		0.000		-		0.000	0.000	0.000	-
		Subtotal	15.619	1.230		1.147		1.344		-		1.344	Continuing	Continuing	N/A

Remarks

In FY23 and out, Modeling and Simulation support cost category alignments have been updated to better match R-2A activities and categories.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	67.055	9.479		9.437		10.994		-		10.994	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0308601N / *Modeling & Simulation Support*	**Project (Number/Name)** 2222 / *Modeling & Simulation*

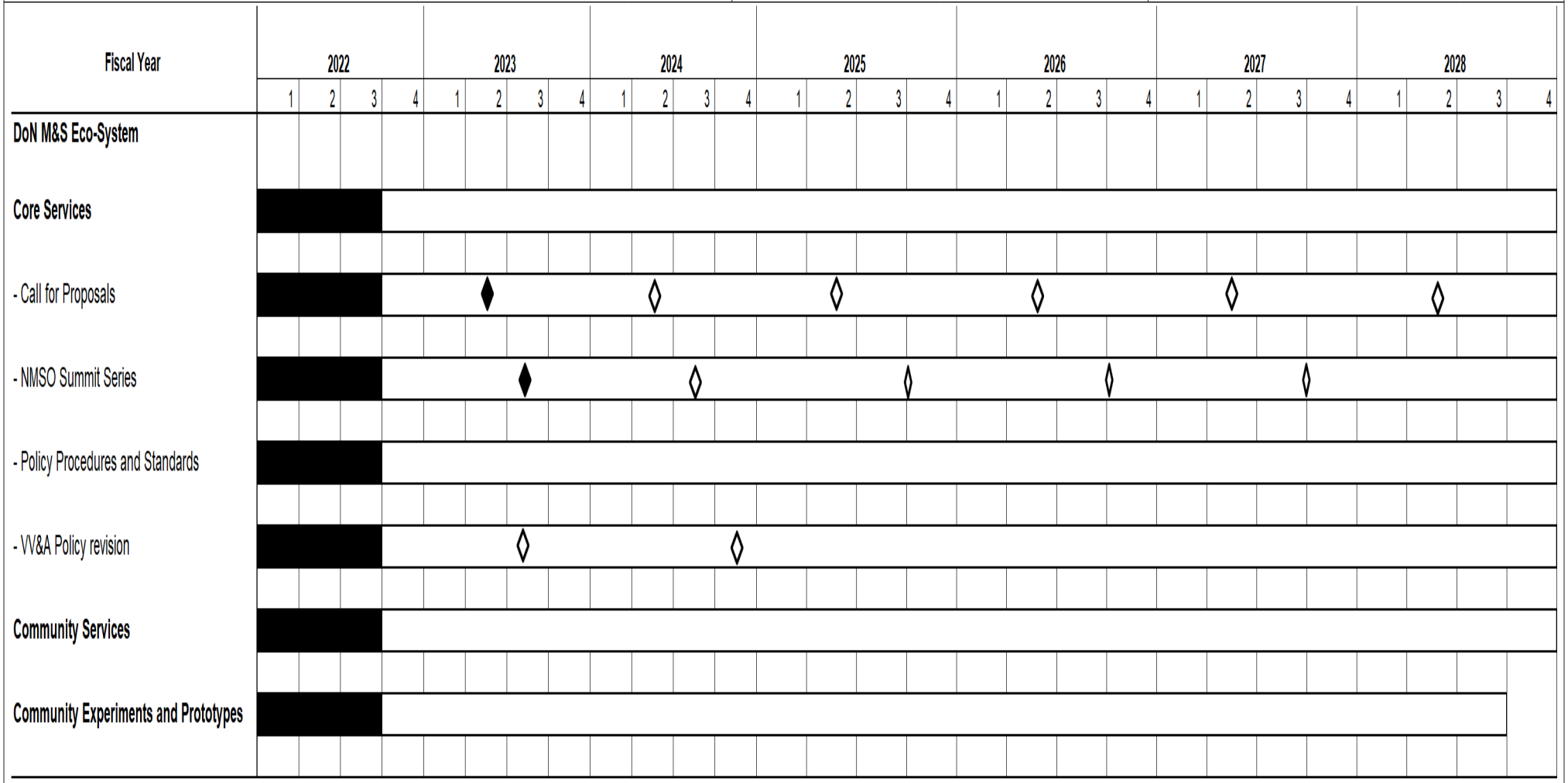


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0308601N / *Modeling & Simulation Support*	**Project (Number/Name)** 2222 / *Modeling & Simulation*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2222				
Core Services: Call for Proposals	1	2022	3	2028
Core Services: Summit Series	1	2022	4	2028
Core Services: Policy Procedures and Standards	1	2022	4	2028
Core Services: VV&A Policy revision	1	2022	4	2028
Community Services: Community Services	1	2022	4	2028
Community Experiments and Prototypes: Community Experiments and Prototypes	1	2022	3	2028

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0702207N *I Depot Maintenance (NON-IF)*

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	353.738	33.870	26.248	23.248	-	23.248	27.977	4.520	2.519	2.572	Continuing	Continuing
3030: *FA-18 SLAP*	277.020	8.277	11.323	9.472	-	9.472	9.296	3.264	2.432	2.482	Continuing	Continuing
3182: *T-45 SLAP*	44.114	4.426	0.320	0.000	-	0.000	0.490	0.238	0.000	0.000	0.000	49.588
3384: *MH-60 SLAP*	32.604	21.167	14.605	13.776	-	13.776	18.191	1.018	0.087	0.090	Continuing	Continuing

A. Mission Description and Budget Item Justification

3030: A significant portion of the F/A-18 and EA-18G airframe is believed to have additional inherent capability and a life extension is possible for many portions of the airframe. The F/A-18 Service Life Assessment Program (SLAP) is assessing the structural and subsystem conditions of the F/A-18 fleet in order to determine what modifications are necessary to extend the aircraft design life limits to allow it to achieve Chief of Naval Operations (CNO) inventory requirements. This effort is required to be conducted for these airframes and subsystems to ascertain what actions and modifications must be taken to safely operate each system beyond its designed life until the targeted end of service life. Without SLAP and the follow on Service Life Extension Program (SLEP), aircraft are retired from the USN inventory when a design service life metric is reached. RDTE funds will support aircraft teardown to validate SLAP analysis, identify unknown fatigue areas and assess the aircraft's material condition.

3182: The T-45 aircraft structure is currently fatigue limited to 14,400 flight hours based on initial full-scale fatigue tests. This service life limit prevents the T-45 fleet from meeting Integrated Production Plan (IPP) past 2025. Studies demonstrate that the 14,400 flight hour service life can be extended, with a Service Life Extension Program (SLEP), to 21,600 flight hours, which will support meeting IPP until 2035. A T-45 Structural Service Life Assessment Program (SLAP) was completed in February 2012. In order for the T-45 to meet IPP until 2035, it is also necessary to assess the subsystems of the T-45 in their ability to remain viable.

In FY13 an initial subsystem assessment, based on the updated fleet aircraft usage spectrum and future predicted training missions of the T-45 aircraft, found 79 dispositions requiring further analysis, teardowns, age explorations, recertification and/or testing . The assessment of the subsystems that make up these 79 dispositions will address all critical subsystems required and their ability to maintain IPP/NTR until 2035, analysis and studies will be conducted to outline improvements, assess manufacturing capabilities, prototype redesign and test of subsystems for trainer aircraft.

3384: MH-60 SLAP is assessing the primary aircraft structure and subsystem condition of the MH-60S fleet in order to evaluate the airframe's ability to meet its designed service life of 10,000 hours. SLAP will determine the efforts necessary to extend the aircraft design life limits to meet CNO operational inventory requirements through FY 2040. The highest flight time MH-60S helicopters are expected to exceed the design life limit in 2024, at which time as many as 30 aircraft per year could be removed from flight status without a SLAP and follow-on SLEP directly impacting Combat Logistics, Surface Warfare (SUW), Combat Search and Rescue (CSAR), Naval Special Warfare (NSW) Support, Airborne Mine Countermeasures (AMCM), and operational capabilities and capacity. MH-60 SLAP is comprised of two distinct assessments: Fatigue Life Assessment (FLA), which will establish the fatigue life of the aircraft and air vehicle systems and Subsystem Life Assessment (SLA), which will examine subsystems that are critical to safe operations and identify risk mitigation strategies for critical components. FLA consists of structural investigations of the cockpit beams, main gearbox beams/frames, upper deck, engine mount, lower tub, main landing gear, tail landing gear, cargo hook, transition splice and tie-down fittings/

structure, tailcone, tail gearbox, intermediate gearbox, stabilator, manufactured joints/splices, and flight controls support structure. SLA will evaluate engines, rotor brake, hydraulic, flight controls, avionics components and infrastructure to identify over-and-above inspections, overhaul intervals or replacement schedules to fly beyond the current design limit assumption. Analysis will be further refined, augmented with aircraft, specific system and wiring teardowns, inspections, and tests; data analysis; and development of models and tools, producing results that will continue inform SLEP ECP development. Engineering for design/development will ramp for Engineering Change Proposals (ECPs) for a phased SLEP solution. Additionally, a plan will be developed to convert the MH-60S Block 1 aircraft to Block 3B aircraft, extending the mission profile for these aircraft and ultimately providing the fleet with more flight hours.

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. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	35.030	26.248	46.194	-	46.194
Current President's Budget	33.870	26.248	23.248	-	23.248
Total Adjustments	-1.160	0.000	-22.946	-	-22.946
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.160	0.000			
• Program Adjustments	0.000	0.000	-16.100	-	-16.100
• Rate/Misc Adjustments	0.000	0.000	-6.846	-	-6.846

Change Summary Explanation

Cost:

PU 3030: The FY2024 funding request was decreased by $10.000 million for F/A-18E/F technical correction to align funding to Block III Electronic Warfare (EW) capability and by $2.248 million for miscellaneous adjustments.

PU 3182: FY2024 funding decreased by $0.6M to account for miscellaneous adjustments.

PU 3384: FY2024 funding decreased by $0.829M due to miscellaneous adjustments.

Technical:

PU 3030: Not Applicable

PU 3182: Not applicable

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0702207N *I Depot Maintenance (NON-IF)*

PU 3384: Not applicable

Schedule:

PU 3030: Revised schedule to allow for agile execution of F/A-18E/F and EA-18G SLAP efforts.
PU 3182: Not applicable
PU 3384: Not applicable

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0702207N / *Depot Maintenance (NON-IF)*	Project (Number/Name) 3030 / *FA-18 SLAP*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
3030: *FA-18 SLAP*	277.020	8.277	11.323	9.472	-	9.472	9.296	3.264	2.432	2.482	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The F/A-18 and EA-18G Service Life Assessment Program (SLAP) is assessing the structural and subsystem conditions of the F/A-18 fleet in order to determine what modifications are necessary to extend the aircraft designed life limits to allow it to achieve Chief of Naval Operations (CNO) inventory requirements. The goal of the F/A-18 SLAP program is to identify critical structures and components that can achieve the extended service life limit goals. SLAP consists of structural investigations of the main landing gear, arresting hook and catapult back-up structures, vertical tails, wings and fuselage. A second effort is to evaluate the subsystem components (hydraulics, wiring, actuators, etc) to identify over and above inspections, overhaul intervals or replacement schedules to fly past design life limits. The current life limits for the F/A-18 E/F are 6,000 Flight Hours (FH), 2,250 catapults/arrestments (Cat/Traps) and 15,750 total landings; EA-18G are 7,500 FH, 2,550 CAT/Traps and 17,850 total landings. The F/A-18 SLAP program of record states the SLAP goals as 10,000 FH, 2,917 Cat/Traps and 18,750 total landings. The primary objective of F/A-18 and EA-18G SLAP is to determine if the stated SLAP goals are feasible and to determine what modifications are required, if applicable, to extend the airframe. An increase in total landings and flight hours would allow the F/A-18 aircraft to operate for a prolonged period of time in order to meet CNO inventory requirements. The requirements are integrated with the Joint Strike Fighter planned introduction to ensure mission readiness. This effort is required to be conducted for these airframes and subsystems to ascertain what actions and modifications must be taken to safely operate each system beyond its designed life until the targeted end of service life.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: F/A-18 SLAP	3.515	3.871	3.350	0.000	3.350
Articles:	-	-	-	-	-
Description: The current design life limits do not support USN inventory requirements. Funding supports assessing the structural and component condition of the F/A-18 fleet in order to determine what modifications are necessary to extend the aircraft designed life limits to allow it to achieve CNO inventory requirements.					
FY 2023 Plans: Continue stress/fatigue/structural/crack growth analyses of numerous data points and conduct required Finite Element Model (FEM) runs/correlations, evaluate Composites SLAP and develop a Hotspot repository with analysis findings as well as subsystems efforts with the expectation of extending the current service life of F/A-18E/F from the design limits to the SLAP goals in order to prepare for SLEP execution.					
FY 2024 Base Plans: Continue stress/fatigue/structural/crack growth analyses of numerous data points; conduct required Finite Element Model (FEM) runs/correlations, evaluate SLAP composites and hotspot repository with analysis					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0702207N / *Depot Maintenance (NON-IF)*	**Project (Number/Name)** 3030 / *FA-18 SLAP*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
findings. Continue subsystems efforts with the expectation of extending the current service life of F/A-18E/F from the design limits to the SLAP goals in order to prepare for SLEP execution. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease of $0.521 million from FY2023 to FY2024 is due to the completion of Aft fuselage structural analysis.					
Title: EA-18G SLAP	4.762	7.452	6.122	0.000	6.122
Articles:	-	-	-	-	-
Description: The current design life limits do not support USN inventory requirements. Funding supports assessing the structural condition of the EA-18G fleet in order to determine what modifications are necessary to extend the aircraft designed life limits to allow it to achieve CNO inventory requirements. The EA-18G SLAP leverages lessons learned from the F/A-18 A-F SLAP in order to achieve efficiencies in continuity of operations. ***FY 2023 Plans:*** Continuation of ongoing stress/fatigue/structural analysis of numerous data points as well as Finite Element Model (FEM) runs/correlation and subsystems efforts to provide exploitation of complete structural/fatigue and subsystem testing with the expectation of extending the current service life of EA-18G from the design limits to the SLAP goals. Locations encompass the forward, center and aft fuselage, inner and outer wings, as well as landing gear. Sonic and Thermal analysis will be performed on numerous structural and composite skin locations to assess elevated temperatures with the expectation of extending the current life of the EA-18G Growler. Aircraft Teardown assessments continue to be performed to analyze the fatigue and material condition of fleet aircraft to determine what modifications or inspections are required to extend the current life of the aircraft. Crack growth analysis and crack initiation will be performed to determine recurring requirements to extend the platform beyond its current service life limits. These engineering results will address aircraft fuselage and wing structure changes required to meet service life beyond 7,500 hours. ***FY 2024 Base Plans:*** Continuation of ongoing stress/fatigue/structural analysis of numerous data points as well as Finite Element Model (FEM) runs/correlation and subsystems efforts to provide exploitation of complete structural/fatigue and subsystem testing with the expectation of extending the current service life of EA-18G from the design limits to the SLAP goals. Locations encompass the forward, center and aft fuselage, inner and outer wings, as well as landing gear. Sonic and Thermal analysis will be performed on numerous structural and composite skin locations					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0702207N / *Depot Maintenance (NON-IF)*	**Project (Number/Name)** 3030 / *FA-18 SLAP*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
to assess elevated temperatures with the expectation of extending the current life of the EA-18G Growler. Aircraft Teardown assessments continue to be performed to analyze the fatigue and material condition of fleet aircraft to determine what modifications or inspections are required to extend the current life of the aircraft. Crack growth analysis and crack initiation will be performed to determine recurring requirements to extend the platform beyond its current service life limits. These engineering results will address aircraft fuselage and wing structure changes required to meet service life beyond 7,500 hours. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Decrease of $1.330 million from FY2023 to FY2024 is due to efficiencies gained from overlapping phases for structures and subsystem efforts between E/F and G.					
Accomplishments/Planned Programs Subtotals	8.277	11.323	9.472	0.000	9.472

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• APN/0525: *F-18 Series (OSIP 020-14)*	327.000	461.118	640.236	-	640.236	724.628	953.615	1,068.998	1,153.697	2,988.897	21,847.456
• APN/0505: *F/A-18EF & EA-18G Modernization & Sustainment*	445.721	552.849	605.416	-	605.416	531.235	573.367	592.884	771.385	5,457.277	9,916.539

Remarks

D. Acquisition Strategy

The Service Life Assessment Program (SLAP) program employs sole source contracts with Boeing, the aircraft prime manufacturer. SLAP further decomposes program of record goals into smaller discrete steps, developing requirements to extend flight hours (FH) from 6,000 to 10,000. These efforts will provide the raw engineering data to develop aircraft modifications to extend total aircraft landings, Cat/Traps, and FH. The F/A-18 and EA-18G SLAP Program consists of two major engineering efforts: the aircraft structural assessment and the aircraft subsystems assessment. Both efforts are broken into multiple phases which develop tools and models, evaluate current aircraft usage and develop concepts to extend aircraft life to meet CNO inventory objectives. The program will utilize structural fatigue testing data and actual fleet usage data with the expectation of extending the service life of the F/A-18 aircraft. Conducting both F/A-18E/F and EA-18G SLAP to study the aircraft lifetime will provide a better estimate of aircraft service life and a follow on Service Life Extension Program (SLEP).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0702207N / *Depot Maintenance (NON-IF)*	Project (Number/Name) 3030 / *FA-18 SLAP*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development SLAP F/A-18 E/F	SS/CPFF	Boeing : St. Louis, MO	170.156	2.156	Dec 2021	2.666	Dec 2022	2.072	Dec 2023	-		2.072	Continuing	Continuing	Continuing
Product Development SLAP EA-18G	SS/CPFF	Boeing : St. Louis, MO	15.949	2.811	Dec 2021	5.847	Dec 2022	4.617	Dec 2023	-		4.617	Continuing	Continuing	Continuing
Prior Year Prod Dev cost no longer funded in FYDP	SS/CPFF	Boeing : St. Louis, MO	28.775	0.000		0.000		0.000		-		0.000	0.000	28.775	28.775
		Subtotal	214.880	4.967		8.513		6.689		-		6.689	Continuing	Continuing	N/A

Remarks

Decrease from FY2023 to FY2024 due to a reprioritization of required stress/fatigue/structures analysis for the EA-18G SLAP product development.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SLAP F/A-18 E/F	WR	NAWCAD : Patuxent River, MD	11.503	0.308	Dec 2021	0.537	Dec 2022	0.599	Dec 2023	-		0.599	Continuing	Continuing	Continuing
SLAP F/A-18 E/F	WR	FRC Southwest : San Diego, CA	8.704	0.705	Dec 2021	0.227	Dec 2022	0.232	Dec 2023	-		0.232	Continuing	Continuing	Continuing
SLAP F/A-18 E/F	WR	FRC Southeast : Jacksonville, FL	0.000	0.039	Dec 2021	0.129	Dec 2022	0.132	Dec 2023	-		0.132	0.134	0.434	-
SLAP EA-18G	WR	NAWCAD : Patuxent River, MD	8.002	0.571	Dec 2021	0.897	Dec 2022	0.783	Dec 2023	-		0.783	Continuing	Continuing	Continuing
SLAP EA-18G	WR	FRC Southwest : San Diego, CA	3.470	1.309	Dec 2021	0.424	Dec 2022	0.433	Dec 2023	-		0.433	Continuing	Continuing	Continuing
SLAP EA-18G	WR	FRC Southeast : Jacksonville, FL	0.297	0.071	Dec 2021	0.179	Dec 2022	0.181	Dec 2023	-		0.181	0.185	0.913	-
Prior Year Support cost no longer funded in FYDP	Various	Various : Various	6.825	0.000		0.000		0.000		-		0.000	0.000	6.825	-
		Subtotal	38.801	3.003		2.393		2.360		-		2.360	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0702207N / *Depot Maintenance (NON-IF)*	**Project (Number/Name)** 3030 / *FA-18 SLAP*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation (DT&E)	WR	NAWCAD : Patuxent River, MD	0.157	0.000	Dec 2021	0.106	Dec 2022	0.108	Dec 2023	-		0.108	Continuing	Continuing	Continuing
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	Various	Various : Various	9.396	0.000		0.000		0.000		-		0.000	0.000	9.396	-
		Subtotal	9.553	0.000		0.106		0.108		-		0.108	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	Various	NAVAIR : Patuxent River, MD	0.535	0.075	Oct 2021	0.075	Oct 2022	0.075	Oct 2023	-		0.075	Continuing	Continuing	Continuing
Program Management Support (Seaport-CSS)	C/CPFF	Tekla : Patuxent River, MD	0.158	0.108	Apr 2022	0.109	Apr 2023	0.111	Apr 2024	-		0.111	Continuing	Continuing	Continuing
Program Management Support	C/CPFF	Engility : Patuxent River, MD	1.472	0.124	Dec 2021	0.127	Dec 2022	0.129	Dec 2023	-		0.129	Continuing	Continuing	Continuing
Prior Year Management Services cost no longer funded in FYDP	Various	Various : Various	11.621	0.000		0.000		0.000		-		0.000	0.000	11.621	-
		Subtotal	13.786	0.307		0.311		0.315		-		0.315	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	277.020	8.277		11.323		9.472		-		9.472	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0702207N / *Depot Maintenance (NON-IF)*	**Project (Number/Name)** 3030 / *FA-18 SLAP*

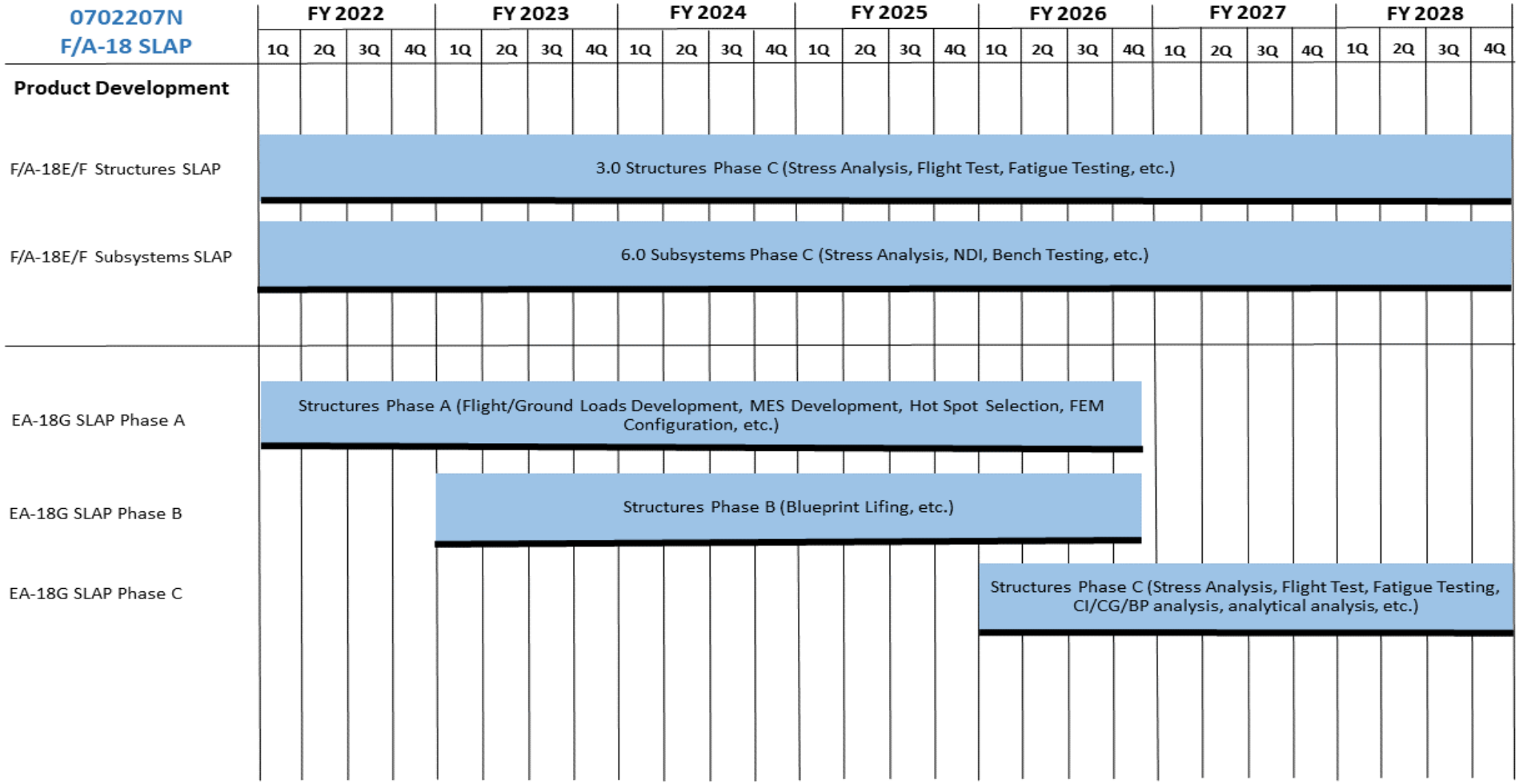


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0702207N / *Depot Maintenance (NON-IF)*	**Project (Number/Name)** 3030 / *FA-18 SLAP*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Service Life Assessment Program F/A-18 & EA-18G				
F/A-18E/F SLAP: Structures: 3.0 Structures Analysis Phase C	1	2022	4	2028
F/A-18E/F SLAP: Subsystems: 6.0 Subsystems Analysis Phase C	1	2022	4	2028
EA-18G SLAP: Structures: Analysis Phase A	1	2022	4	2026
EA-18G SLAP: Structures: Analysis Phase B	1	2023	4	2026
EA-18G SLAP: Structures: Analysis Phase C	1	2026	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0702207N / *Depot Maintenance (NON-IF)*	Project (Number/Name) 3182 / *T-45 SLAP*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
3182: *T-45 SLAP*	44.114	4.426	0.320	0.000	-	0.000	0.490	0.238	0.000	0.000	0.000	49.588
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The T-45 Service Life Assessment Program (SLAP) is assessing the structural and subsystem conditions of the T-45 fleet in order to determine what modifications are necessary to extend the aircraft designed life limits to allow it to achieve Chief of Naval Operations (CNO) inventory requirements. The goal of the T-45 SLAP program is to identify critical structures and components that can extend the aircraft designed service life to support IPP and Naval Flight Officer Training Requirements (NTR) until 2035. This initial subsystem assessment, based on the updated fleet aircraft usage spectrum and future predicted training missions of the T-45 aircraft, found 79 dispositions requiring further analysis, teardowns, age explorations, recertification and/or testing. The assessment of the subsystems that make up these 79 dispositions will address all critical subsystems required and their ability to maintain IPP/NTR until 2035, analysis and studies will be conducted to outline improvements, assess manufacturing capabilities, prototype redesign and test of subsystems for trainer aircraft. The current life limits for the T-45 is 14,400 Flight Hours (FH). The T-45 SLAP program of record states the SLAP goals is 21,600 FH. This effort is required to be conducted for these subsystems to ascertain what actions and modifications must be taken to safely operate each system beyond its designed life until the targeted end of service life.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: T-45 SLAP	4.426	0.320	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: Funding supports development, integration, test, and certification of a Subsystem SLAP to determine modifications necessary to extend service life through 2035.					
FY 2023 Plans: N/A					
FY 2024 Base Plans: N/A					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: Decrease of $0.596 in FY2024 from labor associated with the T-45 Structural Service Life Assessment Program (SLAP).					
Accomplishments/Planned Programs Subtotals	4.426	0.320	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0702207N / *Depot Maintenance (NON-IF)*	**Project (Number/Name)** 3182 / *T-45 SLAP*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• APN/0569: *T-45 Service Life Ext Prg (SLEP) OSIP 022-14*	155.366	199.356	170.357	-	170.357	169.978	182.577	186.029	192.593	165.995	2,997.115

Remarks

D. Acquisition Strategy

The subsystem SLAP is a sole source contract effort with Boeing, the aircraft prime contractor. SLAP consists of an analysis of the aircraft subsystems (e.g., Global Positioning System Inertial Navigation Assembly or Mission Data Processor). The analysis will facilitate the future development of subsystem modifications and/or redesigns necessary to extend their life until 2035.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0702207N / *Depot Maintenance (NON-IF)*	**Project (Number/Name)** 3182 / *T-45 SLAP*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development SLAP T-45	SS/CPFF	Boeing : St. Louis, MO	27.866	3.584	Feb 2022	0.000		0.000		-		0.000	0.000	31.450	31.594
Product Development SLAP T-45 NACES	C/FFP	Martin Baker : United Kingdom	0.450	0.000		0.000		0.000		-		0.000	0.000	0.450	0.450
		Subtotal	28.316	3.584		0.000		0.000		-		0.000	0.000	31.900	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Technical Support	WR	NAWCAD : Patuxent River, MD	8.458	0.737	Nov 2021	0.320	Nov 2022	0.000		-		0.000	0.728	10.243	-
Engineering Technical Support	WR	NADEP : Jacksonville, FL	2.969	0.105	Nov 2021	0.000		0.000		-		0.000	0.000	3.074	-
Engineering and Logistics Support	WR	NAWCTSD : Orlando, FL	0.081	0.000	Nov 2021	0.000		0.000		-		0.000	0.000	0.081	-
Prior Year Support Costs no longer in FYDP	Various	Various : Various	3.708	0.000		0.000		0.000		-		0.000	0.000	3.708	-
		Subtotal	15.216	0.842		0.320		0.000		-		0.000	0.728	17.106	N/A

Remarks

Decrease of $0.596 in FY2024 for labor associated with the T-45 Structural Service Life Assessment Program (SLAP).

Management Services ($ in Millions)

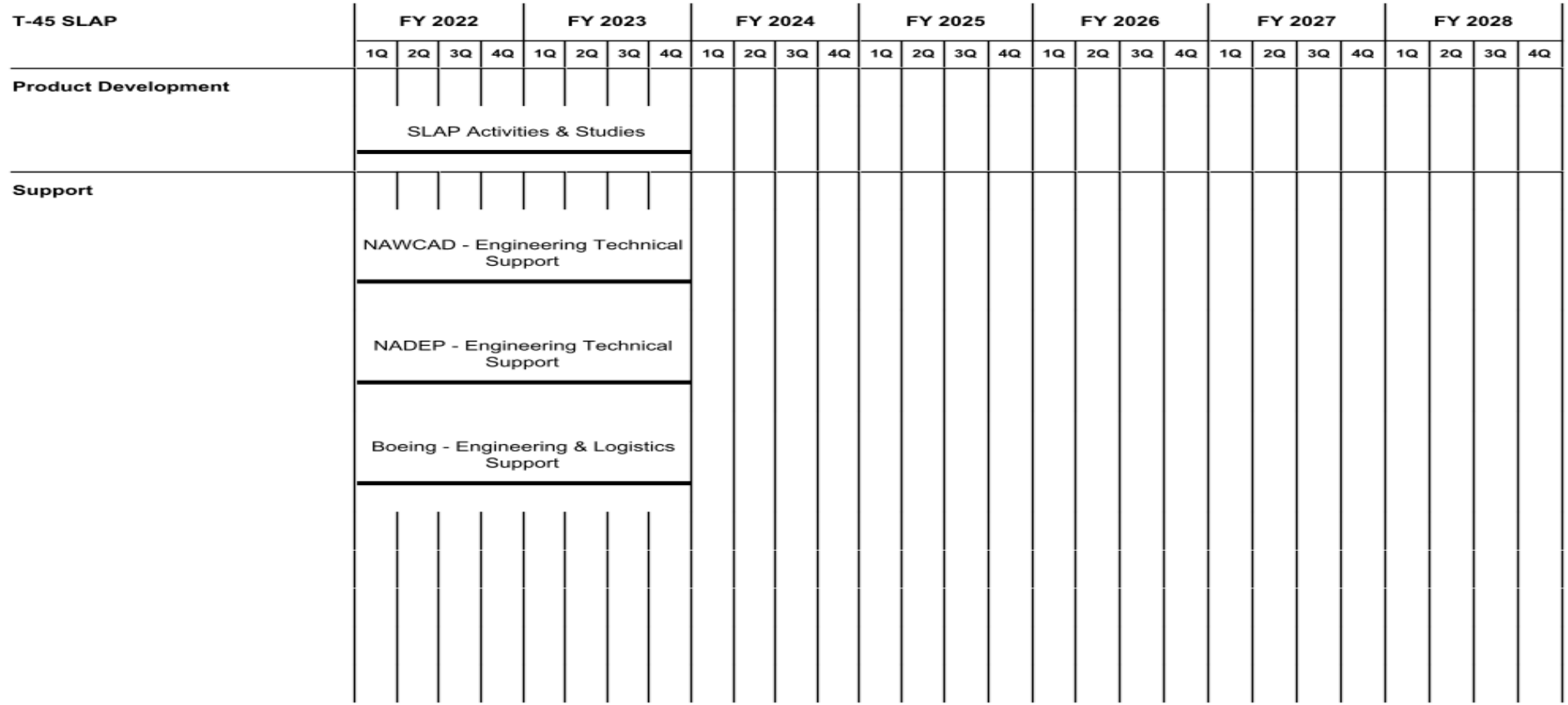
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Travel	Various	NAVAIR : Patuxent River, MD	0.582	0.000	Nov 2021	0.000		0.000		-		0.000	0.000	0.582	-
		Subtotal	0.582	0.000		0.000		0.000		-		0.000	0.000	0.582	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0702207N / *Depot Maintenance (NON-IF)*	Project (Number/Name) 3182 / *T-45 SLAP*	

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	44.114	4.426		0.320		0.000		-		0.000	0.728	49.588	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0702207N / *Depot Maintenance (NON-IF)*	**Project (Number/Name)** 3182 / *T-45 SLAP*



2024OSD - 0702207N - 3182

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0702207N / *Depot Maintenance (NON-IF)*	**Project (Number/Name)** 3182 / *T-45 SLAP*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
T-45 SLAP				
Product Development: Subsystem SLAP Activities & Studies	1	2022	4	2023
Support: NAWCAD - Engineering Technical Support	1	2022	4	2023
Support: NADEP - Engineering Technical Support	1	2022	4	2023
Support: Boeing - Engineering & Logistics Support	1	2022	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0702207N / *Depot Maintenance (NON-IF)*	Project (Number/Name) 3384 / *MH-60 SLAP*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
3384: *MH-60 SLAP*	32.604	21.167	14.605	13.776	-	13.776	18.191	1.018	0.087	0.090	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

MH-60 SLAP is assessing the primary aircraft structure and subsystem condition of the MH-60S fleet in order to evaluate the airframe's ability to meet its designed service life of 10,000 hours. SLAP will determine the efforts necessary to extend the aircraft design life limits to meet Chief of Naval Operations (CNO) operational inventory requirements through FY 2040. The highest flight time MH-60S helicopters are expected to exceed the design life limit in 2024, at which time as many as 30 aircraft per year could be removed from flight status without a SLAP and follow-on Service Life Extension Program (SLEP). MH-60 SLAP is comprised of two distinct assessments: FLA, which will establish the fatigue life of the aircraft and air vehicle systems and Subsystem Life Assessment (SLA), which will examine subsystems that are critical to safe operations and identify risk mitigation strategies for critical components. FLA consists of structural investigations of the cockpit beams, main gearbox beams/frames, upper deck, engine mount, lower tub, main landing gear, tail landing gear, cargo hook, transition splice and tie-down fittings/structure, tailcone, tail gearbox, intermediate gearbox, stabilator, manufactured joints/splices, and flight controls support structure. SLA will evaluate engines, rotor brake, hydraulic, flight controls, avionics components and infrastructure, etc., to identify over-and-above inspections, overhaul intervals or replacement schedules to fly beyond the current design limit assumption.

FY 2024 budget requests funds to continue the SLAP analysis and engineering development that needs to occur to extend the useful life of the MH-60S until transition to Future Vertical Lift-Maritime Strike (FVL-MS). Design and development engineering will continue for inspection intervals, component replacement intervals, and other strategies that will result in Engineering Change Proposals (ECP's) for the phased SLEP solution. The ECP development effort to convert the MH-60S Block 1 aircraft to Block 3B aircraft, engineering development efforts will be completed, extending the mission profile for these aircraft and ultimately providing the fleet with more flight hours. Preliminary efforts for the MH-60R usage spectrum which would be required for a future Fatigue Life Assessment will be conducted.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: MH-60 SLAP	21.167	14.605	13.776	0.000	13.776
Articles:	-	-	-	-	-
Description: The current design life limits do not support United States Navy inventory requirements to bridge to a follow-on program procurement. The MH-60S will begin reaching conditional 10,000 hour service life limits in 2024. No full-scale fatigue test or comprehensive structural analysis was performed during initial development. Funding will support assessing the structural and subsystem condition of the MH-60S fleet in order to determine what modifications are necessary to extend the aircraft designed life limits to bridge that gap.					
FY 2023 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0702207N / *Depot Maintenance (NON-IF)*	**Project (Number/Name)** 3384 / *MH-60 SLAP*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Continue to conduct SLEP engineering development and analysis that needs to occur to extend the useful life of the MH-60S until transition to Future Vertical Lift-Maritime Strike (FVL-MS). Continue the Block 3B upgrade, engineering development for tired wiring, and repair and replacement modifications. Continue engineering design and development efforts for Engineering Change Proposals (ECPs) in support of a phased SLEP solution. Initial engineering in support of MH-60R Usage Spectrum. ***FY 2024 Base Plans:*** Continue to conduct SLEP engineering development and analysis that needs to occur to extend the useful life of the MH-60S until transition to Future Vertical Lift-Maritime Strike (FVL-MS). Complete the Block 3B upgrade, engineering development for tired wiring, and repair and replacement modifications. Continue/ramp engineering design and development efforts for Engineering Change Proposals (ECPs) in support of a phased SLEP solution. Initial engineering in support of MH-60R Usage Spectrum. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY2023 to FY24 funding decreased by $0.829M to align with MH-60S ECP development requirements and phased approach schedule.					
Accomplishments/Planned Programs Subtotals	21.167	14.605	13.776	0.000	13.776

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• APN/0530: *MH-60 Series*	0.000	18.996	16.145	-	16.145	17.605	31.051	33.255	55.295	Continuing	Continuing

Remarks

OSIP 001-23 MH-60S SLEP Only relates to PU 3384.

D. Acquisition Strategy

The SLAP program employs a sole source contract with Lockheed Martin; the aircraft prime manufacturer; a sole source contract with General Electric, the engine provider; sole source contracts with MERCER and Eclypse for data analysis and tool development; a sole source contract with STADCO, the alignment fixture provider; and government engineering and logistics expertise at Naval Air Station Patuxent River, MD; H-60 Fleet Support Team at Cherry Point, NC; and Naval Air Station North Island, Coronado, CA. Analyses from the SLAP efforts will provide the engineering data necessary to develop aircraft structural, component, and subsystem modifications to extend service life flight hour limits in order to avoid flight line inventory shortfalls. The MH-60S SLAP consists of two major engineering efforts: the

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0702207N / *Depot Maintenance (NON-IF)*	**Project (Number/Name)** 3384 / *MH-60 SLAP*

FLA and the aircraft SLA. These efforts are broken into multiple phases which develop tools and models, assess current aircraft usage, and develop concepts to extend aircraft life to meet Chief of Naval Operations objectives. The program will combine exploitation of aircraft deep look inspections and actual historical fleet usage. Conducting MH-60S SLAP to study the aircraft lifetime will define aircraft service life and is required to determine scope of the future follow-on SLEP.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0702207N / *Depot Maintenance (NON-IF)*	Project (Number/Name) 3384 / *MH-60 SLAP*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Fatigue Life Assessment MH-60S	SS/CPFF	Lockheed Martin : Owego, NY	11.569	1.600	Dec 2021	0.000		0.000		-		0.000	0.000	13.169	13.169
MH-60S ECP SLEP Development	SS/CPFF	Lockheed Martin : Owego, NY	0.000	9.160	May 2022	6.748	May 2023	8.440	May 2024	-		8.440	13.486	37.834	37.834
Block Upgrade Development	SS/CPFF	Lockheed Martin : Owego, NY	5.878	6.289	Jan 2022	3.129	Jan 2023	0.500	Jan 2024	-		0.500	0.000	15.796	15.796
Prior Year Prod Dev Cost no longer funded in FYDP	Various	Various : Various	4.240	0.000		0.000		0.000		-		0.000	0.000	4.240	4.240
		Subtotal	21.687	17.049		9.877		8.940		-		8.940	13.486	71.039	N/A

Remarks

FY 2024 decrease of $0.937 in Product Development is to align with MH-60S ECP development requirements and phased approach schedule.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SLAP MH-60S	WR	NAWCAD : Patuxent River, MD	4.471	1.466	Nov 2021	1.834	Nov 2022	1.872	Nov 2023	-		1.872	1.951	11.594	-
SLAP MH-60S	WR	Various : Various	3.086	1.118	Nov 2021	1.140	Nov 2022	1.160	Nov 2023	-		1.160	1.172	7.676	-
Eng & Tech Srvc (Non FFRDC)	Various	Various : Various	0.760	0.189	May 2022	0.250	Nov 2022	0.270	Nov 2023	-		0.270	0.275	1.744	-
SLAP MH-60R Usage Spectrum	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.250	Oct 2022	0.255	Nov 2023	-		0.255	1.000	1.505	-
		Subtotal	8.317	2.773		3.474		3.557		-		3.557	4.398	22.519	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0702207N / *Depot Maintenance (NON-IF)*	**Project (Number/Name)** 3384 / *MH-60 SLAP*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Technical Support SLAP MH-60S	WR	NAWCAD : Patuxent River, MD	1.379	0.765	Nov 2021	0.721	Nov 2022	0.735	Nov 2023	-		0.735	Continuing	Continuing	Continuing
Mgmt Supt Services (Non FFRDC)	Various	Various : Various	1.164	0.562	May 2022	0.514	May 2023	0.524	Nov 2023	-		0.524	0.532	3.296	-
Travel	Various	NAVAIR : Patuxent River, MD	0.057	0.018	Oct 2021	0.019	Oct 2022	0.020	Nov 2023	-		0.020	0.020	0.134	-
		Subtotal	2.600	1.345		1.254		1.279		-		1.279	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	32.604	21.167		14.605		13.776		-		13.776	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0702207N / *Depot Maintenance (NON-IF)*	**Project (Number/Name)** 3384 / *MH-60 SLAP*

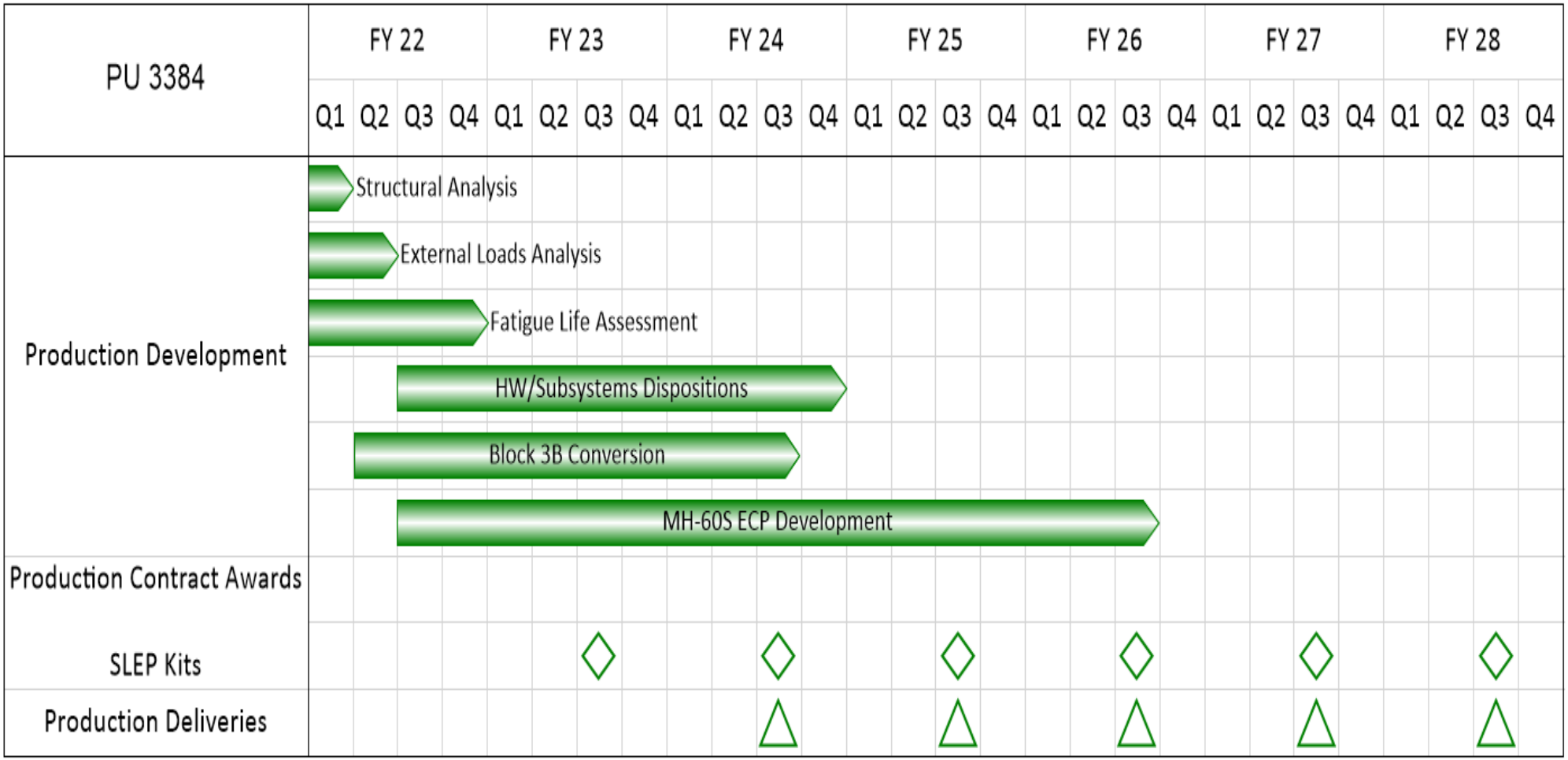


Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0702207N / *Depot Maintenance (NON-IF)*	**Project (Number/Name)** 3384 / *MH-60 SLAP*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3384				
Structural Analysis	1	2022	1	2022
External Loads Analysis	1	2022	2	2022
Fatigue Life Assessment	1	2022	4	2022
HW/Subsystems Dispositions	3	2022	4	2024
Block 3B Conversion	2	2022	3	2024
MH-60S ECP Development	3	2022	3	2026
Production Contract Awards: Block 3B Conv./SLEP Kits	3	2023	3	2023
Production Contract Awards: Production Deliveries	4	2024	4	2024

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0708730N *I Maritime Tech (MARITECH)*

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	7.937	6.095	2.133	3.284	-	3.284	4.326	3.656	3.361	3.428	Continuing	Continuing
3435: *Advanced Shipyard Technology*	7.937	3.199	2.133	3.284	-	3.284	4.326	3.656	3.361	3.428	Continuing	Continuing
9999: *Congressional Adds*	0.000	2.896	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	2.896

A. Mission Description and Budget Item Justification

The Advanced Shipyard Technology (AST) seeks to improve the productivity, quality, and reduce costs of maintenance performed by the Navy public shipyards. The resulting technologies implemented by this program benefit both the naval shipyard and the US Navy.

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	6.329	2.133	4.102	-	4.102
Current President's Budget	6.095	2.133	3.284	-	3.284
Total Adjustments	-0.234	0.000	-0.818	-	-0.818
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.234	0.000			
• Program Adjustments	0.000	0.000	-0.833	-	-0.833
• Rate/Misc Adjustments	0.000	0.000	0.015	-	0.015

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2022	FY 2023
Project: 9999: *Congressional Adds*		
Congressional Add: *Maritime technology to mitigate IoT/ICS security vulnerabilities*	2.896	0.000
Congressional Add Subtotals for Project: 9999	2.896	0.000
Congressional Add Totals for all Projects	2.896	0.000

Change Summary Explanation

The FY 2024 AST budget was reduced by $821K due to account for the availability of prior year execution balances.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0708730N / *Maritime Tech (MARITECH)*	Project (Number/Name) 3435 / *Advanced Shipyard Technology*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
3435: *Advanced Shipyard Technology*	7.937	3.199	2.133	3.284	-	3.284	4.326	3.656	3.361	3.428	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Advanced Shipyard Technology (AST) develops, matures, and transitions technology (production processes, human augmentation, business process, IT, tooling, etc.), into the naval shipyards. Advanced Shipyard Technology funding will facilitate collaboration between government (Naval Sea Systems Command (NAVSEA), the public naval shipyards, Navy customers, Naval Warfare Centers, and others), academia, and industry. AST is an innovative approach to leverage public/private cooperation and target technology and process solutions that build on progress made over the previous years. Funding ensures widespread adoption of innovative improvements, enhancing proficiency and productivity of the public naval shipyard workforce to achieve the continuous product and process improvements necessary for improved Navy ship repair costs, and an overall reduction in availability duration. FY23 funds will continue focus on efforts that prevent corrosion, enhance cold spray technology, laser ablation, and plasma coating removal. Additionally, our Artificial intelligence efforts will become more progressed, leading to inspections and the conduction of shipboard working paint removal and cold spray repairs.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Technology Transfer	3.199	2.133	3.284	0.000	3.284
Articles:	-	-	-	-	-
FY 2023 Plans: Complete technology development projects in the 5 levels of effort (Digital Sustainment, Automation and Robotics, Process Modernization, Advance Manufacturing, and Surface Restoration), that will be competitively selected by sustainment and technology subject matter experts and Navy stakeholders. The following are priorities in Naval sustainment and repair: (1) Reduce Critical Path; (2) Reduce Cycle Times; (3) Reduce Life cycle Costs, (4) Increase throughput and, (5) Improve workforce safety and efficacy. It is anticipated that projects selected will continue to be focused in the following areas: - Modernizing Industrial Processes - Improving Material Availability - Increasing Workforce Capacity - New repair technologies - Reducing Re-work					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0708730N / *Maritime Tech (MARITECH)*	**Project (Number/Name)** 3435 / *Advanced Shipyard Technology*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Improving Worker Efficiency - Improving Scheduling and Planning - Improving Safety & Health / Reducing Environmental Impacts - Education and Training - Total Ownership Cost - Leverage technology transfer opportunities Additionally, - Artificial Intelligence - Disrupting Corrosion - Adaption to Automated Platforms ***FY 2024 Base Plans:*** FY24 projects planned in priority order: Metal 3D Printer Using Expired Weld Wire, Hull Crawler Phase III SBIR, Unmanned Aerial System Program, Topside TV - Project Team Communication, 3D Scan Server Expansion, Foreign Material Exclusion Process Upgrade, Tool Design and Prototyping, Shipboard Robotics, Motor Generation (MG) Set Commutator Refurbishment Repair System - Technology Transition Phase, Ship Hull Cleaning Investigatory Study, Tomography Paint Inspection / Ship Coat, Electro-Discharge Machining Municipal Cleaning Vehicle 3.0, Dimensional Restoration using Cold Spray, Weldability of Additively, Manufactured Parts, Thermal Modeling of Post Weld Heat Treatment (PWHT) using Induction Heating, Electrical Safety Vest SSN and VACL Hydrolancing Main Condenser, ROV: Autonomous Grit Blasting. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** In FY24 MARITECH AST increase of 1.151 is due to increased cost in projects for digital sustainment and process modernization.					
Accomplishments/Planned Programs Subtotals	3.199	2.133	3.284	0.000	3.284

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0708730N / *Maritime Tech (MARITECH)*	**Project (Number/Name)** 3435 / *Advanced Shipyard Technology*

D. Acquisition Strategy

Technologies will be developed and fielded based on their level of maturity and measure of benefit to the public naval shipyards.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0708730N / *Maritime Tech (MARITECH)*	Project (Number/Name) 3435 / *Advanced Shipyard Technology*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Technology Development	Various	Various : Locations	7.937	3.199	Dec 2021	2.133	Dec 2022	3.284	Dec 2023	-		3.284	Continuing	Continuing	Continuing
		Subtotal	7.937	3.199		2.133		3.284		-		3.284	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	7.937	3.199		2.133		3.284		-		3.284	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0708730N / *Maritime Tech (MARITECH)*	**Project (Number/Name)** 3435 / *Advanced Shipyard Technology*

	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	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 3435																												
Advanced Shipyard Technologies																												

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0708730N / *Maritime Tech (MARITECH)*	**Project (Number/Name)** 3435 / *Advanced Shipyard Technology*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3435				
Advanced Shipyard Technologies	1	2022	4	2028

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy											Date: March 2023	
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0708730N / *Maritime Tech (MARITECH)*				Project (Number/Name) 9999 / *Congressional Adds*			
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
9999: *Congressional Adds*	0.000	2.896	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	2.896
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Congress added funds to the FY 2022 budget for the Maritime Technology to Mitigate IoT/ICS Security Vulnerabilities program.

A. Mission Description and Budget Item Justification

FY 2022 Congressional Add for C802 - Maritime Technology to mitigate IoT/ICS security vulnerabilities.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023
Congressional Add: Maritime technology to mitigate IoT/ICS security vulnerabilities	2.896	0.000
FY 2022 Accomplishments: Commence work on Maritime Technology to mitigate IoT/ICS security vulnerabilities.		
FY 2023 Plans: N/A		
Congressional Adds Subtotals	2.896	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

RDTEN Contracts are Competitive Procurements.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0708730N / *Maritime Tech (MARITECH)*	Project (Number/Name) 9999 / *Congressional Adds*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
IT Management Services Contract	TBD	Various : Various	0.000	2.896	Jul 2022	0.000		0.000		-		0.000	0.000	2.896	-
		Subtotal	0.000	2.896		0.000		0.000		-		0.000	0.000	2.896	N/A

Remarks

Award IoT/ICS security vulnerabilities contract in FY22 to provide support in the areas of asset and device cataloging, vulnerability database, dashboard of the IoT technology landscape and alert reporting.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	2.896		0.000		0.000		-		0.000	0.000	2.896	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0708730N / *Maritime Tech (MARITECH)*	**Project (Number/Name)** 9999 / *Congressional Adds*

	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	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																												
Maritime technology to mitigate IoT/ICS security vulnerabilities			[redacted]																									

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0708730N / *Maritime Tech (MARITECH)*	**Project (Number/Name)** 9999 / *Congressional Adds*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 9999				
Maritime technology to mitigate IoT/ICS security vulnerabilities	3	2022	4	2023

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 8: *Software and Digital Technology Pilot Programs*	**R-1 Program Element (Number/Name)** PE 0608013N *I RISK MANAGMEMENT INFO - SOFTWARE PILOT PROGRAM*

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	13.394	13.565	12.810	11.748	-	11.748	12.922	12.995	12.933	13.191	Continuing	Continuing
2901: *Navy Enterprise IT*	13.394	13.565	12.810	11.748	-	11.748	12.922	12.995	12.933	13.191	Continuing	Continuing

A. Mission Description and Budget Item Justification

Section 872 of the National Defense Authorization Act (NDAA) for FY 2018 (P.L. 115-91) directed the Secretary of Defense to task the Defense Innovation Board (DIB) to undertake a study on "streamlining [the Department's] software development and acquisition regulations." The Under Secretary of Defense for Acquisition and Sustainment (USD(A&S)) submitted the final report to Congress in May 2019. The DIB's report made recommendations aimed at transforming the way the Department acquires, develops, and deploys software and manages digital talent. The DIB encouraged the creation of a "new appropriation category for software capability delivery that allows (relevant types of) software to be funded as a single budget item, with no separation between RDT&E, production and sustainment." The recommendation stemmed from the DIB's observation that current law, regulations, and policies (including those governing program funding and appropriations) treat software acquisition and development as a series of discrete, sequential steps; and that this approach is at odds with modern software, which is continuously updated to provide new functionality. This program has been designated as a Software and Digital Technology Pilot Program by the Secretary of Defense or the explanatory statement regarding this Act. The funding in this line is requested to be used for expenses necessary for agile procurement, production, modification and operation and maintenance of the pilot program requirements.

The Risk Management Information (RMI) software pilot program is a consolidation of DON risk management requirements into a single Program of Record (POR) to provide modern safety reporting and management capabilities for both active and reserve Navy and Marine Corps commands. RMI enables agile responses to business rule changes, automation of routine actions, improved data integrity, and facilitates self-service for organizations and individuals. 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, Portal integration, 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 five 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), and Injury Tracker (INJTRK).

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 8: *Software and Digital Technology Pilot Programs*	**R-1 Program Element (Number/Name)** PE 0608013N *I RISK MANAGMEMENT INFO - SOFTWARE PILOT PROGRAM*

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	13.703	12.810	12.332	-	12.332
Current President's Budget	13.565	12.810	11.748	-	11.748
Total Adjustments	-0.138	0.000	-0.584	-	-0.584
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.138	0.000			
• Program Adjustments	0.000	0.000	-0.672	-	-0.672
• Rate/Misc Adjustments	0.000	0.000	0.088	-	0.088

Change Summary Explanation

Program Adjustments: -$0.672M reflects the incremental completion of development activities and the transition of SPM modules (Confined Space and Job Hazard Analysis) into agile sustainment.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 8	R-1 Program Element (Number/Name) PE 0608013N / *RISK MANAGMEMENT INFO - SOFTWARE PILOT PROGRAM*	Project (Number/Name) 2901 / *Navy Enterprise IT*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
2901: *Navy Enterprise IT*	13.394	13.565	12.810	11.748	-	11.748	12.922	12.995	12.933	13.191	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The RMI program is a consolidation of DON risk management requirements into a single Program of Record (POR) to provide modern safety reporting and management capabilities for both active and reserve Navy and Marine Corps commands. RMI enables agile responses to business rule changes, automation of routine actions, improved data integrity, and facilitates self-service for organizations and individuals.

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, Portal integration, 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 five 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), and Injury Tracker (INJTRK).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Risk Management Information (RMI) - Development	9.118	7.672	6.461	0.000	6.461
Articles:	-	-	-	-	-
FY 2023 Plans: FY23 funding continues the development of the Risk Management Information (RMI) and Safety Program Management (SPM) capabilities. SPM: Maintaining RMI's incremental development-to-deployment-sustainment approach, SPM module planning, design, agile development and deployment will continue, providing users with capabilities needed for planning, preparing and executing a safety and occupational health program. For FY23 specific module capabilities continuing agile development and deployment include: - Q1 FY23: Initiate migration of NAVSEA shipyard legacy systems data to complete Q1 FY24 - Q1 FY23: Confined Space deployed					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 8	**R-1 Program Element (Number/Name)** PE 0608013N / *RISK MANAGMEMENT INFO - SOFTWARE PILOT PROGRAM*	**Project (Number/Name)** 2901 / *Navy Enterprise IT*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Q1 FY23: Job Hazard Analysis continued development - Q4 FY23: Initial development of the Medical Surveillance module These features promote mishap/injury avoidance in compliance with DoD Safety and occupational health standards and policy. RMI will continue agile sustainment of delivered DJRS, SIR, A&D and deployed SPM capability. ***FY 2024 Base Plans:*** FY24 funding will continue development of the Risk Management Information (RMI) Safety Program Management (SPM) capabilities, interfaces, and migrate data from ESAMS to RMI. SPM: Maintaining RMI's incremental development-to-deployment-sustainment approach, SPM module planning, design, agile development and deployment will continue, providing users with capabilities needed for planning, preparing and executing a safety and occupational health program. Specific module capabilities continuing agile development in and through FY24 include: - Q2 FY24: Complete development and deployment of the Job Hazard Analysis Module - Q4 FY24: Complete development and deployment of Medical Surveillance module - Q4 FY24: Initial development and of Self-Assessment module These features promote mishap/injury avoidance in compliance with DoD Safety and occupational health standards and policy. Further requirements analysis and development is planned beyond FY24 to deliver remaining SPM modules. RMI will continue agile sustainment of delivered DJRS, SIR, A&D and deployed SPM capability. ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:***					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 8	**R-1 Program Element (Number/Name)** PE 0608013N / *RISK MANAGMEMENT INFO - SOFTWARE PILOT PROGRAM*	**Project (Number/Name)** 2901 / *Navy Enterprise IT*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
FY24 decrease is attributed to the incremental completion of development activities and the transition of SPM modules (Confined Space and Job Hazard Analysis) into agile sustainment, as well as development periods of performance.					
Title: Risk Management Information (RMI) - Sustainment	4.447	5.138	5.287	0.000	5.287
Articles:	-	-	-	-	-
FY 2023 Plans: - Streamlined Incident Reporting agile sustainment - Dive Jump Reporting System (DJRS) agile sustainment - Continued Safety Program Management (SPM) Modules into agile Sustainment - system integration support and module deployment - Confined Space - Job Hazard Analysis - Afloat agile sustainment and Ad Hoc testing for QoS impacts - Continued A&D capability sustainment - Help desk for SIR, SPM, and DJRS - MBSE model sustainment and updates - Interface updates and maintenance - Respond to user feedback as per agile methodology (change requests from user community) - Code upgrades, maintenance, and modernization					
FY 2024 Base Plans: - Streamlined Incident reporting agile sustainment - Dive Jump Reporting System (DJRS) agile sustainment - Additional Safety Program Management (SPM) - system integration support, deployment and agile Sustainment: - Medical Surveillance - Job Hazard Analysis - Afloat agile sustainment and Ad Hoc testing for QoS impacts - Continue A&D capability sustainment - Help desk for SIR, SPM, and DJRS - MBSE model sustainment and updates - Interface updates and maintenance					

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 8	**R-1 Program Element (Number/Name)** PE 0608013N / *RISK MANAGMEMENT INFO - SOFTWARE PILOT PROGRAM*	**Project (Number/Name)** 2901 / *Navy Enterprise IT*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Code upgrades, maintenance, and modernization ***FY 2024 OCO Plans:*** N/A ***FY 2023 to FY 2024 Increase/Decrease Statement:*** FY24 increase is attributed to the transition of SPM modules (Confined Space and Job Hazard Analysis) into agile sustainment.					
Accomplishments/Planned Programs Subtotals	13.565	12.810	11.748	0.000	11.748

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

RISK MANAGEMENT INFORMATION (RMI)
Existing Commercial-Off-the-Shelf (COTS) software and services will be procured and with customization, will fill the Navy's documentation requirements and generate safety reporting for the United States Naval forces through an 8A Cost Plus Fixed Fee (CPFF) contract.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 8	**R-1 Program Element (Number/Name)** PE 0608013N / *RISK MANAGMEMENT INFO - SOFTWARE PILOT PROGRAM*	**Project (Number/Name)** 2901 / *Navy Enterprise IT*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Risk Management Information (RMI) Development	C/CPFF	Kapsuun : Arlington, VA	5.604	9.118	Nov 2021	7.672	Nov 2022	6.461	Nov 2023	-		6.461	Continuing	Continuing	Continuing
		Subtotal	5.604	9.118		7.672		6.461		-		6.461	Continuing	Continuing	N/A

Remarks

RMI product development follows an agile development cycle that transitions completed modules into sustainment as they are moved to production. Product development costs decrease year to year in proportion to module completion as they leave the development cycle, with commensurate increases to sustainment to cover those modules now in full production. Proportional split for FY24 sits at approximately 55% development to 45% sustainment.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Risk Management Information (RMI) Sustainment	C/CPFF	Various : Arlington, VA	7.790	4.447	Jun 2022	5.138	Jun 2023	5.287	Jun 2024	-		5.287	Continuing	Continuing	Continuing
		Subtotal	7.790	4.447		5.138		5.287		-		5.287	Continuing	Continuing	N/A

Remarks

RMI support (sustainment) costs include a variety of performers as sustainment spans software licensing, NIAPS fees, cloud fees, NWCF, contractor support for maintenance of deployed systems, configuration change requests, and help desk support.

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	13.394	13.565		12.810		11.748		-		11.748	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 8	**R-1 Program Element (Number/Name)** PE 0608013N / *RISK MANAGMEMENT INFO - SOFTWARE PILOT PROGRAM*	**Project (Number/Name)** 2901 / *Navy Enterprise IT*

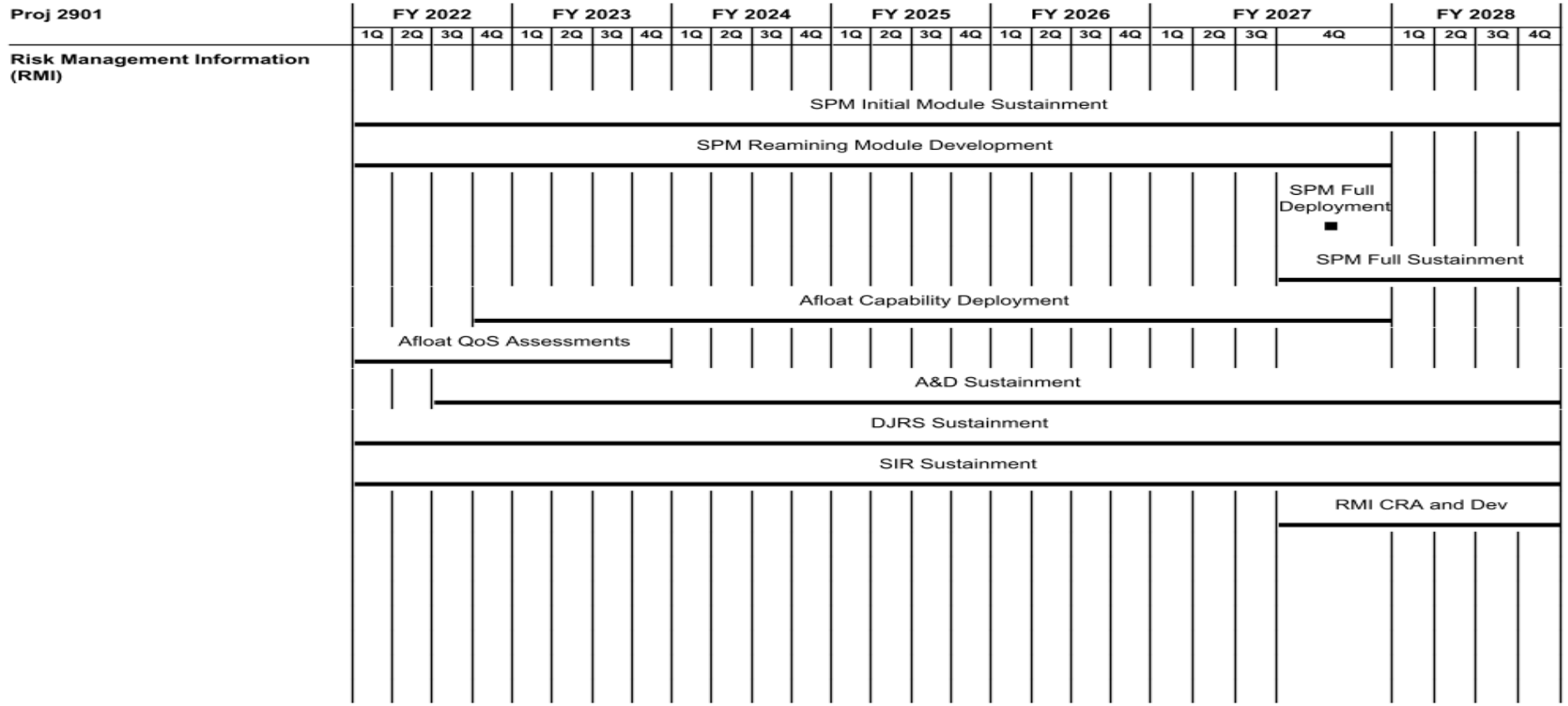

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 8	**R-1 Program Element (Number/Name)** PE 0608013N / *RISK MANAGMEMENT INFO - SOFTWARE PILOT PROGRAM*	**Project (Number/Name)** 2901 / *Navy Enterprise IT*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2901				
Risk Management Information (RMI): RMI Safety Program Management Initial Module Sustainment	1	2022	4	2028
Risk Management Information (RMI): RMI Safety Program Management Remaining Module Development	1	2022	4	2027
Risk Management Information (RMI): RMI Safety Program Module Full Deployment	4	2027	4	2027
Risk Management Information (RMI): RMI SPM Full Sustainment	4	2027	4	2028
Risk Management Information (RMI): RMI Safety Program Management Shipboard Architecture Deployment	4	2022	4	2027
Risk Management Information (RMI): RMI Afloat Qaulity of Service Assessments	1	2022	4	2023
Risk Management Information (RMI): RMI A&D Sustainment	3	2022	4	2028
Risk Management Information (RMI): RMI DJRS Sustainment	1	2022	4	2028
Risk Management Information (RMI): RMI SIR Sustainment	1	2022	4	2028
Risk Management Information (RMI): RMI Continued Requirements Analysis and Development	4	2027	4	2028

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Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy												Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 8: *Software and Digital Technology Pilot Programs*					R-1 Program Element (Number/Name) PE 0608231N *I MARITIME TACT CMD & CONTROL - SOFT PLT PRGM*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	10.969	15.563	11.198	10.555	-	10.555	10.472	10.636	11.021	11.597	Continuing	Continuing
3323: *Maritime Tactical Command & Control (MTC2)*	10.969	15.563	11.198	10.555	-	10.555	10.472	10.636	11.021	11.597	Continuing	Continuing

A. Mission Description and Budget Item Justification

Section 872 of the National Defense Authorization Act (NDAA) for FY 2018 (P.L. 115-91) directed the Secretary of Defense to task the Defense Innovation Board (DIB) to undertake a study on "streamlining [the Department's] software development and acquisition regulations." The Under Secretary of Defense for Acquisition and Sustainment (USD(A&S)) submitted the final report to Congress in May 2019. The DIB's report made recommendations aimed at transforming the way the Department acquires, develops, and deploys software and manages digital talent. The DIB encouraged the creation of a "new appropriation category for software capability delivery that allows (relevant types of) software to be funded as a single budget item, with no separation between Research, Development, Test & Evaluation (RDT&E), production and sustainment." The recommendation stemmed from the DIB's observation that current law, regulations, and policies (including those governing program funding and appropriations) treat software acquisition and development as a series of discrete, sequential steps; and that this approach is at odds with modern software, which is continuously updated to provide new functionality. This program has been designated as a Software and Digital Technology Pilot Program by the Secretary of Defense or the explanatory statement regarding this Act. The funding in this line is requested to be used for expenses necessary for agile procurement, production, modification and operation and maintenance of the pilot program requirements.

(Proj 3323) Maritime Tactical Command and Control (MTC2) is a next generation Command and Control (C2) software program that delivers Battle Management Aids (BMA) and Maritime Planning Tools (MPT) to dynamically plan, direct, monitor, and assess maritime operations in support of Joint, Multi-Service, and Coalition Force planning. MTC2 will leverage a System of Services to deliver capabilities improving decision speed and dynamic synchronization of forces. BMAs / MPTs are small, capability-focused deliveries that can be rapidly developed, tested, and fielded. MTC2 engages with the Office of the Chief of Naval Operations (OPNAV)-led and Fleet supported Requirements Governance Board (RGB) to define and prioritize the BMAs and MPTs that MTC2 will deliver and align to the Program Executive Office (PEO) Command, Control, Communications, and Intelligence (C4I) enterprise architecture Consolidated Afloat Network Enterprise Service (CANES), Agile Core Services (ACS)) for fielding to all echelons of command (Afloat and Ashore) within the Navy. The program's objective is to provide a suite of maritime applications (BMAs / MPTs) that enable planning, execution, monitoring, and assessment in support of operational and tactical level of war requirements. MTC2 fields BMAs / MPTs designed to provide automated and structured support for tactical and operational planning, decision-making, and execution. MTC2 incorporates distributed data transfer capability for enhanced operational data exchange between command and control systems, combat systems, logistics, and intelligence systems for timely threat identification, location, and status alongside blue force data. MTC2 is the Navy's only solution to fulfill a portion of the Joint Global Force Management - Data Initiative (GFM-DI) Allocation requirements. GFM-DI is the Department-wide enterprise solution that enables visibility/accessibility/sharing of data applicable to the entire Department of Defense (DoD) force structure. MTC2 supports alignment and provides interoperability of Navy C2 with the DoD joint C2 way-forward. The program will fully align with joint C2 data and service exposure and consumption goals, architectures, and Net-Centric Enterprise Service efforts. The sustainment activities include support for evolutionary acquisition, program management, training and training events, help desk, software licenses, and sustaining MTC2 Prototype instances until migration to MTC2 Program of Record.

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy	Date: March 2023
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 8: *Software and Digital Technology Pilot Programs*	**R-1 Program Element (Number/Name)** PE 0608231N *I MARITIME TACT CMD & CONTROL - SOFT PLT PRGM*

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	14.843	11.198	11.485	-	11.485
Current President's Budget	15.563	11.198	10.555	-	10.555
Total Adjustments	0.720	0.000	-0.930	-	-0.930
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	1.002	0.000			
• SBIR/STTR Transfer	-0.282	0.000			
• Program Adjustments	0.000	0.000	-1.213	-	-1.213
• Rate/Misc Adjustments	0.000	0.000	0.283	-	0.283

Change Summary Explanation

FUNDING:

Program decrease of -$1.213M reflects a reduction in software maintenance support for the MTC2 prototype.

SCHEDULE:

No schedule changes.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 8	R-1 Program Element (Number/Name) PE 0608231N / *MARITIME TACT CMD & CONTROL - SOFT PLT PRGM*	Project (Number/Name) 3323 / *Maritime Tactical Command & Control (MTC2)*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
3323: *Maritime Tactical Command & Control (MTC2)*	10.969	15.563	11.198	10.555	-	10.555	10.472	10.636	11.021	11.597	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Maritime Tactical Command and Control (MTC2) is a next generation Command and Control (C2) software program that will deliver Battle Management Aids (BMA) and Maritime Planning Tools (MPT) to dynamically plan, direct, monitor, and assess maritime operations in support of Joint, Multi-Service, and Coalition Force planning. MTC2 leverages a System of Services to deliver capabilities improving decision speed and dynamic synchronization of forces. BMAs / MPTs are small, capability-focused deliveries that can be rapidly developed, tested, and fielded. MTC2 leverages Science and Technology (S&T) investments and engages with the Navy Requirements Governance Board (RGB) to define and prioritize the BMAs and MPTs that MTC2 will deliver and align to the Program Executive Office (PEO) Command, Control, Communications, and Intelligence (C4I) enterprise architecture (Consolidated Afloat Network Enterprise Service (CANES), Agile Core Services (ACS)) for fielding to all echelons of command (Afloat and Ashore) within the Navy. The program's objective is to provide a suite of maritime applications (BMAs / MPTs) that enable planning, execution, monitoring, and assessment in support of operational and tactical level of war requirements. MTC2 fields BMAs / MPTs designed to provide automated and structured support for tactical and operational planning, decision-making, and execution. As a software-only program that leverages enterprise infrastructure, MTC2 provides new and improved capabilities to include an Operational Planning Tool (OPT), an improved browser enabled map visualization that enables the warfighter to associate tracks to relevant data, past and predicted movements, ingest Meteorology and Oceanography information, and operational overlays. MTC2's updated architecture will enable future composable C2 capabilities to respond with a more rapid pace in changes in threats and technology. MTC2 is the Navy's solution to Global Force Management - Data Initiative (GFM-DI) which is Department of Defense (DoD) -wide enterprise solution that enables visibility/accessibility/ sharing of data applicable to the entire DoD force structure. MTC2 incorporates distributed data transfer capability for enhanced operational data exchange between command and control systems, combat systems, logistics, and intelligence systems for timely threat identification, location, and status alongside blue force data. MTC2 supports alignment and provides interoperability of Navy C2 with the DoD Joint C2 way-forward. The program will fully align with Joint C2 data and service exposure and consumption goals, architectures, and Net-Centric Enterprise Service efforts. The sustainment activities include support for evolutionary acquisition, program management, training and training events, help desk, procuring software licenses, and sustainment of MTC2 Program of Record instances.

FY 2024 funding will provide iterative development and delivery to targeted platforms necessary for the completion of the Navy special project. The delivery will include extended Maritime Planning Tools to support resilient Line of Sight (LoS) and Beyond Line of Sight (BLoS) communications networks, as well as Joint All-Domain Command and Control (JADC2) interfaces. MTC2 will continue executing under the Software Acquisition Pathway (SWP) and continue iterative development of MTC2 software based on the SWP Capability Needs Statement (CNS). MTC2 will continue to field Ashore/Afloat of the PoR capability to the fleet and Maritime Operations Centers (MOCs). MTC2 will continue to receive feedback from fleet users for development, integration, and testing of additional capabilities/enhancements (Battle Management Aids (BMAs) / Maritime Planning Tools (MPT)).

The funding in this line also supports sustainment activities which include evolutionary acquisition and program management support, training and training events, help desk, software licenses, and sustainment of the MTC2 Program of Record.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 8	**R-1 Program Element (Number/Name)** PE 0608231N / *MARITIME TACT CMD & CONTROL - SOFT PLT PRGM*	**Project (Number/Name)** 3323 / *Maritime Tactical Command & Control (MTC2)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Title: Maritime Tactical Command and Control (MTC2) Development	12.757	8.267	8.673	0.000	8.673
Articles:	-	-	-	-	-

FY 2023 Plans:
MTC2 continues execution under the Software Acquisition Pathway (SWP) and iterative development of MTC2 v2.0 based on the SWP Capability Needs Statement (CNS). MTC2 continues to field Ashore/Afloat of the PoR capability to the fleet and Maritime Operations Centers (MOCs). MTC2 continues to receive feedback from fleet users for development, integration, and testing of additional capabilities/enhancements (Battle Management Aids (BMAs) / Maritime Planning Tools (MPT)). FY 2023 funding provides iterative development and delivery to targeted platforms necessary for the completion of the Navy special project, the delivery includes extended Maritime Planning Tools to support resilient Line of Sight (LoS) and Beyond Line of Sight (BLoS) communications networks, as well as Joint All-Domain Command and Control (JADC2) interfaces. MTC2 v2.0 iterative delivery also includes additional BMA integration, with data and service interfaces. These additional capabilities in MTC2 are necessary to meet the timeline of targeted strike group deployments.

FY 2024 Base Plans:
MTC2 will continue executing under the Software Acquisition Pathway (SWP) and continue iterative development of MTC2 software based on the SWP Capability Needs Statement (CNS). MTC2 will continue to field Ashore/Afloat of the PoR capability to the fleet and MOCs. MTC2 will continue to receive feedback from fleet users for development, integration, and testing of additional capabilities/enhancements (Battle Management Aids (BMAs) / Maritime Planning Tools (MPT)). FY 2024 funding will provide iterative development and delivery to targeted platforms necessary for the completion of the Navy special project, The delivery will include extended Maritime Planning Tools to support resilient Line of Sight (LoS) and Beyond Line of Sight (BLoS) communications networks Navy Tactical Grid (NTG) interfaces and capabilities, as well as Joint All-Domain Command and Control (JADC2) interfaces. MTC2 v2.0 iterative delivery will also include additional BMA integration, with data and service interfaces. These additional capabilities in MTC2 are necessary to meet the timeline of targeted strike group deployments.

FY 2024 OCO Plans:
N/A

FY 2023 to FY 2024 Increase/Decrease Statement:

Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 8	**R-1 Program Element (Number/Name)** PE 0608231N / *MARITIME TACT CMD & CONTROL - SOFT PLT PRGM*	**Project (Number/Name)** 3323 / *Maritime Tactical Command & Control (MTC2)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Increase from FY2023 to FY2024 in the amount of $0.406M for MTC2 development reflects additional software development efforts for Distributed Maritime Operations (DMO) and Navy Tactical Grid (NTG) interfaces and capabilities.					
Title: Maritime Tactical Command and Control (MTC2) Sustainment	2.806	2.931	1.882	0.000	1.882
Articles:	-	-	-	-	-
FY 2023 Plans: FY23 sustainment activities include evolutionary acquisition and program management support, training and training events, help desk, installation, planning & design activities, procuring software licenses, and sustainment of MTC2 PoR releases.					
FY 2024 Base Plans: FY24 sustainment activities will include evolutionary acquisition and program management support, training and training events, help desk, installation, planning & design activities, software licenses, and sustainment of MTC2 PoR releases.					
FY 2024 OCO Plans: N/A					
FY 2023 to FY 2024 Increase/Decrease Statement: Decrease from FY2023 to FY2024 in the amount of $1.049M reflects reduced software maintenance support for the MTC2 prototype.					
Accomplishments/Planned Programs Subtotals	15.563	11.198	10.555	0.000	10.555

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

MTC2 acquisition strategy realigned to DoDI 5000.87 Operation of the Software Acquisition Pathway in FY21. MTC2 executes an agile software development that is responsive to Fleet needs. Instead of operating under Joint Capabilities Integration and Development System (JCIDS) procedures, OPNAV N2N6 directs MTC2's capability requirements through a Capability Needs Statement (CNS). Capability areas identified in the CNS direct the Minimum Viable Capability Releases (MVCRs) delivered by the program. MTC2's primary contracting method for software development utilizes a Multiple Award Contract (MAC) which features Task Orders for MVCR development efforts. Naval Information Warfare Center - Pacific (NIWC-PAC), San Diego, CA is the designated Software Support Activity (SSA).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 8	**R-1 Program Element (Number/Name)** PE 0608231N / *MARITIME TACT CMD & CONTROL - SOFT PLT PRGM*	**Project (Number/Name)** 3323 / *Maritime Tactical Command & Control (MTC2)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering	WR	NIWC PAC : San Diego, CA	1.025	0.104	Dec 2021	0.000	Dec 2022	0.000		-		0.000	0.000	1.129	1.129
Training Development	WR	NIWC PAC : San Diego, CA	0.059	0.233	Dec 2021	0.229	Dec 2022	0.000		-		0.000	0.000	0.521	0.521
Integration, Assembly & Test	WR	NIWC PAC : San Diego, CA	0.668	3.184	Dec 2021	2.839	Dec 2022	2.674	Dec 2023	-		2.674	Continuing	Continuing	Continuing
Systems Engineering	C/CPFF	Various : San Diego, CA	1.337	4.438	Dec 2021	1.280	Dec 2022	0.962	Dec 2023	-		0.962	Continuing	Continuing	Continuing
Software Development	WR	NIWC PAC : San Diego, CA	2.195	2.046	Dec 2021	1.026	Dec 2022	0.997	Dec 2023	-		0.997	Continuing	Continuing	Continuing
Software Development	C/CPFF	Various : San Diego, CA	1.423	1.111	Jul 2022	1.583	Jul 2023	2.423	Jul 2024	-		2.423	Continuing	Continuing	Continuing
		Subtotal	6.707	11.116		6.957		7.056		-		7.056	Continuing	Continuing	N/A

Remarks

FY2024 increase reflects additional software development efforts for Distributed Maritime Operations (DMO) and Navy Tactical Grid (NTG) interfaces and capabilities.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics Support	WR	NIWC LANT : Norfolk, VA/San Diego, CA	0.049	0.000		0.000	Dec 2022	0.000		-		0.000	0.000	0.049	0.049
Integrated Logistics Support	C/CPFF	SeaPort : San Diego, CA	0.123	0.156	Dec 2021	0.153	Dec 2022	0.199	Dec 2023	-		0.199	Continuing	Continuing	Continuing
Software Maintenance	WR	NIWC PAC : San Diego, CA	2.620	2.622	Dec 2021	2.750	Dec 2022	1.052	Dec 2023	-		1.052	Continuing	Continuing	Continuing
Software Maintenance	C/CPFF	Various : San Diego, CA	0.000	0.184	Dec 2021	0.181	Dec 2022	0.830	Dec 2023	-		0.830	Continuing	Continuing	Continuing
		Subtotal	2.792	2.962		3.084		2.081		-		2.081	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy			Date: March 2023
Appropriation/Budget Activity 1319 / 8	R-1 Program Element (Number/Name) PE 0608231N / *MARITIME TACT CMD & CONTROL - SOFT PLT PRGM*	Project (Number/Name) 3323 / *Maritime Tactical Command & Control (MTC2)*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

FY2024 decrease reflects reduced software maintenance support for the MTC2 prototype.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Operational Test & Evaluation (OT&E)	WR	NIWC PAC : San Diego, CA	0.710	0.068	Dec 2021	0.067	Dec 2022	0.574	Dec 2023	-		0.574	Continuing	Continuing	Continuing
Operational Test & Evaluation (OT&E)	C/CPFF	Various : San Diego, CA	0.000	0.633	Dec 2021	0.622	Dec 2022	0.126	Dec 2023	-		0.126	Continuing	Continuing	Continuing
		Subtotal	0.710	0.701		0.689		0.700		-		0.700	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2022 Cost	FY 2022 Award Date	FY 2023 Cost	FY 2023 Award Date	FY 2024 Base Cost	FY 2024 Base Award Date	FY 2024 OCO Cost	FY 2024 OCO Award Date	FY 2024 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	C/CPFF	SeaPort : San Diego, CA	0.760	0.784	Dec 2021	0.468	Dec 2022	0.718	Dec 2023	-		0.718	Continuing	Continuing	Continuing
		Subtotal	0.760	0.784		0.468		0.718		-		0.718	Continuing	Continuing	N/A

	Prior Years	FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	10.969	15.563		11.198		10.555		-		10.555	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 8	**R-1 Program Element (Number/Name)** PE 0608231N / *MARITIME TACT CMD & CONTROL - SOFT PLT PRGM*	**Project (Number/Name)** 3323 / *Maritime Tactical Command & Control (MTC2)*

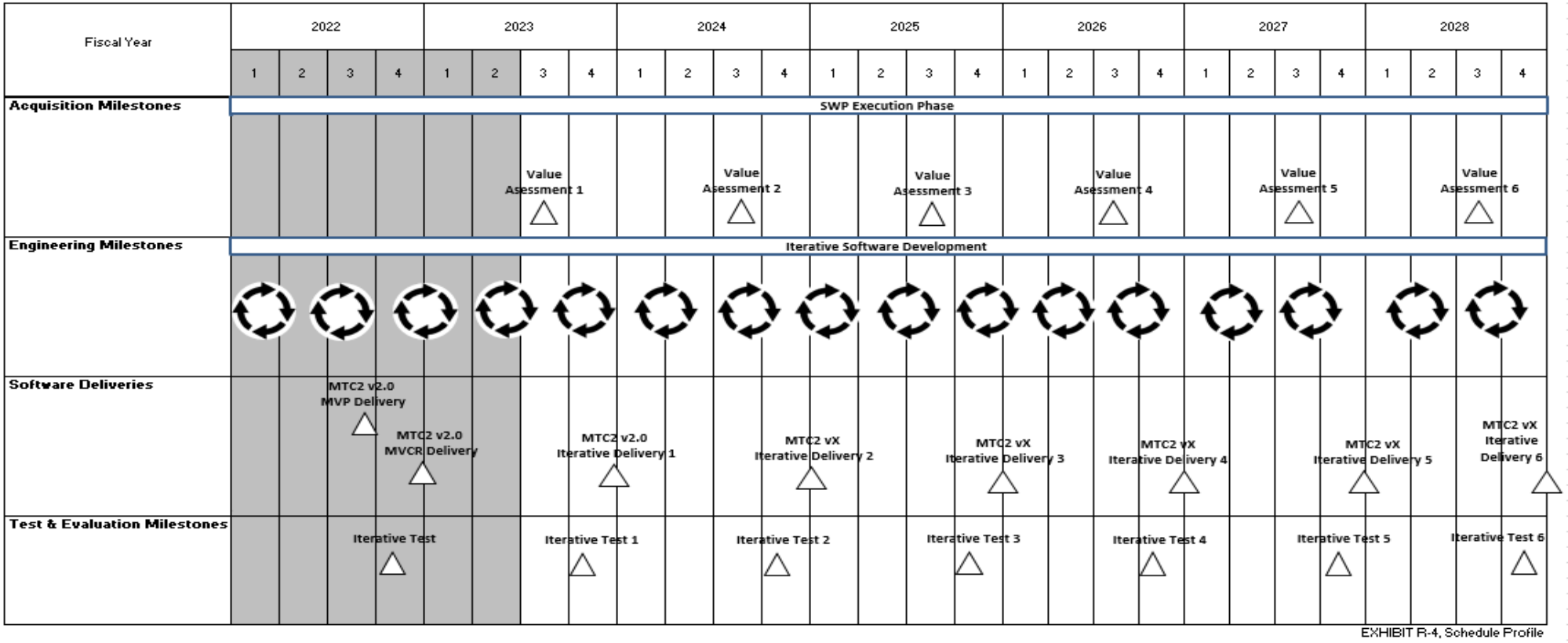

EXHIBIT R-4, Schedule Profile

Legend:

FD - Field Decision
IOC - Initial Operational Capability
R- Release
SWP - Software Acquisition Pathway
CNS - Capability Needs Statement
MVP - Minimum Viable Product
MVCR - Minimum Viable Capability Release

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 8	**R-1 Program Element (Number/Name)** PE 0608231N / *MARITIME TACT CMD & CONTROL - SOFT PLT PRGM*	**Project (Number/Name)** 3323 / *Maritime Tactical Command & Control (MTC2)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3323				
SWP Execution Phase	1	2022	4	2028
SWP Iterative Software Development	1	2022	4	2028
MTC2 v2.0 MVP Delivery	3	2022	3	2022
Iterative Test	4	2022	4	2022
MTC2 v2.0 MVCR delivery	4	2022	4	2022
Value Assessment 1	3	2023	3	2023
Iterative Test 1	4	2023	4	2023
MTC2 v.2.0 Iterative Delivery 1	4	2023	4	2023
Value Assessment 2	3	2024	3	2024
Iterative Test 2	4	2024	4	2024
MTC2 Software Iterative Delivery 2	4	2024	4	2024
Value Assessment 3	3	2025	3	2025
Iterative Test 3	4	2025	4	2025
MTC2 Software Iterative Delivery 3	4	2025	4	2025
Value Assessment 4	3	2026	3	2026
Iterative Test 4	4	2026	4	2026
MTC2 Software Iterative Delivery 4	4	2026	4	2026
Value Assessment 5	3	2027	3	2027
Iterative Test 5	4	2027	4	2027
MTC2 Software Iterative Delivery 5	4	2027	4	2027
Value Assessment 6	3	2028	3	2028

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 8	**R-1 Program Element (Number/Name)** PE 0608231N / *MARITIME TACT CMD & CONTROL - SOFT PLT PRGM*	**Project (Number/Name)** 3323 / *Maritime Tactical Command & Control (MTC2)*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Iterative Test 6	4	2028	4	2028
MTC2 Software Iterative Delivery 6	4	2028	4	2028