Department of Defense
Fiscal Year (FY) 2019 Budget Estimates

February 2018

Office of the Secretary Of Defense

Defense-Wide Justification Book Volume 3B of 5

Research, Development, Test & Evaluation, Defense-Wide

Budget Activities 4−7

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(Dollars in Thousands)

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Appropriation	FY 2017 (Base + OCO)	FY 2018 PB Request with CR Adj Base	FY 2018 Total PB Requests* with CR Adj Base	FY 2018 PB Request with CR Adj OCO	FY 2018 Total PB Requests+ with CR Adj OCO
Research, Development, Test & Eval, DW	4,084,372	4,041,233	4,041,233	25,000	25,000
Total Research, Development, Test & Evaluation	4,084,372	4,041,233	4,041,233	25,000	25,000

R-119PB: FY 2019 President's Budget (Published Version), as of February 1, 2018 at 13:17:56

Department of Defense
FY 2019 President's Budget
Exhibit R-1 FY 2019 President's Budget
Total Obligational Authority
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01 Feb 2018

Appropriation	FY 2018 Emergency Requests** Emergency	FY 2018 Less Enacted Div B P.L.115-96*** MDDE + Ship Repairs	FY 2018 Remaining Req Emergency	FY 2018 Total PB Requests* with CR Adj Base + OCO + Emergency**	FY 2018 Less Enacted DIV B P.L.115-96*** MDDE + Ship Repairs	FY 2018 Remaining Req with CR Adj Base + OCO + Emergency
Research, Development, Test & Eval, DW	368,100	-368,100		4,434,333	-368,100	4,066,233
Total Research, Development, Test & Evaluation	368,100	-368,100		4,434,333	-368,100	4,066,233

Department of Defense
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Total Obligational Authority
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01 Feb 2018

Appropriation	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Research, Development, Test & Eval, DW	4,650,932	25,000	4,675,932
Total Research, Development, Test & Evaluation	4,650,932	25,000	4,675,932

Department of Defense
FY 2019 President's Budget
Exhibit R-1 FY 2019 President's Budget
Total Obligational Authority
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Summary Recap of Budget Activities	FY 2017 (Base + OCO)	FY 2018 PB Request with CR Adj Base	FY 2018 Total PB Requests* with CR Adj Base	FY 2018 PB Request with CR Adj OCO	FY 2018 Total PB Requests+ with CR Adj OCO
Basic Research	176,454	140,775	140,775		
Applied Research	134,909	141,815	141,815		
Advanced Technology Development	1,172,233	1,128,893	1,128,893	25,000	25,000
Advanced Component Development And Prototypes	1,556,862	1,685,375	1,685,375		
System Development And Demonstration	284,189	341,821	341,821		
Management Support	690,532	534,872	534,872		
Operational System Development	69,193	67,682	67,682		
Total Research, Development, Test & Evaluation	4,084,372	4,041,233	4,041,233	25,000	25,000
Summary Recap of FYDP Programs					
General Purpose Forces	2,070	2,551	2,551		
Intelligence and Communications	85,848	118,990	118,990		
Research and Development	3,966,868	3,919,692	3,919,692	25,000	25,000
Training Medical and Other	29,149				
Administration and Associated Activities	437				
Total Research, Development, Test & Evaluation	4,084,372	4,041,233	4,041,233	25,000	25,000

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Basic Research				140,775		140,775
Applied Research				141,815		141,815
Advanced Technology Development	5,000	-5,000		1,158,893	-5,000	1,153,893
Advanced Component Development And Prototypes	333,100	-333,100		2,018,475	-333,100	1,685,375
System Development And Demonstration				341,821		341,821
Management Support	30,000	-30,000		564,872	-30,000	534,872
Operational System Development				67,682		67,682
Total Research, Development, Test & Evaluation	368,100	-368,100		4,434,333	-368,100	4,066,233
Summary Recap of FYDP Programs						
General Purpose Forces				2,551		2,551
Intelligence and Communications				118,990		118,990
Research and Development	368,100	-368,100		4,312,792	-368,100	3,944,692
Training Medical and Other						
Administration and Associated Activities						
Total Research, Development, Test & Evaluation	368,100	-368,100		4,434,333	-368,100	4,066,233

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Summary Recap of Budget Activities	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Basic Research	159,033		159,033
Applied Research	155,723		155,723
Advanced Technology Development	1,236,619	25,000	1,261,619
Advanced Component Development And Prototypes	2,019,673		2,019,673
System Development And Demonstration	386,469		386,469
Management Support	637,055		637,055
Operational System Development	56,360		56,360
Total Research, Development, Test & Evaluation	4,650,932	25,000	4,675,932

Summary Recap of FYDP Programs			
General Purpose Forces	3,008		3,008
Intelligence and Communications	201,078		201,078
Research and Development	4,446,846	25,000	4,471,846
Training Medical and Other			
Administration and Associated Activities			
Total Research, Development, Test & Evaluation	4,650,932	25,000	4,675,932

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System Development And Demonstration				341,821		341,821
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Total Research, Development, Test & Evaluation	4,084,372	4,041,233	4,041,233	25,000	25,000

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Office of Secretary of Defense	368,100	-368,100		4,434,333	-368,100	4,066,233
Total Research, Development, Test & Evaluation	368,100	-368,100		4,434,333	-368,100	4,066,233

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Appropriation: 0400D Research, Development, Test & Eval, DW

Line No	Program Element Number	Item	Act	FY 2017 (Base + OCO)	FY 2018 PB Request with CR Adj Base	FY 2018 Total PB Requests* with CR Adj Base	FY 2018 PB Request with CR Adj OCO	FY 2018 Total PB Requests+ with CR Adj OCO	Sec
3	0601110D8Z	Basic Research Initiatives	01	66,750	40,612	40,612			U
5	0601120D8Z	National Defense Education Program	01	76,995	74,298	74,298			U
6	0601228D8Z	Historically Black Colleges and Universities/Minority Institutions	01	32,709	25,865	25,865			U
		Basic Research		176,454	140,775	140,775			
8	0602000D8Z	Joint Munitions Technology	02	17,611	19,111	19,111			U
10	0602230D8Z	Defense Technology Innovation	02	9,989					U
11	0602234D8Z	Lincoln Laboratory Research Program	02	46,500	49,748	49,748			U
12	0602251D8Z	Applied Research for the Advancement of S&T Priorities	02	40,798	49,226	49,226			U
16	0602668D8Z	Cyber Security Research	02	11,906	14,775	14,775			U
21	0602751D8Z	Software Engineering Institute (SEI) Applied Research	02	8,105	8,955	8,955			U
		Applied Research		134,909	141,815	141,815			
23	0603000D8Z	Joint Munitions Advanced Technology	03	23,742	25,627	25,627			U
24	0603122D8Z	Combating Terrorism Technology Support	03	113,366	76,230	76,230	25,000	25,000	U
25	0603133D8Z	Foreign Comparative Testing	03	18,966	24,199	24,199			U
32	0603225D8Z	Joint DoD-DoE Munitions Technology Development	03	16,618	18,662	18,662			U
36	0603288D8Z	Analytic Assessments	03	11,603	13,154	13,154			U
37	0603289D8Z	Advanced Innovative Analysis and Concepts	03	55,679	37,674	37,674			U

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Line No	Program Element Number	Item	Act	FY 2018 Emergency Requests** Emergency	FY 2018 Less Enacted Div B P.L.115-96*** MDDE + Ship Repairs	FY 2018 Remaining Req Emergency	FY 2018 Total PB Requests* with CR Adj Base + OCO + Emergency**	FY 2018 Less Enacted DIV B P.L.115-96*** MDDE + Ship Repairs	FY 2018 Remaining Req with CR Adj Base + OCO + Emergency	Sec
3	0601110D8Z	Basic Research Initiatives	01				40,612		40,612	U
5	0601120D8Z	National Defense Education Program	01				74,298		74,298	U
6	0601228D8Z	Historically Black Colleges and Universities/Minority Institutions	01				25,865		25,865	U
		Basic Research					140,775		140,775	
8	0602000D8Z	Joint Munitions Technology	02				19,111		19,111	U
10	0602230D8Z	Defense Technology Innovation	02							U
11	0602234D8Z	Lincoln Laboratory Research Program	02				49,748		49,748	U
12	0602251D8Z	Applied Research for the Advancement of S&T Priorities	02				49,226		49,226	U
16	0602668D8Z	Cyber Security Research	02				14,775		14,775	U
21	0602751D8Z	Software Engineering Institute (SEI) Applied Research	02				8,955		8,955	U
		Applied Research					141,815		141,815	
23	0603000D8Z	Joint Munitions Advanced Technology	03				25,627		25,627	U
24	0603122D8Z	Combating Terrorism Technology Support	03				101,230		101,230	U
25	0603133D8Z	Foreign Comparative Testing	03				24,199		24,199	U
32	0603225D8Z	Joint DoD-DoE Munitions Technology Development	03				18,662		18,662	U
36	0603288D8Z	Analytic Assessments	03				13,154		13,154	U
37	0603289D8Z	Advanced Innovative Analysis and Concepts	03				37,674		37,674	U

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Line No	Program Element Number	Item	Act	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Sec
3	0601110D8Z	Basic Research Initiatives	01	42,702		42,702	U
5	0601120D8Z	National Defense Education Program	01	85,919		85,919	U
6	0601228D8Z	Historically Black Colleges and Universities/Minority Institutions	01	30,412		30,412	U
		Basic Research		159,033		159,033	
8	0602000D8Z	Joint Munitions Technology	02	19,170		19,170	U
10	0602230D8Z	Defense Technology Innovation	02				U
11	0602234D8Z	Lincoln Laboratory Research Program	02	51,596		51,596	U
12	0602251D8Z	Applied Research for the Advancement of S&T Priorities	02	60,688		60,688	U
16	0602668D8Z	Cyber Security Research	02	14,969		14,969	U
21	0602751D8Z	Software Engineering Institute (SEI) Applied Research	02	9,300		9,300	U
		Applied Research		155,723		155,723	
23	0603000D8Z	Joint Munitions Advanced Technology	03	25,598		25,598	U
24	0603122D8Z	Combating Terrorism Technology Support	03	125,271	25,000	150,271	U
25	0603133D8Z	Foreign Comparative Testing	03	24,532		24,532	U
32	0603225D8Z	Joint DoD-DoE Munitions Technology Development	03	18,644		18,644	U
36	0603288D8Z	Analytic Assessments	03	19,472		19,472	U
37	0603289D8Z	Advanced Innovative Analysis and Concepts	03	37,263		37,263	U

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Line No	Program Element Number	Item	Act	FY 2017 (Base + OCO)	FY 2018 PB Request with CR Adj Base	FY 2018 Total PB Requests* with CR Adj Base	FY 2018 PB Request with CR Adj OCO	FY 2018 Total PB Requests+ with CR Adj OCO	Sec
38	0603291D8Z	Advanced Innovative Analysis and Concepts - MHA	03		15,000	15,000			U
41	0603375D8Z	Technology Innovation	03	24,895	59,863	59,863			U
43	0603527D8Z	RETRACT LARCH	03	175,135	171,120	171,120			U
44	0603618D8Z	Joint Electronic Advanced Technology	03	21,376	14,389	14,389			U
45	0603648D8Z	Joint Capability Technology Demonstrations	03	127,961	105,871	105,871			U
46	0603662D8Z	Networked Communications Capabilities	03	9,123	12,661	12,661			U
47	0603680D8Z	Defense-Wide Manufacturing Science and Technology Program	03	177,419	136,159	136,159			U
49	0603699D8Z	Emerging Capabilities Technology Development	03	54,279	57,876	57,876			U
52	0603716D8Z	Strategic Environmental Research Program	03	63,177	71,832	71,832			U
54	0603727D8Z	Joint Warfighting Program	03	4,581	6,349	6,349			U
59	0603769D8Z	Distributed Learning Advanced Technology Development	03	10,384	11,211	11,211			U
60	0603781D8Z	Software Engineering Institute	03	13,726	15,047	15,047			U
61	0603826D8Z	Quick Reaction Special Projects	03	77,354	69,203	69,203			U
62	0603833D8Z	Engineering Science & Technology	03	22,198	25,395	25,395			U
63	0603924D8Z	High Energy Laser Advanced Technology Program	03						U

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38	0603291D8Z	Advanced Innovative Analysis and Concepts - MHA	03				15,000		15,000	U
41	0603375D8Z	Technology Innovation	03	5,000	-5,000		64,863	-5,000	59,863	U
43	0603527D8Z	RETRACT LARCH	03				171,120		171,120	U
44	0603618D8Z	Joint Electronic Advanced Technology	03				14,389		14,389	U
45	0603648D8Z	Joint Capability Technology Demonstrations	03				105,871		105,871	U
46	0603662D8Z	Networked Communications Capabilities	03				12,661		12,661	U
47	0603680D8Z	Defense-Wide Manufacturing Science and Technology Program	03				136,159		136,159	U
49	0603699D8Z	Emerging Capabilities Technology Development	03				57,876		57,876	U
52	0603716D8Z	Strategic Environmental Research Program	03				71,832		71,832	U
54	0603727D8Z	Joint Warfighting Program	03				6,349		6,349	U
59	0603769D8Z	Distributed Learning Advanced Technology Development	03				11,211		11,211	U
60	0603781D8Z	Software Engineering Institute	03				15,047		15,047	U
61	0603826D8Z	Quick Reaction Special Projects	03				69,203		69,203	U
62	0603833D8Z	Engineering Science & Technology	03				25,395		25,395	U
63	0603924D8Z	High Energy Laser Advanced Technology Program	03							U

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Line No	Program Element Number	Item	Act	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Sec
38	0603291D8Z	Advanced Innovative Analysis and Concepts - MHA	03	13,621		13,621	U
41	0603375D8Z	Technology Innovation	03	83,143		83,143	U
43	0603527D8Z	RETRACT LARCH	03	161,128		161,128	U
44	0603618D8Z	Joint Electronic Advanced Technology	03	12,918		12,918	U
45	0603648D8Z	Joint Capability Technology Demonstrations	03	106,049		106,049	U
46	0603662D8Z	Networked Communications Capabilities	03	12,696		12,696	U
47	0603680D8Z	Defense-Wide Manufacturing Science and Technology Program	03	114,637		114,637	U
49	0603699D8Z	Emerging Capabilities Technology Development	03	48,338		48,338	U
52	0603716D8Z	Strategic Environmental Research Program	03	76,514		76,514	U
54	0603727D8Z	Joint Warfighting Program	03	5,992		5,992	U
59	0603769D8Z	Distributed Learning Advanced Technology Development	03	13,564		13,564	U
60	0603781D8Z	Software Engineering Institute	03	15,050		15,050	U
61	0603826D8Z	Quick Reaction Special Projects	03	69,626		69,626	U
62	0603833D8Z	Engineering Science & Technology	03	19,415		19,415	U
63	0603924D8Z	High Energy Laser Advanced Technology Program	03	69,533		69,533	U

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64	0603941D8Z	Test & Evaluation Science & Technology	03	89,605	89,586	89,586			U
65	0604055D8Z	Operational Energy Capability Improvement	03	41,459	38,403	38,403			U
66	0303310D8Z	CWMD Systems	03	19,587	33,382	33,382			U
		Advanced Technology Development		1,172,233	1,128,893	1,128,893	25,000	25,000	
68	0603161D8Z	Nuclear and Conventional Physical Security Equipment RDT&E ADC&P	04	25,851	32,937	32,937			U
69	0603600D8Z	WALKOFF	04	96,038	101,714	101,714			U
70	0603821D8Z	Acquisition Enterprise Data & Information Services	04	1,761	2,198	2,198			U
71	0603851D8Z	Environmental Security Technical Certification Program	04	46,440	54,583	54,583			U
89	0603920D8Z	Humanitarian Demining	04	9,740	10,837	10,837			U
90	0603923D8Z	Coalition Warfare	04	9,789	10,740	10,740			U
91	0604016D8Z	Department of Defense Corrosion Program	04	14,394	3,837	3,837			U
93	0604132D8Z	Missile Defeat Project	04	138,350	98,369	98,369			U
96	0604250D8Z	Advanced Innovative Technologies	04	850,762	1,175,832	1,175,832			U
97	0604294D8Z	Trusted & Assured Microelectronics	04		83,626	83,626			U
98	0604331D8Z	Rapid Prototyping Program	04	100,000	100,000	100,000			U
99	0604400D8Z	Department of Defense (DoD) Unmanned System Common Development	04	7,254	3,967	3,967			U

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Line No	Program Element Number	Item	Act	FY 2018 Emergency Requests** Emergency	FY 2018 Less Enacted Div B P.L.115-96*** MDDE + Ship Repairs	FY 2018 Remaining Req Emergency	FY 2018 Total PB Requests* with CR Adj Base + OCO + Emergency**	FY 2018 Less Enacted DIV B P.L.115-96*** MDDE + Ship Repairs	FY 2018 Remaining Req with CR Adj Base + OCO + Emergency	Sec
64	0603941D8Z	Test & Evaluation Science & Technology	03				89,586		89,586	U
65	0604055D8Z	Operational Energy Capability Improvement	03				38,403		38,403	U
66	0303310D8Z	CWMD Systems	03				33,382		33,382	U
		Advanced Technology Development		5,000	-5,000		1,158,893	-5,000	1,153,893	
68	0603161D8Z	Nuclear and Conventional Physical Security Equipment RDT&E ADC&P	04				32,937		32,937	U
69	0603600D8Z	WALKOFF	04				101,714		101,714	U
70	0603821D8Z	Acquisition Enterprise Data & Information Services	04				2,198		2,198	U
71	0603851D8Z	Environmental Security Technical Certification Program	04				54,583		54,583	U
89	0603920D8Z	Humanitarian Demining	04				10,837		10,837	U
90	0603923D8Z	Coalition Warfare	04				10,740		10,740	U
91	0604016D8Z	Department of Defense Corrosion Program	04				3,837		3,837	U
93	0604132D8Z	Missile Defeat Project	04	26,400	-26,400		124,769	-26,400	98,369	U
96	0604250D8Z	Advanced Innovative Technologies	04	306,700	-306,700		1,482,532	-306,700	1,175,832	U
97	0604294D8Z	Trusted & Assured Microelectronics	04				83,626		83,626	U
98	0604331D8Z	Rapid Prototyping Program	04				100,000		100,000	U
99	0604400D8Z	Department of Defense (DoD) Unmanned System Common Development	04				3,967		3,967	U

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64	0603941D8Z	Test & Evaluation Science & Technology	03	96,389		96,389	U
65	0604055D8Z	Operational Energy Capability Improvement	03	40,582		40,582	U
66	0303310D8Z	CWMD Systems	03	26,644		26,644	U
		Advanced Technology Development		1,236,619	25,000	1,261,619	
68	0603161D8Z	Nuclear and Conventional Physical Security Equipment RDT&E ADC&P	04	28,140		28,140	U
69	0603600D8Z	WALKOFF	04	92,222		92,222	U
70	0603821D8Z	Acquisition Enterprise Data & Information Services	04	2,506		2,506	U
71	0603851D8Z	Environmental Security Technical Certification Program	04	40,016		40,016	U
89	0603920D8Z	Humanitarian Demining	04	11,347		11,347	U
90	0603923D8Z	Coalition Warfare	04	8,528		8,528	U
91	0604016D8Z	Department of Defense Corrosion Program	04	3,477		3,477	U
93	0604132D8Z	Missile Defeat Project	04	58,607		58,607	U
96	0604250D8Z	Advanced Innovative Technologies	04	1,431,702		1,431,702	U
97	0604294D8Z	Trusted & Assured Microelectronics	04	233,142		233,142	U
98	0604331D8Z	Rapid Prototyping Program	04	99,333		99,333	U
99	0604400D8Z	Department of Defense (DoD) Unmanned System Common Development	04	3,781		3,781	U

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101	0604682D8Z	Wargaming and Support for Strategic Analysis (SSA)	04	3,850	3,833	3,833			U
102	0604775D8Z	Defense Rapid Innovation Program	04	250,000					U
114	0303191D8Z	Joint Electromagnetic Technology (JET) Program	04	2,633	2,902	2,902			U
		Advanced Component Development And Prototypes		1,556,862	1,685,375	1,685,375			
118	0604161D8Z	Nuclear and Conventional Physical Security Equipment RDT&E SDD	05	10,152	12,536	12,536			U
119	0604165D8Z	Prompt Global Strike Capability Development	05	161,100	201,749	201,749			U
121	0604771D8Z	Joint Tactical Information Distribution System (JTIDS)	05	15,691	15,358	15,358			U
125	0605022D8Z	Defense Exportability Program	05	2,853	3,162	3,162			U
126	0605027D8Z	OUSD(C) IT Development Initiatives	05	16,131	21,353	21,353			U
128	0605075D8Z	DCMO Policy and Integration	05		2,810	2,810			U
131	0605140D8Z	Trusted Foundry	05	67,252					U
132	0605210D8Z	Defense-Wide Electronic Procurement Capabilities	05	8,310	11,870	11,870			U
133	0605294D8Z	Trusted & Assured Microelectronics	05		61,084	61,084			U
135	0305304D8Z	DoD Enterprise Energy Information Management (EEIM)	05	2,700	3,669	3,669			U
136	0305310D8Z	CWMD Systems: System Development and Demonstration	05		8,230	8,230			U
		System Development And Demonstration		284,189	341,821	341,821			

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101	0604682D8Z	Wargaming and Support for Strategic Analysis (SSA)	04				3,833		3,833	U
102	0604775D8Z	Defense Rapid Innovation Program	04							U
114	0303191D8Z	Joint Electromagnetic Technology (JET) Program	04				2,902		2,902	U
		Advanced Component Development And Prototypes		333,100	-333,100		2,018,475	-333,100	1,685,375	
118	0604161D8Z	Nuclear and Conventional Physical Security Equipment RDT&E SDD	05				12,536		12,536	U
119	0604165D8Z	Prompt Global Strike Capability Development	05				201,749		201,749	U
121	0604771D8Z	Joint Tactical Information Distribution System (JTIDS)	05				15,358		15,358	U
125	0605022D8Z	Defense Exportability Program	05				3,162		3,162	U
126	0605027D8Z	OUSD(C) IT Development Initiatives	05				21,353		21,353	U
128	0605075D8Z	DCMO Policy and Integration	05				2,810		2,810	U
131	0605140D8Z	Trusted Foundry	05							U
132	0605210D8Z	Defense-Wide Electronic Procurement Capabilities	05				11,870		11,870	U
133	0605294D8Z	Trusted & Assured Microelectronics	05				61,084		61,084	U
135	0305304D8Z	DoD Enterprise Energy Information Management (EEIM)	05				3,669		3,669	U
136	0305310D8Z	CWMD Systems: System Development and Demonstration	05				8,230		8,230	U
		System Development And Demonstration					341,821		341,821	

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101	0604682D8Z	Wargaming and Support for Strategic Analysis (SSA)	04	3,768		3,768	U
102	0604775D8Z	Defense Rapid Innovation Program	04				U
114	0303191D8Z	Joint Electromagnetic Technology (JET) Program	04	3,104		3,104	U
		Advanced Component Development And Prototypes		2,019,673		2,019,673	
118	0604161D8Z	Nuclear and Conventional Physical Security Equipment RDT&E SDD	05	8,333		8,333	U
119	0604165D8Z	Prompt Global Strike Capability Development	05	263,414		263,414	U
121	0604771D8Z	Joint Tactical Information Distribution System (JTIDS)	05	19,503		19,503	U
125	0605022D8Z	Defense Exportability Program	05	1,489		1,489	U
126	0605027D8Z	OUSD(C) IT Development Initiatives	05	9,590		9,590	U
128	0605075D8Z	DCMO Policy and Integration	05	2,105		2,105	U
131	0605140D8Z	Trusted Foundry	05				U
132	0605210D8Z	Defense-Wide Electronic Procurement Capabilities	05	6,374		6,374	U
133	0605294D8Z	Trusted & Assured Microelectronics	05	56,178		56,178	U
135	0305304D8Z	DoD Enterprise Energy Information Management (EEIM)	05	2,435		2,435	U
136	0305310D8Z	CWMD Systems: System Development and Demonstration	05	17,048		17,048	U
		System Development And Demonstration		386,469		386,469	

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137	0604774D8Z	Defense Readiness Reporting System (DRRS)	06	4,672	6,941	6,941			U
138	0604875D8Z	Joint Systems Architecture Development	06	2,948	4,851	4,851			U
139	0604940D8Z	Central Test and Evaluation Investment Development (CTEIP)	06	212,389	211,325	211,325			U
140	0604942D8Z	Assessments and Evaluations	06	27,626	30,144	30,144			U
142	0605100D8Z	Joint Mission Environment Test Capability (JMETC)	06	65,062	91,057	91,057			U
143	0605104D8Z	Technical Studies, Support and Analysis	06	20,300	22,386	22,386			U
145	0605128D8Z	Classified Program USD(P)	06	130,000					U
146	0605142D8Z	Systems Engineering	06	31,276	37,622	37,622			U
147	0605151D8Z	Studies and Analysis Support - OSD	06	2,675	5,200	5,200			U
148	0605161D8Z	Nuclear Matters-Physical Security	06	5,101	5,232	5,232			U
149	0605170D8Z	Support to Networks and Information Integration	06	6,996	12,583	12,583			U
150	0605200D8Z	General Support to USD (Intelligence)	06	1,872	31,451	31,451			U
155	0605502D8Z	Small Business Innovative Research	06	84,770					U
159	0605790D8Z	Small Business Innovation Research (SBIR)/ Small Business Technology Transfer	06	2,185	2,372	2,372			U
160	0605798D8Z	Defense Technology Analysis	06	24,965	24,365	24,365			U

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137	0604774D8Z	Defense Readiness Reporting System (DRRS)	06				6,941		6,941	U
138	0604875D8Z	Joint Systems Architecture Development	06				4,851		4,851	U
139	0604940D8Z	Central Test and Evaluation Investment Development (CTEIP)	06				211,325		211,325	U
140	0604942D8Z	Assessments and Evaluations	06				30,144		30,144	U
142	0605100D8Z	Joint Mission Environment Test Capability (JMETC)	06				91,057		91,057	U
143	0605104D8Z	Technical Studies, Support and Analysis	06				22,386		22,386	U
145	0605128D8Z	Classified Program USD(P)	06							U
146	0605142D8Z	Systems Engineering	06				37,622		37,622	U
147	0605151D8Z	Studies and Analysis Support - OSD	06				5,200		5,200	U
148	0605161D8Z	Nuclear Matters-Physical Security	06				5,232		5,232	U
149	0605170D8Z	Support to Networks and Information Integration	06				12,583		12,583	U
150	0605200D8Z	General Support to USD (Intelligence)	06	30,000	-30,000		61,451	-30,000	31,451	U
155	0605502D8Z	Small Business Innovative Research	06							U
159	0605790D8Z	Small Business Innovation Research (SBIR)/ Small Business Technology Transfer	06				2,372		2,372	U
160	0605798D8Z	Defense Technology Analysis	06				24,365		24,365	U

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Line No	Program Element Number	Item	Act	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Sec
137	0604774D8Z	Defense Readiness Reporting System (DRRS)	06	6,661		6,661	U
138	0604875D8Z	Joint Systems Architecture Development	06	4,088		4,088	U
139	0604940D8Z	Central Test and Evaluation Investment Development (CTEIP)	06	258,796		258,796	U
140	0604942D8Z	Assessments and Evaluations	06	31,356		31,356	U
142	0605100D8Z	Joint Mission Environment Test Capability (JMETC)	06	84,184		84,184	U
143	0605104D8Z	Technical Studies, Support and Analysis	06	22,576		22,576	U
145	0605128D8Z	Classified Program USD(P)	06				U
146	0605142D8Z	Systems Engineering	06	38,872		38,872	U
147	0605151D8Z	Studies and Analysis Support - OSD	06	3,534		3,534	U
148	0605161D8Z	Nuclear Matters-Physical Security	06	5,050		5,050	U
149	0605170D8Z	Support to Networks and Information Integration	06	11,450		11,450	U
150	0605200D8Z	General Support to USD (Intelligence)	06	1,693		1,693	U
155	0605502D8Z	Small Business Innovative Research	06				U
159	0605790D8Z	Small Business Innovation Research (SBIR)/ Small Business Technology Transfer	06	2,545		2,545	U
160	0605798D8Z	Defense Technology Analysis	06	24,487		24,487	U

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Line No	Program Element Number	Item	Act	FY 2017 (Base + OCO)	FY 2018 PB Request with CR Adj Base	FY 2018 Total PB Requests* with CR Adj Base	FY 2018 PB Request with CR Adj OCO	FY 2018 Total PB Requests+ with CR Adj OCO	Sec
163	0605804D8Z	Development Test and Evaluation	06	20,822	20,571	20,571			U
166	0606100D8Z	Budget and Program Assessments	06	3,863	3,992	3,992			U
167	0606225D8Z	ODNA Technology and Resource Analysis	06		1,000	1,000			U
171	0203345D8Z	Defense Operations Security Initiative (DOSI)	06	2,070	2,551	2,551			U
176	0303260D8Z	Defense Military Deception Program Office (DMDPO)	06	843	1,006	1,006			U
178	0305193D8Z	Cyber Intelligence	06	10,511					U
180	0305245D8Z	Intelligence Capabilities and Innovation Investments	06		18,992	18,992			U
181	0306310D8Z	CWMD Systems: RDT&E Management Support	06		1,231	1,231			U
182	0804767D8Z	COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA	06	29,149					U
188	0909999D8Z	Financing for Cancelled Account Adjustments	06	437					U
		Management Support		690,532	534,872	534,872			
192	0607210D8Z	Industrial Base Analysis and Sustainment Support	07	15,584	10,882	10,882			U
193	0607310D8Z	CWMD Systems: Operational Systems Development	07	4,035	7,222	7,222			U
208	0303140D8Z	Information Systems Security Program	07	8,560	9,415	9,415			U
224	0305186D8Z	Policy R&D Programs	07	3,120	6,526	6,526			U

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163	0605804D8Z	Development Test and Evaluation	06				20,571		20,571	U
166	0606100D8Z	Budget and Program Assessments	06				3,992		3,992	U
167	0606225D8Z	ODNA Technology and Resource Analysis	06				1,000		1,000	U
171	0203345D8Z	Defense Operations Security Initiative (DOSI)	06				2,551		2,551	U
176	0303260D8Z	Defense Military Deception Program Office (DMDPO)	06				1,006		1,006	U
178	0305193D8Z	Cyber Intelligence	06							U
180	0305245D8Z	Intelligence Capabilities and Innovation Investments	06				18,992		18,992	U
181	0306310D8Z	CWMD Systems: RDT&E Management Support	06				1,231		1,231	U
182	0804767D8Z	COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA	06							U
188	0909999D8Z	Financing for Cancelled Account Adjustments	06							U
		Management Support		30,000	-30,000		564,872	-30,000	534,872	
192	0607210D8Z	Industrial Base Analysis and Sustainment Support	07				10,882		10,882	U
193	0607310D8Z	CWMD Systems: Operational Systems Development	07				7,222		7,222	U
208	0303140D8Z	Information Systems Security Program	07				9,415		9,415	U
224	0305186D8Z	Policy R&D Programs	07				6,526		6,526	U

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Line No	Program Element Number	Item	Act	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Sec
163	0605804D8Z	Development Test and Evaluation	06	20,179		20,179	U
166	0606100D8Z	Budget and Program Assessments	06	5,768		5,768	U
167	0606225D8Z	ODNA Technology and Resource Analysis	06	1,030		1,030	U
171	0203345D8Z	Defense Operations Security Initiative (DOSI)	06	3,008		3,008	U
176	0303260D8Z	Defense Military Deception Program Office (DMDPO)	06	1,005		1,005	U
178	0305193D8Z	Cyber Intelligence	06				U
180	0305245D8Z	Intelligence Capabilities and Innovation Investments	06	109,529		109,529	U
181	0306310D8Z	CWMD Systems: RDT&E Management Support	06	1,244		1,244	U
182	0804767D8Z	COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA	06				U
188	0909999D8Z	Financing for Cancelled Account Adjustments	06				U
		Management Support		637,055		637,055	
192	0607210D8Z	Industrial Base Analysis and Sustainment Support	07	10,376		10,376	U
193	0607310D8Z	CWMD Systems: Operational Systems Development	07	5,915		5,915	U
208	0303140D8Z	Information Systems Security Program	07	7,940		7,940	U
224	0305186D8Z	Policy R&D Programs	07	6,262		6,262	U

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225	0305199D8Z	Net Centricity	07	17,357	18,455	18,455			U
234	0305387D8Z	Homeland Defense Technology Transfer Program	07	7,052	2,071	2,071			U
240	0307577D8Z	Intelligence Mission Data (IMD)	07	13,485	13,111	13,111			U
		Operational System Development		69,193	67,682	67,682			
Total Research, Development, Test & Eval, DW				4,084,372	4,041,233	4,041,233	25,000	25,000	

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225	0305199D8Z	Net Centricity	07				18,455		18,455	U
234	0305387D8Z	Homeland Defense Technology Transfer Program	07				2,071		2,071	U
240	0307577D8Z	Intelligence Mission Data (IMD)	07				13,111		13,111	U
		Operational System Development					67,682		67,682	
Total Research, Development, Test & Eval, DW				368,100	-368,100		4,434,333	-368,100	4,066,233	

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FY 2019 President's Budget
Exhibit R-1 FY 2019 President's Budget
Total Obligational Authority
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Appropriation: 0400D Research, Development, Test & Eval, DW

Line No	Program Element Number	Item	Act	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Sec
225	0305199D8Z	Net Centricity	07	16,780		16,780	U
234	0305387D8Z	Homeland Defense Technology Transfer Program	07	2,198		2,198	U
240	0307577D8Z	Intelligence Mission Data (IMD)	07	6,889		6,889	U
		Operational System Development		56,360		56,360	
Total Research, Development, Test & Eval, DW				4,650,932	25,000	4,675,932	

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Line No	Program Element Number	Item	Act	FY 2017 (Base + OCO)	FY 2018 PB Request with CR Adj Base	FY 2018 Total PB Requests* with CR Adj Base	FY 2018 PB Request with CR Adj OCO	FY 2018 Total PB Requests+ with CR Adj OCO	Sec
3	0601110D8Z	Basic Research Initiatives	01	66,750	40,612	40,612			U
5	0601120D8Z	National Defense Education Program	01	76,995	74,298	74,298			U
6	0601228D8Z	Historically Black Colleges and Universities/Minority Institutions	01	32,709	25,865	25,865			U
Basic Research				176,454	140,775	140,775			
8	0602000D8Z	Joint Munitions Technology	02	17,611	19,111	19,111			U
10	0602230D8Z	Defense Technology Innovation	02	9,989					U
11	0602234D8Z	Lincoln Laboratory Research Program	02	46,500	49,748	49,748			U
12	0602251D8Z	Applied Research for the Advancement of S&T Priorities	02	40,798	49,226	49,226			U
16	0602668D8Z	Cyber Security Research	02	11,906	14,775	14,775			U
21	0602751D8Z	Software Engineering Institute (SEI) Applied Research	02	8,105	8,955	8,955			U
Applied Research				134,909	141,815	141,815			
23	0603000D8Z	Joint Munitions Advanced Technology	03	23,742	25,627	25,627			U
24	0603122D8Z	Combating Terrorism Technology Support	03	113,366	76,230	76,230	25,000	25,000	U
25	0603133D8Z	Foreign Comparative Testing	03	18,966	24,199	24,199			U
32	0603225D8Z	Joint DoD-DoE Munitions Technology Development	03	16,618	18,662	18,662			U
36	0603288D8Z	Analytic Assessments	03	11,603	13,154	13,154			U
37	0603289D8Z	Advanced Innovative Analysis and Concepts	03	55,679	37,674	37,674			U

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3	0601110D8Z	Basic Research Initiatives	01				40,612		40,612	U
5	0601120D8Z	National Defense Education Program	01				74,298		74,298	U
6	0601228D8Z	Historically Black Colleges and Universities/Minority Institutions	01				25,865		25,865	U
	Basic Research						140,775		140,775	
8	0602000D8Z	Joint Munitions Technology	02				19,111		19,111	U
10	0602230D8Z	Defense Technology Innovation	02							U
11	0602234D8Z	Lincoln Laboratory Research Program	02				49,748		49,748	U
12	0602251D8Z	Applied Research for the Advancement of S&T Priorities	02				49,226		49,226	U
16	0602668D8Z	Cyber Security Research	02				14,775		14,775	U
21	0602751D8Z	Software Engineering Institute (SEI) Applied Research	02				8,955		8,955	U
	Applied Research						141,815		141,815	
23	0603000D8Z	Joint Munitions Advanced Technology	03				25,627		25,627	U
24	0603122D8Z	Combating Terrorism Technology Support	03				101,230		101,230	U
25	0603133D8Z	Foreign Comparative Testing	03				24,199		24,199	U
32	0603225D8Z	Joint DoD-DoE Munitions Technology Development	03				18,662		18,662	U
36	0603288D8Z	Analytic Assessments	03				13,154		13,154	U
37	0603289D8Z	Advanced Innovative Analysis and Concepts	03				37,674		37,674	U

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Line No	Program Element Number	Item	Act	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Sec
3	0601110D8Z	Basic Research Initiatives	01	42,702		42,702	U
5	0601120D8Z	National Defense Education Program	01	85,919		85,919	U
6	0601228D8Z	Historically Black Colleges and Universities/Minority Institutions	01	30,412		30,412	U
	Basic Research			159,033		159,033	
8	0602000D8Z	Joint Munitions Technology	02	19,170		19,170	U
10	0602230D8Z	Defense Technology Innovation	02				U
11	0602234D8Z	Lincoln Laboratory Research Program	02	51,596		51,596	U
12	0602251D8Z	Applied Research for the Advancement of S&T Priorities	02	60,688		60,688	U
16	0602668D8Z	Cyber Security Research	02	14,969		14,969	U
21	0602751D8Z	Software Engineering Institute (SEI) Applied Research	02	9,300		9,300	U
	Applied Research			155,723		155,723	
23	0603000D8Z	Joint Munitions Advanced Technology	03	25,598		25,598	U
24	0603122D8Z	Combating Terrorism Technology Support	03	125,271	25,000	150,271	U
25	0603133D8Z	Foreign Comparative Testing	03	24,532		24,532	U
32	0603225D8Z	Joint DoD-DoE Munitions Technology Development	03	18,644		18,644	U
36	0603288D8Z	Analytic Assessments	03	19,472		19,472	U
37	0603289D8Z	Advanced Innovative Analysis and Concepts	03	37,263		37,263	U

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Line No	Program Element Number	Item	Act	FY 2017 (Base + OCO)	FY 2018 PB Request with CR Adj Base	FY 2018 Total PB Requests* with CR Adj Base	FY 2018 PB Request with CR Adj OCO	FY 2018 Total PB Requests+ with CR Adj OCO	Sec
38	0603291D8Z	Advanced Innovative Analysis and Concepts - MHA	03		15,000	15,000			U
41	0603375D8Z	Technology Innovation	03	24,895	59,863	59,863			U
43	0603527D8Z	RETRACT LARCH	03	175,135	171,120	171,120			U
44	0603618D8Z	Joint Electronic Advanced Technology	03	21,376	14,389	14,389			U
45	0603648D8Z	Joint Capability Technology Demonstrations	03	127,961	105,871	105,871			U
46	0603662D8Z	Networked Communications Capabilities	03	9,123	12,661	12,661			U
47	0603680D8Z	Defense-Wide Manufacturing Science and Technology Program	03	177,419	136,159	136,159			U
49	0603699D8Z	Emerging Capabilities Technology Development	03	54,279	57,876	57,876			U
52	0603716D8Z	Strategic Environmental Research Program	03	63,177	71,832	71,832			U
54	0603727D8Z	Joint Warfighting Program	03	4,581	6,349	6,349			U
59	0603769D8Z	Distributed Learning Advanced Technology Development	03	10,384	11,211	11,211			U
60	0603781D8Z	Software Engineering Institute	03	13,726	15,047	15,047			U
61	0603826D8Z	Quick Reaction Special Projects	03	77,354	69,203	69,203			U
62	0603833D8Z	Engineering Science & Technology	03	22,198	25,395	25,395			U
63	0603924D8Z	High Energy Laser Advanced Technology Program	03						U

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38	0603291D8Z	Advanced Innovative Analysis and Concepts - MHA	03				15,000		15,000	U
41	0603375D8Z	Technology Innovation	03	5,000	-5,000		64,863	-5,000	59,863	U
43	0603527D8Z	RETRACT LARCH	03				171,120		171,120	U
44	0603618D8Z	Joint Electronic Advanced Technology	03				14,389		14,389	U
45	0603648D8Z	Joint Capability Technology Demonstrations	03				105,871		105,871	U
46	0603662D8Z	Networked Communications Capabilities	03				12,661		12,661	U
47	0603680D8Z	Defense-Wide Manufacturing Science and Technology Program	03				136,159		136,159	U
49	0603699D8Z	Emerging Capabilities Technology Development	03				57,876		57,876	U
52	0603716D8Z	Strategic Environmental Research Program	03				71,832		71,832	U
54	0603727D8Z	Joint Warfighting Program	03				6,349		6,349	U
59	0603769D8Z	Distributed Learning Advanced Technology Development	03				11,211		11,211	U
60	0603781D8Z	Software Engineering Institute	03				15,047		15,047	U
61	0603826D8Z	Quick Reaction Special Projects	03				69,203		69,203	U
62	0603833D8Z	Engineering Science & Technology	03				25,395		25,395	U
63	0603924D8Z	High Energy Laser Advanced Technology Program	03							U

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Line No	Program Element Number	Item	Act	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Sec
38	0603291D8Z	Advanced Innovative Analysis and Concepts - MHA	03	13,621		13,621	U
41	0603375D8Z	Technology Innovation	03	83,143		83,143	U
43	0603527D8Z	RETRACT LARCH	03	161,128		161,128	U
44	0603618D8Z	Joint Electronic Advanced Technology	03	12,918		12,918	U
45	0603648D8Z	Joint Capability Technology Demonstrations	03	106,049		106,049	U
46	0603662D8Z	Networked Communications Capabilities	03	12,696		12,696	U
47	0603680D8Z	Defense-Wide Manufacturing Science and Technology Program	03	114,637		114,637	U
49	0603699D8Z	Emerging Capabilities Technology Development	03	48,338		48,338	U
52	0603716D8Z	Strategic Environmental Research Program	03	76,514		76,514	U
54	0603727D8Z	Joint Warfighting Program	03	5,992		5,992	U
59	0603769D8Z	Distributed Learning Advanced Technology Development	03	13,564		13,564	U
60	0603781D8Z	Software Engineering Institute	03	15,050		15,050	U
61	0603826D8Z	Quick Reaction Special Projects	03	69,626		69,626	U
62	0603833D8Z	Engineering Science & Technology	03	19,415		19,415	U
63	0603924D8Z	High Energy Laser Advanced Technology Program	03	69,533		69,533	U

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64	0603941D8Z	Test & Evaluation Science & Technology	03	89,605	89,586	89,586			U
65	0604055D8Z	Operational Energy Capability Improvement	03	41,459	38,403	38,403			U
66	0303310D8Z	CWMD Systems	03	19,587	33,382	33,382			U
	Advanced Technology Development			1,172,233	1,128,893	1,128,893	25,000	25,000	
68	0603161D8Z	Nuclear and Conventional Physical Security Equipment RDT&E ADC&P	04	25,851	32,937	32,937			U
69	0603600D8Z	WALKOFF	04	96,038	101,714	101,714			U
70	0603821D8Z	Acquisition Enterprise Data & Information Services	04	1,761	2,198	2,198			U
71	0603851D8Z	Environmental Security Technical Certification Program	04	46,440	54,583	54,583			U
89	0603920D8Z	Humanitarian Demining	04	9,740	10,837	10,837			U
90	0603923D8Z	Coalition Warfare	04	9,789	10,740	10,740			U
91	0604016D8Z	Department of Defense Corrosion Program	04	14,394	3,837	3,837			U
93	0604132D8Z	Missile Defeat Project	04	138,350	98,369	98,369			U
96	0604250D8Z	Advanced Innovative Technologies	04	850,762	1,175,832	1,175,832			U
97	0604294D8Z	Trusted & Assured Microelectronics	04		83,626	83,626			U
98	0604331D8Z	Rapid Prototyping Program	04	100,000	100,000	100,000			U
99	0604400D8Z	Department of Defense (DoD) Unmanned System Common Development	04	7,254	3,967	3,967			U

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64	0603941D8Z	Test & Evaluation Science & Technology	03				89,586		89,586	U
65	0604055D8Z	Operational Energy Capability Improvement	03				38,403		38,403	U
66	0303310D8Z	CWMD Systems	03				33,382		33,382	U
		Advanced Technology Development		5,000	-5,000		1,158,893	-5,000	1,153,893	
68	0603161D8Z	Nuclear and Conventional Physical Security Equipment RDT&E ADC&P	04				32,937		32,937	U
69	0603600D8Z	WALKOFF	04				101,714		101,714	U
70	0603821D8Z	Acquisition Enterprise Data & Information Services	04				2,198		2,198	U
71	0603851D8Z	Environmental Security Technical Certification Program	04				54,583		54,583	U
89	0603920D8Z	Humanitarian Demining	04				10,837		10,837	U
90	0603923D8Z	Coalition Warfare	04				10,740		10,740	U
91	0604016D8Z	Department of Defense Corrosion Program	04				3,837		3,837	U
93	0604132D8Z	Missile Defeat Project	04	26,400	-26,400		124,769	-26,400	98,369	U
96	0604250D8Z	Advanced Innovative Technologies	04	306,700	-306,700		1,482,532	-306,700	1,175,832	U
97	0604294D8Z	Trusted & Assured Microelectronics	04				83,626		83,626	U
98	0604331D8Z	Rapid Prototyping Program	04				100,000		100,000	U
99	0604400D8Z	Department of Defense (DoD) Unmanned System Common Development	04				3,967		3,967	U

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64	0603941D8Z	Test & Evaluation Science & Technology	03	96,389		96,389	U
65	0604055D8Z	Operational Energy Capability Improvement	03	40,582		40,582	U
66	0303310D8Z	CWMD Systems	03	26,644		26,644	U
		Advanced Technology Development		1,236,619	25,000	1,261,619	
68	0603161D8Z	Nuclear and Conventional Physical Security Equipment RDT&E ADC&P	04	28,140		28,140	U
69	0603600D8Z	WALKOFF	04	92,222		92,222	U
70	0603821D8Z	Acquisition Enterprise Data & Information Services	04	2,506		2,506	U
71	0603851D8Z	Environmental Security Technical Certification Program	04	40,016		40,016	U
89	0603920D8Z	Humanitarian Demining	04	11,347		11,347	U
90	0603923D8Z	Coalition Warfare	04	8,528		8,528	U
91	0604016D8Z	Department of Defense Corrosion Program	04	3,477		3,477	U
93	0604132D8Z	Missile Defeat Project	04	58,607		58,607	U
96	0604250D8Z	Advanced Innovative Technologies	04	1,431,702		1,431,702	U
97	0604294D8Z	Trusted & Assured Microelectronics	04	233,142		233,142	U
98	0604331D8Z	Rapid Prototyping Program	04	99,333		99,333	U
99	0604400D8Z	Department of Defense (DoD) Unmanned System Common Development	04	3,781		3,781	U

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101	0604682D8Z	Wargaming and Support for Strategic Analysis (SSA)	04	3,850	3,833	3,833			U
102	0604775D8Z	Defense Rapid Innovation Program	04	250,000					U
114	0303191D8Z	Joint Electromagnetic Technology (JET) Program	04	2,633	2,902	2,902			U
		Advanced Component Development And Prototypes		1,556,862	1,685,375	1,685,375			
118	0604161D8Z	Nuclear and Conventional Physical Security Equipment RDT&E SDD	05	10,152	12,536	12,536			U
119	0604165D8Z	Prompt Global Strike Capability Development	05	161,100	201,749	201,749			U
121	0604771D8Z	Joint Tactical Information Distribution System (JTIDS)	05	15,691	15,358	15,358			U
125	0605022D8Z	Defense Exportability Program	05	2,853	3,162	3,162			U
126	0605027D8Z	OUSD(C) IT Development Initiatives	05	16,131	21,353	21,353			U
128	0605075D8Z	DCMO Policy and Integration	05		2,810	2,810			U
131	0605140D8Z	Trusted Foundry	05	67,252					U
132	0605210D8Z	Defense-Wide Electronic Procurement Capabilities	05	8,310	11,870	11,870			U
133	0605294D8Z	Trusted & Assured Microelectronics	05		61,084	61,084			U
135	0305304D8Z	DoD Enterprise Energy Information Management (EEIM)	05	2,700	3,669	3,669			U
136	0305310D8Z	CWMD Systems: System Development and Demonstration	05		8,230	8,230			U
		System Development And Demonstration		284,189	341,821	341,821			

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101	0604682D8Z	Wargaming and Support for Strategic Analysis (SSA)	04				3,833		3,833	U
102	0604775D8Z	Defense Rapid Innovation Program	04							U
114	0303191D8Z	Joint Electromagnetic Technology (JET) Program	04				2,902		2,902	U
		Advanced Component Development And Prototypes		333,100	-333,100		2,018,475	-333,100	1,685,375	
118	0604161D8Z	Nuclear and Conventional Physical Security Equipment RDT&E SDD	05				12,536		12,536	U
119	0604165D8Z	Prompt Global Strike Capability Development	05				201,749		201,749	U
121	0604771D8Z	Joint Tactical Information Distribution System (JTIDS)	05				15,358		15,358	U
125	0605022D8Z	Defense Exportability Program	05				3,162		3,162	U
126	0605027D8Z	OUSD(C) IT Development Initiatives	05				21,353		21,353	U
128	0605075D8Z	DCMO Policy and Integration	05				2,810		2,810	U
131	0605140D8Z	Trusted Foundry	05							U
132	0605210D8Z	Defense-Wide Electronic Procurement Capabilities	05				11,870		11,870	U
133	0605294D8Z	Trusted & Assured Microelectronics	05				61,084		61,084	U
135	0305304D8Z	DoD Enterprise Energy Information Management (EEIM)	05				3,669		3,669	U
136	0305310D8Z	CWMD Systems: System Development and Demonstration	05				8,230		8,230	U
		System Development And Demonstration					341,821		341,821	

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Line No	Program Element Number	Item	Act	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Sec
101	0604682D8Z	Wargaming and Support for Strategic Analysis (SSA)	04	3,768		3,768	U
102	0604775D8Z	Defense Rapid Innovation Program	04				U
114	0303191D8Z	Joint Electromagnetic Technology (JET) Program	04	3,104		3,104	U
		Advanced Component Development And Prototypes		2,019,673		2,019,673	
118	0604161D8Z	Nuclear and Conventional Physical Security Equipment RDT&E SDD	05	8,333		8,333	U
119	0604165D8Z	Prompt Global Strike Capability Development	05	263,414		263,414	U
121	0604771D8Z	Joint Tactical Information Distribution System (JTIDS)	05	19,503		19,503	U
125	0605022D8Z	Defense Exportability Program	05	1,489		1,489	U
126	0605027D8Z	OUSD(C) IT Development Initiatives	05	9,590		9,590	U
128	0605075D8Z	DCMO Policy and Integration	05	2,105		2,105	U
131	0605140D8Z	Trusted Foundry	05				U
132	0605210D8Z	Defense-Wide Electronic Procurement Capabilities	05	6,374		6,374	U
133	0605294D8Z	Trusted & Assured Microelectronics	05	56,178		56,178	U
135	0305304D8Z	DoD Enterprise Energy Information Management (EEIM)	05	2,435		2,435	U
136	0305310D8Z	CWMD Systems: System Development and Demonstration	05	17,048		17,048	U
		System Development And Demonstration		386,469		386,469	

R-119PB: FY 2019 President's Budget (Published Version), as of February 1, 2018 at 13:17:56

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Appropriation: 0400D Research, Development, Test & Eval, DW

Line No	Program Element Number	Item	Act	FY 2017 (Base + OCO)	FY 2018 PB Request with CR Adj Base	FY 2018 Total PB Requests* with CR Adj Base	FY 2018 PB Request with CR Adj OCO	FY 2018 Total PB Requests+ with CR Adj OCO	Sec
137	0604774D8Z	Defense Readiness Reporting System (DRRS)	06	4,672	6,941	6,941			U
138	0604875D8Z	Joint Systems Architecture Development	06	2,948	4,851	4,851			U
139	0604940D8Z	Central Test and Evaluation Investment Development (CTEIP)	06	212,389	211,325	211,325			U
140	0604942D8Z	Assessments and Evaluations	06	27,626	30,144	30,144			U
142	0605100D8Z	Joint Mission Environment Test Capability (JMETC)	06	65,062	91,057	91,057			U
143	0605104D8Z	Technical Studies, Support and Analysis	06	20,300	22,386	22,386			U
145	0605128D8Z	Classified Program USD(P)	06	130,000					U
146	0605142D8Z	Systems Engineering	06	31,276	37,622	37,622			U
147	0605151D8Z	Studies and Analysis Support - OSD	06	2,675	5,200	5,200			U
148	0605161D8Z	Nuclear Matters-Physical Security	06	5,101	5,232	5,232			U
149	0605170D8Z	Support to Networks and Information Integration	06	6,996	12,583	12,583			U
150	0605200D8Z	General Support to USD (Intelligence)	06	1,872	31,451	31,451			U
155	0605502D8Z	Small Business Innovative Research	06	84,770					U
159	0605790D8Z	Small Business Innovation Research (SBIR)/ Small Business Technology Transfer	06	2,185	2,372	2,372			U
160	0605798D8Z	Defense Technology Analysis	06	24,965	24,365	24,365			U

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Appropriation: 0400D Research, Development, Test & Eval, DW

Line No	Program Element Number	Item	Act	FY 2018 Emergency Requests** Emergency	FY 2018 Less Enacted Div B P.L.115-96*** MDDE + Ship Repairs	FY 2018 Remaining Req Emergency	FY 2018 Total PB Requests* with CR Adj Base + OCO + Emergency**	FY 2018 Less Enacted DIV B P.L.115-96*** MDDE + Ship Repairs	FY 2018 Remaining Req with CR Adj Base + OCO + Emergency	Sec
137	0604774D8Z	Defense Readiness Reporting System (DRRS)	06				6,941		6,941	U
138	0604875D8Z	Joint Systems Architecture Development	06				4,851		4,851	U
139	0604940D8Z	Central Test and Evaluation Investment Development (CTEIP)	06				211,325		211,325	U
140	0604942D8Z	Assessments and Evaluations	06				30,144		30,144	U
142	0605100D8Z	Joint Mission Environment Test Capability (JMETC)	06				91,057		91,057	U
143	0605104D8Z	Technical Studies, Support and Analysis	06				22,386		22,386	U
145	0605128D8Z	Classified Program USD(P)	06							U
146	0605142D8Z	Systems Engineering	06				37,622		37,622	U
147	0605151D8Z	Studies and Analysis Support - OSD	06				5,200		5,200	U
148	0605161D8Z	Nuclear Matters-Physical Security	06				5,232		5,232	U
149	0605170D8Z	Support to Networks and Information Integration	06				12,583		12,583	U
150	0605200D8Z	General Support to USD (Intelligence)	06	30,000	-30,000		61,451	-30,000	31,451	U
155	0605502D8Z	Small Business Innovative Research	06							U
159	0605790D8Z	Small Business Innovation Research (SBIR)/ Small Business Technology Transfer	06				2,372		2,372	U
160	0605798D8Z	Defense Technology Analysis	06				24,365		24,365	U

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Line No	Program Element Number	Item	Act	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Sec
137	0604774D8Z	Defense Readiness Reporting System (DRRS)	06	6,661		6,661	U
138	0604875D8Z	Joint Systems Architecture Development	06	4,088		4,088	U
139	0604940D8Z	Central Test and Evaluation Investment Development (CTEIP)	06	258,796		258,796	U
140	0604942D8Z	Assessments and Evaluations	06	31,356		31,356	U
142	0605100D8Z	Joint Mission Environment Test Capability (JMETC)	06	84,184		84,184	U
143	0605104D8Z	Technical Studies, Support and Analysis	06	22,576		22,576	U
145	0605128D8Z	Classified Program USD(P)	06				U
146	0605142D8Z	Systems Engineering	06	38,872		38,872	U
147	0605151D8Z	Studies and Analysis Support - OSD	06	3,534		3,534	U
148	0605161D8Z	Nuclear Matters-Physical Security	06	5,050		5,050	U
149	0605170D8Z	Support to Networks and Information Integration	06	11,450		11,450	U
150	0605200D8Z	General Support to USD (Intelligence)	06	1,693		1,693	U
155	0605502D8Z	Small Business Innovative Research	06				U
159	0605790D8Z	Small Business Innovation Research (SBIR)/ Small Business Technology Transfer	06	2,545		2,545	U
160	0605798D8Z	Defense Technology Analysis	06	24,487		24,487	U

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Appropriation: 0400D Research, Development, Test & Eval, DW

Line No	Program Element Number	Item	Act	FY 2017 (Base + OCO)	FY 2018 PB Request with CR Adj Base	FY 2018 Total PB Requests* with CR Adj Base	FY 2018 PB Request with CR Adj OCO	FY 2018 Total PB Requests+ with CR Adj OCO	Sec
163	0605804D8Z	Development Test and Evaluation	06	20,822	20,571	20,571			U
166	0606100D8Z	Budget and Program Assessments	06	3,863	3,992	3,992			U
167	0606225D8Z	ODNA Technology and Resource Analysis	06		1,000	1,000			U
171	0203345D8Z	Defense Operations Security Initiative (DOSI)	06	2,070	2,551	2,551			U
176	0303260D8Z	Defense Military Deception Program Office (DMDPO)	06	843	1,006	1,006			U
178	0305193D8Z	Cyber Intelligence	06	10,511					U
180	0305245D8Z	Intelligence Capabilities and Innovation Investments	06		18,992	18,992			U
181	0306310D8Z	CWMD Systems: RDT&E Management Support	06		1,231	1,231			U
182	0804767D8Z	COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA	06	29,149					U
188	0909999D8Z	Financing for Cancelled Account Adjustments	06	437					U
Management Support				690,532	534,872	534,872			
192	0607210D8Z	Industrial Base Analysis and Sustainment Support	07	15,584	10,882	10,882			U
193	0607310D8Z	CWMD Systems: Operational Systems Development	07	4,035	7,222	7,222			U
208	0303140D8Z	Information Systems Security Program	07	8,560	9,415	9,415			U
224	0305186D8Z	Policy R&D Programs	07	3,120	6,526	6,526			U

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Appropriation: 0400D Research, Development, Test & Eval, DW

Line No	Program Element Number	Item	Act	FY 2018 Emergency Requests** Emergency	FY 2018 Less Enacted Div B P.L.115-96*** MDDE + Ship Repairs	FY 2018 Remaining Req Emergency	FY 2018 Total PB Requests* with CR Adj Base + OCO + Emergency**	FY 2018 Less Enacted DIV B P.L.115-96*** MDDE + Ship Repairs	FY 2018 Remaining Req with CR Adj Base + OCO + Emergency	Sec
163	0605804D8Z	Development Test and Evaluation	06				20,571		20,571	U
166	0606100D8Z	Budget and Program Assessments	06				3,992		3,992	U
167	0606225D8Z	ODNA Technology and Resource Analysis	06				1,000		1,000	U
171	0203345D8Z	Defense Operations Security Initiative (DOSI)	06				2,551		2,551	U
176	0303260D8Z	Defense Military Deception Program Office (DMDPO)	06				1,006		1,006	U
178	0305193D8Z	Cyber Intelligence	06							U
180	0305245D8Z	Intelligence Capabilities and Innovation Investments	06				18,992		18,992	U
181	0306310D8Z	CWMD Systems: RDT&E Management Support	06				1,231		1,231	U
182	0804767D8Z	COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA	06							U
188	0909999D8Z	Financing for Cancelled Account Adjustments	06							U
Management Support				30,000	-30,000		564,872	-30,000	534,872	
192	0607210D8Z	Industrial Base Analysis and Sustainment Support	07				10,882		10,882	U
193	0607310D8Z	CWMD Systems: Operational Systems Development	07				7,222		7,222	U
208	0303140D8Z	Information Systems Security Program	07				9,415		9,415	U
224	0305186D8Z	Policy R&D Programs	07				6,526		6,526	U

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Line No	Program Element Number	Item	Act	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Sec
163	0605804D8Z	Development Test and Evaluation	06	20,179		20,179	U
166	0606100D8Z	Budget and Program Assessments	06	5,768		5,768	U
167	0606225D8Z	ODNA Technology and Resource Analysis	06	1,030		1,030	U
171	0203345D8Z	Defense Operations Security Initiative (DOSI)	06	3,008		3,008	U
176	0303260D8Z	Defense Military Deception Program Office (DMDPO)	06	1,005		1,005	U
178	0305193D8Z	Cyber Intelligence	06				U
180	0305245D8Z	Intelligence Capabilities and Innovation Investments	06	109,529		109,529	U
181	0306310D8Z	CWMD Systems: RDT&E Management Support	06	1,244		1,244	U
182	0804767D8Z	COCOM Exercise Engagement and Training Transformation (CE2T2) - MHA	06				U
188	0909999D8Z	Financing for Cancelled Account Adjustments	06				U
Management Support				637,055		637,055	
192	0607210D8Z	Industrial Base Analysis and Sustainment Support	07	10,376		10,376	U
193	0607310D8Z	CWMD Systems: Operational Systems Development	07	5,915		5,915	U
208	0303140D8Z	Information Systems Security Program	07	7,940		7,940	U
224	0305186D8Z	Policy R&D Programs	07	6,262		6,262	U

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Appropriation: 0400D Research, Development, Test & Eval, DW

Line No	Program Element Number	Item	Act	FY 2017 (Base + OCO)	FY 2018 PB Request with CR Adj Base	FY 2018 Total PB Requests* with CR Adj Base	FY 2018 PB Request with CR Adj OCO	FY 2018 Total PB Requests+ with CR Adj OCO	Sec
225	0305199D8Z	Net Centricity	07	17,357	18,455	18,455			U
234	0305387D8Z	Homeland Defense Technology Transfer Program	07	7,052	2,071	2,071			U
240	0307577D8Z	Intelligence Mission Data (IMD)	07	13,485	13,111	13,111			U
		Operational System Development		69,193	67,682	67,682			
Total Office of Secretary of Defense				4,084,372	4,041,233	4,041,233	25,000	25,000	

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Office of Secretary of Defense
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Appropriation: 0400D Research, Development, Test & Eval, DW

Line No	Program Element Number	Item	Act	FY 2018 Emergency Requests** Emergency	FY 2018 Less Enacted Div B P.L.115-96*** MDDE + Ship Repairs	FY 2018 Remaining Req Emergency	FY 2018 Total PB Requests* with CR Adj Base + OCO + Emergency**	FY 2018 Less Enacted DIV B P.L.115-96*** MDDE + Ship Repairs	FY 2018 Remaining Req with CR Adj Base + OCO + Emergency	Sec
225	0305199D8Z	Net Centricity	07				18,455		18,455	U
234	0305387D8Z	Homeland Defense Technology Transfer Program	07				2,071		2,071	U
240	0307577D8Z	Intelligence Mission Data (IMD)	07				13,111		13,111	U
		Operational System Development					67,682		67,682	
		Total Office of Secretary of Defense		368,100	-368,100		4,434,333	-368,100	4,066,233	

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Appropriation: 0400D Research, Development, Test & Eval, DW

Line No	Program Element Number	Item	Act	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Sec
225	0305199D8Z	Net Centricity	07	16,780		16,780	U
234	0305387D8Z	Homeland Defense Technology Transfer Program	07	2,198		2,198	U
240	0307577D8Z	Intelligence Mission Data (IMD)	07	6,889		6,889	U
		Operational System Development		56,360		56,360	
Total Office of Secretary of Defense				4,650,932	25,000	4,675,932	

R-119PB: FY 2019 President's Budget (Published Version), as of February 1, 2018 at 13:17:56

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Appropriation 0400: Research, Development, Test & Evaluation, Defense-Wide

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

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Listing of Acronyms

ACRONYM	DEFINITION
ARDEC	Army Armament Research, Development, and Engineering Center
AMRDEC	Aviation and Missile Research, Development, and Engineering Center
ASD/R&E	Assistant Secretary of Defense for Research and Engineering
ASW	Anti-Submarine Warfare
AT&L	Acquisition Technology and Logistics
C2	Command and Control
C3	Command, Controls, and Communications
C4	Command, Controls, Communications, and Computer
C4I	Command, Controls, Communications, Computer, and Intelligence
C4ISR	Command, Controls, Communications, Computer, Intelligence, Surveillance and Reconnaissance
C4IAS	Command, Controls, Communications, Computer, and Intelligence Automation System
CBRNE	Chemical, Biological, Radiological, Nuclear, and high-yield Explosives
CIED	Counter-Improvised Explosive Device
CND	Computer Network Defense
COCOMs	Combatant Commands
CTTSO	Combating Terrorism Technical Support Office
CWMD	Countering Weapons of Mass Destruction
DARPA	Defense Advanced Research Projects Agency
DIUx	Defense Innovation Unit Experimental
DOD	Department of Defense
DPPG	Defense Policy and Planning Guidance
DSCS	Defense Satellite Communications System
DTRA	Defense Threat Reduction Agency
DTRMC	Defense Test Resource Management Center
DT&E	Development, Test and Evaluation
EDTC	Engineering and Development Test Center
EMP	Electromagnetic Pulse
EMREP	Electromagnetic Reliability and Effects Predictions
EOD	Explosive Ordnance Disposal
EOD/LIC	Explosive Ordnance Disposal/Low-Intensity Conflict
ESTCP	Environmental Security Technology Certification Program
FATGS	Fuze Area Technology Groups
FCT	Foreign Comparative Testing
FFRDC	FFRDC Federally Funded Research and Development Center
GCC	Global Command and Control

GEF	Guidance for Employment of the Force
GKMC	Global Knowledge Management System
GSA	Global Situational Awareness
GSM	Global System for Mobile Communications
HAMMER	Heated and Mobile Munitions Employing RocketsHANE High Altitude Nuclear Environments
HARP	High Altitude Radiological Phenomenology
HEBX	Hybridized Enhanced Blast Explosive
HEMP	HEMP High Altitude Electro Magnetic Pulse
HBCU/MI	Historically Black Colleges and Universities and Minority Institutions
HDBT	Hard and Deeply Buried Target
HPAC	Hazard Prediction and Assessment Capability
HPCMP	High Performance Computing Modernization Program
HSBC	Human Social Culture Behavior
HTD	Hard Target Defeat
IBRD	Interagency Biological Restoration Demonstration
IED	Improvised Explosive Device
IM	Insensitive Munitions
IMD	Intelligence Mission Data
IMEA	Integrated Munitions Effects Assessment
IOC	Initial Operational Capability
IoT	Internet of Things
IPODS	Integrated Precision Ordnance Delivery System
ISR	Intelligence, Surveillance, Reconnaissance
ISS	Integrated Sensor System
ISSP	Information Systems Security Program
IWS	Irregular Warfare Support
ITD	Integrated Technology Demonstration
JCIDS	Joint Capabilities Integration and Development System
JCTD	Joint Concept Technology Demonstration
JEM	Joint Effects Model
JFTP	Joint Fuze Technology Program
JIEDDO	Joint Improvised Explosive Device Defeat Organization
JIMTP	Joint Insensitive Munitions Technology Program
JMEWS	Joint Multi-Effects Warhead System
JSAF	Joint Semi-Automated Forces
JUON/JEON	Joint Urgent Operational Needs / Joint Emergent Operational Needs
M&S	Modeling and Simulation
MATGs	Munition Area Technology Groups

MDDE	Missile Defeat Defense Enhancement
MEMS	MEMS - MicroElectro-Mechanical Systems (MEMS)
MCPP	Military Child Pilot Program
MIL STD	Military Standard
MRL	MRL - Manufacturing Readiness Level
NDAA	National Defense Authorization Act
NDEP	National Defense Education Program
NCNS	National Center for Nuclear Security
NMCC	National Military Command Center
NNSA	National Nuclear Security Administration
NSSEFF	National Security Science and Engineering Faculty Fellowship
NuCS	Nuclear Capability Services
NWC	Nuclear Weapons Council
NWE	Nuclear Weapon Effects
NWEN	Nuclear Weapon Effects Network
NWEDS	Nuclear Weapons Effects Database System
NWRM	Nuclear Weapons Related Materiel
OCO	Overseas Contingency Operations
OCONUS	Outside the Continental United States
OLED	Organic Light Emitting Diode
OSD	Office of the Secretary of Defense
OSTP	Office of Science and Technology Policy
PDV	Product Demonstration Vehicle
PEO	Program Executive Officers
QDR	Quadrennial Defense Review
R2TD	Rapid Reaction Tunnel Detection
RDT&E	Research Development Test and Evaluation
RadHard	Radiation Hardened
RFIS	Robust Fuzewell Instrumentation System
RHBD	Radiation Hardened by Design
RHM	Radiation Hardened Microelectronics
ROI	Return on Investments
ROM	Rough Order of Magnitude
S&E	Scientists and Engineers
S&T	Science & Technology
SBIR	Small Business Innovative Research
SCO	Strategic Capabilities Office
SCSP	Special Operations Command Combating Weapons of Mass Destruction-Terrorism Support Program

SMART	Science, Mathematics, and Research for Transformation
SMDC	Space and Missile Development Command
SNL	Sandia National Laboratory
SNM	Special Nuclear Material
SOF	Special Operations Forces
SPE	Source Physics Experiment
SPG	Short Pulse Gamma
SSBR	Strategic Support for Basic Research
STEM	Science, Technology, Engineering, and Mathematics
STTR	Small Business Technology Transfer
TB	Test Bed
TEAMS	Technical Evaluation Assessment and Monitor Site
TNF	Technical Nuclear Forensics
TOA	Total Obligation Authority
TOW	Tube-launched, Optically-tracked, Wireless-guided
TPMM	TPMM Technology Program Management Model
TRAC	Threat Reduction Advisory Committee
TRL	Technology Readiness Level
TSG	Technical Support Group
UAS	Unmanned Aerial Systems
UCP	Unified Command Plan
UGF	Underground Facility
UGT	UGT Underground Test
USFK	U.S. Forces Korea
USG	USG United States Government
USNORTHCOM	U.S. Northern Command
USPACOM	U.S. Pacific Command
USSOCOM	U.S. Special Operations Command
USSTRATCOM	U.S. Strategic Command
UTAS	Underground Targeting and Analysis System
UXO	Unexploded Ordnance
WACS	WMD Aerial Collection System
WCF	West Coast Facility
WEP	Weapon Effects Phenomenology
WESC	Weapon Effects Steering Committee
WMD	Weapons of Mass Destruction
WSMR	White Sands Missile Range

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603161D8Z / *Nuclear and Conventional Physical Security/Countering Nuclear Threats*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	211.446	25.851	32.937	28.140	-	28.140	42.034	43.674	42.786	43.753	Continuing	Continuing
162: *Nuclear and Conventional Physical Security*	172.609	24.946	30.703	27.945	-	27.945	36.335	36.278	34.809	35.633	Continuing	Continuing
041: *CNT Prevention ADC&P*	1.927	0.000	0.691	0.000	-	0.000	5.504	7.201	7.782	7.925	Continuing	Continuing
040: *National Technical Nuclear Forensics Systems*	36.910	0.905	1.543	0.195	-	0.195	0.195	0.195	0.195	0.195	Continuing	Continuing

Note

The FY2019 funding request was reduced by $7.720 million to account for the availability of prior year execution balances

A. Mission Description and Budget Item Justification

This Program Element (PE) addresses the need to defend and deter against weapons of mass destruction (WMD) threats and to safeguard personnel; prevent unauthorized access to equipment, installations, material, and documents; and to safeguard the foregoing against espionage, sabotage, damage, and theft. This program oversees advanced engineering development throughout DoD for an integrated and systemic RDT&E approach for countering nuclear threats and nuclear and conventional physical security technology and systems. The funding has been centralized in this Defense-wide PE since the early 1990s and represents a substantial portion of all DoD physical security RDT&E funding. Priorities for this PE RDT&E efforts are driven by inputs from Quadrennial Defense Review guidance, Combatant Command and Service requirements, analysis reports such as “Protecting the Force: Lessons from Fort Hood," January 2010, the Integrated Unit, Base, and Installation Protection Cost Benefits Analysis, Multi-national Work Plans established through the Nuclear Security Summit process, and DoD Directive 5210.41, Security Policy for Protecting Nuclear Weapons-directed requirements and associated security deviation reports.

Under this integrated approach, funds are used to provide advanced component development and prototypes for the Department in seven capability areas: (1) Detection and Assessment; (2) Access Controls; (3) Installation and Transport Security; (4) Storage and Safeguards; (5) Prevention; (6) Decision Support Systems; and (7) Analytical Support. This program will evaluate integrated technologies, representative modes or prototype systems in a high fidelity and realistic operating environment. The projects under the Program Element either (a) lead to Programs of Record which can transition to Program Element 0604161D8Z for systems development and demonstration (SDD); (b) become technology insertions into existing programs; or (c) advance to being a certified Commercial/Government off-the-shelf product. The PE initiatives are coordinated by the Physical Security Enterprise and Analysis Group. This group is responsible for avoiding duplication of effort and when applicable ensure systems integration and promote interoperability and sustainability.

This PE can fund travel to support the requirements of this program.

This appropriation will finance work, including manpower, performed by a government agency or by private individuals or organizations under a contractual or grant arrangement with the government who conduct research (systematic study directed toward fuller scientific knowledge or understanding of the subject studied),

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603161D8Z *I Nuclear and Conventional Physical Security/Countering Nuclear Threats*

development (systematic use of the knowledge and understanding gained from research, for the production of useful materials, devices, systems, or methods, including the design and development of prototypes and processes) and test and evaluation efforts.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	28.498	32.937	36.085	-	36.085
Current President's Budget	25.851	32.937	28.140	-	28.140
Total Adjustments	-2.647	0.000	-7.945	-	-7.945
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-2.000	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.614	-			
• Fiscal Guidance Adjustment	-	-	-0.052	-	-0.052
• Internal realignment	-	-	1.703	-	1.703
• FFRDC	-0.029	-	-	-	-
• Tranferred to Air Force (Harvester Particulate)	-	-	-1.614	-	-1.614
• Inflation Adjustment	-	-	-0.242	-	-0.242
• Other Program Adjustments	-	-	-7.720	-	-7.720
• Misc Adjustment	-0.004	-	-0.020	-	-0.020

Change Summary Explanation

FY 2019 Funds rephase from FY19 to FY20 and FY21 to aid in increasing program execution rates closer to the DoD benchmarks.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603161D8Z / *Nuclear and Conventional Physical Security/Countering Nuclear Threats*	Project (Number/Name) 162 / *Nuclear and Conventional Physical Security*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
162: *Nuclear and Conventional Physical Security*	172.609	24.946	30.703	27.945	-	27.945	36.335	36.278	34.809	35.633	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Program Element (PE) addresses the need to defend and deter against weapons of mass destruction (WMD) threats and to safeguard personnel; prevent unauthorized access to equipment, installations, material, and documents; and to safeguard the foregoing against espionage, sabotage, damage, and theft. This program oversees advanced engineering development throughout DoD for an integrated and systemic RDT&E approach for countering nuclear threats and nuclear and conventional physical security equipment (PSE) technology and systems. The funding has been centralized in this Defense-wide PE since the early 1990s and represents a substantial portion of all DoD PSE RDT&E funding. Priorities for this PE RDT&E efforts are driven by inputs from Quadrennial Defense Review guidance, Combatant Command and Service requirements, analysis reports such as “Protecting the Force: Lessons from Fort Hood," January 2010, the Integrated Unit, Base, and Installation Protection Cost Benefits Analysis, Multi-national Work Plans established through the Nuclear Security Summit process, and DoD Directive 5210.41, Security Policy for Protecting Nuclear Weapons-directed requirements and associated security deviation reports.

Under this integrated approach, funds are used to provide PSE advanced component development and prototypes for the Department in seven capability areas: (1) Detection and Assessment; (2) Access Controls; (3) Installation and Transport Security; (4) Storage and Safeguards; (5) Prevention; (6) Decision Support Systems; and (7) Analytical Support. The projects under the Program Element either (a) lead to Programs of Record – which can transition to Program Element 0604161D8Z for systems development and demonstration (SDD); (b) become technology insertions into existing programs; or (c) advance to being a certified Commercial/Government off-the-shelf product. The PE initiatives are coordinated by the Security Policy Verification Committee and the Physical Security Equipment Action Group. These groups work together to avoid duplication of effort and when applicable ensure systems integration and promote interoperability and sustainability.

This PE can fund travel to support the requirements of this program.

This appropriation will finance work, including manpower, performed by a government agency or by private individuals or organizations under a contractual or grant arrangement with the government who conduct research (systematic study directed toward fuller scientific knowledge or understanding of the subject studied), development (systematic use of the knowledge and understanding gained from research, for the production of useful materials, devices, systems, or methods, including the design and development of prototypes and processes) and test and evaluation efforts.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Detection and Assessment	12.636	17.742	16.148

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Description: The ability to detect an adversary and assess their intentions is a basic physical security tenant. This capability area will design equipment to identify and warn of unauthorized access to a specified area or installation as well as equipment related to the notification and identification of explosive threats or hazards. ***FY 2018 Plans:*** • Develop a Joint detection and assessment capability • Develop a multi-sensor detection and discrimination capability to reduce nuisance and false alarms • Compare dual energy X-Ray vehicle imaging systems • Develop a radar processing dynamic structure filter to reduce nuisance and false alarms ***FY 2019 Plans:*** • Continue to develop a Joint detection and assessment capability • Continue to develop a multi-sensor detection and discrimination capability to reduce nuisance and false alarms • Continue to develop a radar processing dynamic structure filter to reduce nuisance and false alarms • Develop a Portable Intrusion Detection System ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Projects and project costs vary from year to year			
Title: Access Controls ***Description:*** Controlling access to safeguard personnel and their families and to prevent unauthorized access to critical infrastructure and materials is paramount. This capability area will focus on programs and processes related to the validity and verification of individuals entering or already within a facility. ***FY 2018 Plans:*** • Continue to develop an access control capability to compare DoD registered cardholders against the Terrorist Screening Database ***FY 2019 Plans:*** • Complete development of an access control capability to compare DoD registered cardholders against the Terrorist Screening Database ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Projects and project costs vary from year to year	2.855	5.524	5.028
Title: Installation and Transport Security	7.509	0.394	0.359

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603161D8Z / *Nuclear and Conventional Physical Security/Countering Nuclear Threats*	**Project (Number/Name)** 162 / *Nuclear and Conventional Physical Security*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Description: Robust installation and transport security are vital to preventing a weapon of mass destruction attack or the unauthorized access to key assets such as nuclear weapons and special nuclear material. This capability area will focus on programs and equipment intended to improve the physical security profile of fixed sites and facilities, as well as critical items while in-transit. ***FY 2018 Plans:*** • Determine the Operational suitability of an Automated Harbor Barrier Gate capability • Conduct a concept demonstration in an operational environment comprised of equipment, technologies and systems deployed and integrated across land, rail and waterside operating areas to address physical security detection gaps ***FY 2019 Plans:*** • Develop an advanced thermal imaging sight for the M2HB/M2A1 crew-served weapon systems. This system will enable improved target acquisition capabilities and will include multiple target indicators, an integrated ballistics processor, and video recording and export functionality. • Integrate Man-portable Tactical Autonomous System Unmanned Surface Vehicle controls into the Near-shore Unified Tactical Response capability ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Projects and project costs vary from year to year			
Title: Storage and Safeguards ***Description:*** Properly securing critical assets to prevent access by unauthorized persons and implementing control measures that ensure access is limited to authorized persons is the foundation of physical security. This capability area will focus on equipment (e.g., locks, doors, etc.) designed to delay or stop unauthorized entry/access to a specified/localized area. ***FY 2018 Plans:*** No efforts currently planned. ***FY 2019 Plans:*** No efforts currently planned.	-	0.000	0.000
Title: Prevention	-	2.548	2.319

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Description: The security procedures taken to discourage an adversary from accessing weapons of mass destruction or gaining unauthorized access to critical assets are at the heart of prevention. This capability area will focus on broad spectrum, generic efforts which have the ability to influence multiple areas. ***FY 2018 Plans:*** • Utilize Electronic Warfare / Directed Energy system capabilities for feasibility testing against Personal Water Craft threats ***FY 2019 Plans:*** • Conduct a cyber security assessment of electronic security systems and develop a repeatable process to verify/validate other electronic security systems in the future ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Projects and project costs vary from year to year			
Title: Decision Support Systems ***Description:*** Decision support systems serve the management, operations, and planning levels of the DoD physical security enterprise to help to make decisions, which may be rapidly changing and not easily specified in advance. This capability area will focus on command and control equipment and projects related to the creation and enhancement of common operating pictures, and the establishment of common architectures / interface standards. ***FY 2018 Plans:*** • Use modeling and simulation to characterize a High Value Unit escort with existing small boat support • Provide a secure communication system for responding forces that will represent a "leap ahead" from currently deployed systems • Provide a rapid replay or reconstruct system and operator activity to provide data forensics and training/exercise tools ***FY 2019 Plans:*** • Provide a persistent identification capability using a secure communication system for responding forces that will represent a “leap ahead” from currently deployed systems • Develop a full Cross Domain Solution that allows unclassified sensors to inter-operate with classified force protection command and control systems • Develop a counter unmanned underwater, surface and ground vehicle Investment Guides ***FY 2018 to FY 2019 Increase/Decrease Statement:***	1.946	3.104	2.825

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603161D8Z / *Nuclear and Conventional Physical Security/Countering Nuclear Threats*	**Project (Number/Name)** 162 / *Nuclear and Conventional Physical Security*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Projects and project costs vary from year to year			
Title: Analytical Support ***Description:*** This capability area will focus on studies related to physical security topics and operational and management efforts related to day-to-day activities of the DoD Physical Security Equipment/Countering Nuclear Threats RDT&E Program. ***FY 2018 Plans:*** • Provide the support necessary to coordinate PSEAG efforts with the Military Services and Agencies, as they relate to the Test & Evaluation of Physical Security Equipment technology for applications within the DOD • Provide support to the Services to address physical security RDT&E needs ***FY 2019 Plans:*** • Evaluate, select and integrate three Video Analytics capabilities that reduces operator workloads and allows inexpensive camera's to become detection sensors ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Projects and project costs vary from year to year	-	1.391	1.266
Accomplishments/Planned Programs Subtotals	24.946	30.703	27.945

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

The program performance metrics are established/approved through the DoD Physical Security Enterprise and Analysis Group (PSEAG). The cost, schedule and technical progress is reviewed at quarterly PSEAG meetings. Performance variances are addressed and corrective action(s) is(are) implemented as necessary.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense			Date: February 2018
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Years - Closed Out Efforts	Various	Various : Various	130.805	-		-		-		-		-	Continuing	Continuing	-
Defense Security Enterprise Architecture	Various	Multiple performers : Multiple locations	4.474	0.970		-		-		-		-	-	-	-
Keystone EUCOM Project	Various	Multiple Performers : Multiple Locations	4.649	1.227		-		-		-		-	-	-	-
Joint Risk Decision Support Tool	MIPR	AF Civil Engineering Center : Tyndall AFB, FL	3.871	1.524		-		-		-		-	-	-	-
Foliage Penetrating Technology Evaluation	MIPR	Naval Surface Warfare Crane : Crane, Indiana	0.504	-		2.700		0.750		-		0.750	-	-	-
Detection & Assessment Follow-on	Various	Multiple Vendors : Multiple Locations	3.554	2.000		-		-		-		-	-	-	-
Maritime Expeditionary & Transit Security	MIPR	ARO : Research Triangle Park, NC	2.015	1.455		-		-		-		-	-	-	-
US Navy Spike Weapon System, Common Launch Tube	MIPR	NAVAIRWARCENWPNDIV : China Lake, CA	2.555	0.984		-		-		-		-	-	-	-
Thermal Imaging Dual-use for Aerosol Monitoring Alarms and Security	MIPR	ECBC : Aberdeen Proving Ground	2.378	1.788		-		-		-		-	-	-	-
Multi-sensor Detection and Discrimination	MIPR	Naval Research Laboratory : Washington, DC	1.240	0.873		0.400		-		-		-	-	-	-
Tactical Security System	MIPR	Multiple Performers : Multiple Locations	-	2.350		-		-		-		-	-	-	-
Mobile Integrated Expeditionary Vehicle Inspection Station	MIPR	US Army ARDEC : Picatinny Arsenal, NJ	-	2.100		1.150		-		-		-	-	-	-
Linear Sensor System for Multi-Threat Detection	MIPR	Engineer Research and Development	-	1.250		1.097		1.700		-		1.700	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense			Date: February 2018
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Center : Vicksburgs, MS													
Portable Intrusion Detection System	MIPR	AFLCMC : Hanscom AFB, MA	-	1.100		1.500		1.500		-		1.500	-	-	-
JIGSAW Enhanced Capability Suite Technology Development	MIPR	SPAWAR Atl : Charleston, SC	-	0.800		-		-		-		-	-	-	-
GreyNet - Secure Communications with Persistent Identification/ Blue Force Tracking	MIPR	SPAWAR Atlantic : Charleston, SC	-	1.450		1.732		1.507		-		1.507	-	-	-
Wide Area Detection Systems	MIPR	AFLCMC : Hanscom AFB, MA	-	0.800		-		-		-		-	-	-	-
Radar Detection of UAVs	MIPR	SPAWAR Atlantic : Charleston, SC	-	0.700		-		-		-		-	-	-	-
HVU Self Escort M&S	MIPR	Navy - Strategic System Programs : Washington Navy Yard, DC	-	-		0.275		-		-		-	-	-	-
Force Protection Pre-shot Sniper Detection Capability	TBD	TBD : TBD	-	-		1.918		1.878		-		1.878	-	-	-
Harbor and Restricted Waterway Counter-UUV/ AUV System	MIPR	NUWC NWPT : Newport, RI	-	-		0.975		0.920		-		0.920	-	-	-
WISP 2.0	TBD	TBD : TBD	-	-		1.949		1.000		-		1.000	-	-	-
Joint UAS Defeat Project	TBD	TBD : TBD	-	-		0.846		-		-		-	-	-	-
Defense Installation Access Control	TBD	TBD : TBD	0.345	-		3.000		6.403		-		6.403	-	-	-
Trace Explosive Detection System Improvement	MIPR	NSWC IHEODTD : Indian Head, MD	-	-		0.531		-		-		-	-	-	-
Gatekeeper on the Move - Biometrics	TBD	TBD : TBD	-	-		1.497		0.900		-		0.900	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense			Date: February 2018
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Counter Personal Water Craft - Naval Experiment	MIPR	NSWC Dahlgren : Dahlgren, VA	-	-		0.561		-		-		-	-	-	-
Physical Security Enterprise Program	Various	Multiple Performers : Multiple Locations	8.441	1.640		2.865		1.300		-		1.300	Continuing	Continuing	-
Defense Security CBRN Information Sharing	Various	ARDEC : Picatinny Arsenal, NJ	-	-		2.245		0.078		-		0.078	-	-	-
Force Protection Cross Domain	MIPR	Multiple Performers : Multiple Locations	-	-		-		1.408		-		1.408	-	-	-
Force Protection Workload Reduction via Video Analytics	MIPR	Multiple Performers : Multiple Locations	-	-		-		1.300		-		1.300	Continuing	Continuing	-
Joint Active Shooter Protection and Response	MIPR	ARDEC : Picatinny Arsenal, NJ	-	-		-		0.750		-		0.750	Continuing	Continuing	-
Enhancing Biosecurity Surveillance using RFI Technology	MIPR	US Army Medical Research Institute of Infectious Diseases : Fort Detrick, MD	-	-		-		0.287		-		0.287	-	-	-
Enhanced Access Control for Husbanding Agencies using Biometrics	MIPR	Naval Surface Warfare Center, Dahlgren Division : Dahlgren, VA	-	-		-		0.952		-		0.952	Continuing	Continuing	-
M2HB/M2A1	MIPR	Naval Surface Warfare Center, Crane Division : Crane, IN	-	-		-		0.400		-		0.400	-	-	-
GunnAR for Waterside Security	MIPR	SPAWARSYSCEN Pacific : San Diego, CA	-	-		-		0.700		-		0.700	Continuing	Continuing	-
Tactical Radio Interface Console	MIPR	SPAWARSYSCEN Pacific : San Diego, CA	-	-		-		0.150		-		0.150	Continuing	Continuing	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense			Date: February 2018
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Guardian Angel	MIPR	SPAWARSYSCEN : Charleston, SC	-	-		-		1.300		-		1.300	Continuing	Continuing	-
		Subtotal	164.831	23.011		25.241		25.183		-		25.183	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Years Completed Efforts	Various	Various Performers : Various Locations	0.800	-		-		-		-		-	-	-	-
World Institute for Nuclear Security	MIPR	Defense Threat Reduction Agency : Ft Belvoir, VA	1.000	0.350		-		-		-		-	-	-	-
Physical Security Subject Matter Experts	MIPR	Naval Sea Systems Command : Washington Navy Yard, DC	0.570	0.250		0.135		0.235		-		0.235	-	-	-
Nuclear Security Subject Matter Experts	MIPR	Applied Research Laboratories, The University of Texas : Austin, Texas	-	-		0.150		0.225		-		0.225	Continuing	Continuing	-
Autonomous Defense Accelerator	MIPR	Army Research Lab : Adelphi, MD	-	-		0.200		-		-		-	-	-	-
PSEAG Support	MIPR	Army Research Lab : Adelphi, MD	-	-		0.536		0.600		-		0.600	Continuing	Continuing	-
Texas Engineering Experiment Station	Option/ T&M	Texas A&M University : Texas	-	-		0.249		-		-		-	-	-	-
Contingency Response Tool	SS/FFP	Cubic Global Defense : San Diego, CA	-	-		0.886		-		-		-	-	-	-
PSEAG Website and PSEAG SharePoint	MIPR	Army Research Lab : Adelphi, MD	0.266	-		0.206		0.395		-		0.395	Continuing	Continuing	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	2.636	0.600		2.362		1.455		-		1.455	Continuing	Continuing	N/A

Remarks

NA

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Citadel Protect	Various	Various : Various	-	-		0.140		-		-		-	-	-	-
COTS Indoor Detection System	MIPR	SPAWAR : Charlston, SC	-	-		0.473		-		-		-	-	-	-
Development, Test and Evaluation of System Operations Audit and Recording	MIPR	SPAWAR : Charlston, SC	-	-		0.591		-		-		-	-	-	-
Comparative Evaluation of Man-Portable Mass Spectrometry Explosive Detection Systems T&E	MIPR	NAVEODTECH : Indian Head, MD	-	-		0.918		-		-		-	-	-	-
Comparative Colorimetric T&E	MIPR	NAVEODTECH : Indian Head, MD	-	-		0.978		-		-		-	-	-	-
Interoperability / Test & Evaluation	MIPR	SPAWAR Atlantic : Charleston, SC	-	-		-		0.567		-		0.567	Continuing	Continuing	-
Aerial Physical Security Assessment	MIPR	SPAWARSYSCEN Atlantic : Charlston, SC	-	-		-		0.580		-		0.580	Continuing	Continuing	-
		Subtotal	-	-		3.100		1.147		-		1.147	Continuing	Continuing	N/A

Remarks

NA

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense			Date: February 2018
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Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Years - Completed Efforts	Various	*** PERFORMING ACTIVITY *** : *** LOCATION ***	2.792	-		-		-		-		-	Continuing	Continuing	-
Detection & Assessment IPT	MIPR	AF Security Forces Center : Lackland AFB, TX	0.800	0.350		-		0.160		-		0.160	-	-	-
Explosive Detection Equipment Guide	MIPR	NAVEODTECH : Indian Head, MD	1.550	0.985		-		-		-		-	-	-	-
		Subtotal	5.142	1.335		-		0.160		-		0.160	Continuing	Continuing	N/A

Remarks

NA

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	172.609	24.946		30.703		27.945		-		27.945	Continuing	Continuing	N/A

Remarks

NA

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
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Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Detection & Assessment				
Detection & Assessment	1	2012	4	2023
Decision Support				
Decision Support	1	2012	4	2023
Storage & Safeguards				
Storage & Safeguards	1	2012	4	2023
Installation & Transport Security				
Installation & Transport Security	1	2012	4	2023
Prevention				
Prevention	1	2012	4	2023
Access Control				
Access Control	1	2012	4	2023
Analytical Support				
Analytical Support	1	2012	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603161D8Z / *Nuclear and Conventional Physical Security/Countering Nuclear Threats*	Project (Number/Name) 041 / *CNT Prevention ADC&P*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
041: *CNT Prevention ADC&P*	1.927	0.000	0.691	0.000	-	0.000	5.504	7.201	7.782	7.925	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Establish a Defense-wide Countering Nuclear Threats (CNT) Materiel Development Program focused on prevention. Addresses capability gaps identified by Services, Combatant Commands, and Joint Staff. The CNT acquisition strategy directly applies to Joint requirements for CNT materiel development and addresses the materiel and sustainment gaps for general purpose Joint Forces including the US Army 20th Support Command / Navy Visit, Board, Search, and Seizure / Technical Support Groups (NIMBLE ELDER and the US Special Operations Command).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Countering Nuclear Threats	-	0.691	0.000
Description: Establish a Defense-wide Countering Nuclear Threats (CNT) Materiel Development Program based on capability gaps identified by Services, Combatant Commands, and Joint Staff. The CNT acquisition strategy directly applies to Joint requirements for CNT materiel development and addresses the materiel and sustainment gaps for general purpose Joint Forces including the US Army 20th Support Command / Navy Visit, Board, Search, and Seizure / Technical Support Groups (NIMBLE ELDER and the US Special Operations Command). ***FY 2018 Plans:*** • Develop an active prevention capability to counter nuclear threats ***FY 2019 Plans:*** • Continue the development of an active prevention capability to counter nuclear threats ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Projects and project costs vary from year to year			
Accomplishments/Planned Programs Subtotals	-	0.691	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603161D8Z / *Nuclear and Conventional Physical Security/Countering Nuclear Threats*	**Project (Number/Name)** 041 / *CNT Prevention ADC&P*

D. Acquisition Strategy

N/A

E. Performance Metrics

The program performance metrics are established/approved through the Countering Nuclear Threats Program Manager. The cost, schedule and technical progress is reviewed on a quarterly basis. Performance variances are addressed and corrective action(s) is(are) implemented as necessary.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603161D8Z / *Nuclear and Conventional Physical Security/Countering Nuclear Threats*	**Project (Number/Name)** 041 / *CNT Prevention ADC&P*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Radioisotope Identification Device	MIPR	JPEO CBD : Aberdeen, MD.	-	-		0.691		-		-		-	-	-	-
Radiological Detection System	Sub Allot	JPEO CBD : Aberdeen, MD.	1.927	-		-		-		-		-	-	-	-
Active Prevention System	TBD	TBD : TBD	-	-		-		-		-		-	Continuing	Continuing	-
		Subtotal	1.927	-		0.691		-		-		-	Continuing	Continuing	N/A

Remarks

NA

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	1.927	-		0.691		-		-		-	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603161D8Z / *Nuclear and Conventional Physical Security/Countering Nuclear Threats*	**Project (Number/Name)** 041 / *CNT Prevention ADC&P*

Radioisotope Identification Device

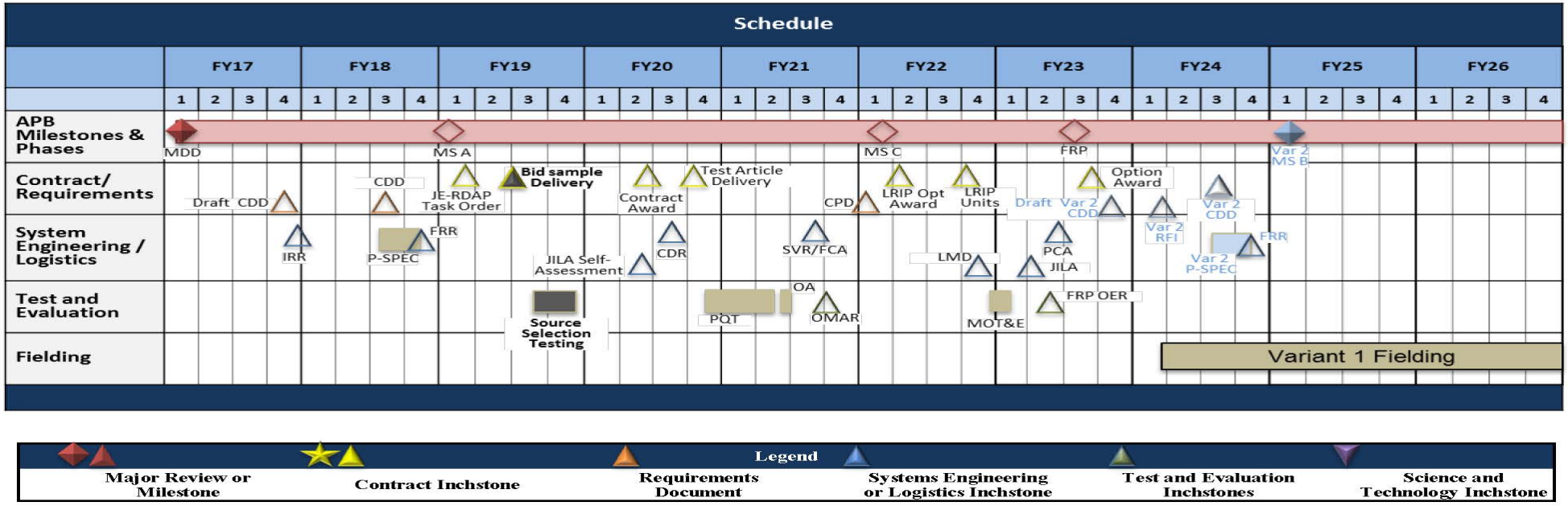


Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603161D8Z / *Nuclear and Conventional Physical Security/Countering Nuclear Threats*	**Project (Number/Name)** 041 / *CNT Prevention ADC&P*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Radioisotope Identification Device				
Radioisotope Identification Device	1	2018	4	2018
Active Protective Systems				
Active Protective Systems	1	2020	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603161D8Z / *Nuclear and Conventional Physical Security/Countering Nuclear Threats*	Project (Number/Name) 040 / *National Technical Nuclear Forensics Systems*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
040: *National Technical Nuclear Forensics Systems*	36.910	0.905	1.543	0.195	-	0.195	0.195	0.195	0.195	0.195	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Nuclear forensics is the thorough collection, analysis and evaluation of radiological and nuclear material in a pre-detonation state and post-detonation radiological or nuclear materials, devices and debris, as well as the immediate effects created by a nuclear detonation. The ability to identify the source of nuclear material from radioactive debris is critical to our national defense and security. Swift and accurate forensic and attribution (identification) capabilities are vital to developing an appropriate national response to a nuclear event and preventing future attacks in a timely manner.

Nuclear terrorism is one of the most significant and pressing threats identified by national leadership. A credible nuclear forensics program is essential to preventing nuclear terrorism by deterring nations from sponsoring nuclear terrorism. During the Deputy Management Advisory Group process shortfalls and resources to close these gaps were identified and supported by the Deputy Secretary of Defense. The purpose of this program is to develop systems such as ground based prompt diagnostic systems and airborne sample collection systems to provide timely and accurate information to national leadership in the area of nuclear forensics.

Per DoDD 2060.04 OSD AT&L NCB provides guidance and direction for the implementation of the Department of Defense National Technical Nuclear Forensics program. NCB represents DoD interests in all areas of nuclear forensics but emphasizes post-detonation applications due to Presidential guidance assigning the department the lead role in develop, providing, and maintaining post-detonation nuclear forensics capability.

This PE can fund travel to support the requirements of this program.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: National Technical Nuclear Forensics Systems	0.905	1.543	0.195
Description: Advanced development of ground based prompt diagnostic and airborne collection systems. This technology will provide new information that increases accuracy and provides an improved timeline in support of senior leadership decision making.			
FY 2018 Plans: • Continue Harvester PACS operational support of a modular particulate air sampling capability that augments the Department of Defense mobile nuclear air sampling capability to support collection requirements for treaty verification and National Technical Nuclear Forensics.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603161D8Z / *Nuclear and Conventional Physical Security/Countering Nuclear Threats*	**Project (Number/Name)** 040 / *National Technical Nuclear Forensics Systems*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
• Conduct the Nuclear Testing, Diagnostics, Forensics and Stockpile Stewardship Course. This course seeks to enhance the education of the Military & Federal workforce in areas critical to the Stockpile Stewardship Program, and also to include applications to synergistic capabilities such as technical nuclear forensics in order to facilitate technical and professional development and increase understanding of the history of nuclear weapons development, testing and design, and the interdependence between technical nuclear forensics and the nuclear weapons program as an integral component. ***FY 2019 Plans:*** • Transition Harvester PACS capability to the Air Force. This system provides a modular particulate air sampling capability that augments the Department of Defense mobile nuclear air sampling capability to support collection requirements for treaty verification and National Technical Nuclear Forensics. • Conduct the Nuclear Testing, Diagnostics, Forensics and Stockpile Stewardship Course. This course seeks to enhance the education of the Military & Federal workforce in areas critical to the Stockpile Stewardship Program, and also to include applications to synergistic capabilities such as technical nuclear forensics in order to facilitate technical and professional development and increase understanding of the history of nuclear weapons development, testing and design, and the interdependence between technical nuclear forensics and the nuclear weapons program as an integral component. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Harvester PACS capability is being transitioned to the Air Force starting in FY19.			
Accomplishments/Planned Programs Subtotals	0.905	1.543	0.195

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

The program performance metrics are established/approved through the Countering Nuclear Threats Program Manager. The cost, schedule and technical progress is reviewed on a quarterly basis. Performance variances are addressed and corrective action(s) is(are) implemented as necessary. This is new program focusing on advanced development to meet critical needs.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603161D8Z / *Nuclear and Conventional Physical Security/Countering Nuclear Threats*	**Project (Number/Name)** 040 / *National Technical Nuclear Forensics Systems*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Harvester Particulate Airborne Collection System	Various	Various : Various	14.078	-		-		-		-		-	Continuing	Continuing	-
Modular Whole-air Collection System	Various	Various : Various	0.717	0.905		1.348		-		-		-	Continuing	Continuing	-
DISCREET OCULUS / United States Prompt Diagnostics System	Various	Various : Various	19.017	-		-		-		-		-	Continuing	Continuing	-
SOCOM Rendor Safe	Various	Various : Various	1.951	-		-		-		-		-	Continuing	Continuing	-
Global Initiative Information Portal	IA	Department of State : Washington, DC	0.656	-		-		-		-		-	Continuing	Continuing	-
		Subtotal	36.419	0.905		1.348		-		-		-	Continuing	Continuing	N/A

Remarks

NA

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Nuclear Testing, Diagnostics, Forensics and Stockpile Stewardship Course	IA	DOE : Livermore, CA	0.398	0.000		0.195		0.195		-		0.195	Continuing	Continuing	-
IDA - CNT Goals & Approaches	Sub Allot	IDA : Alexandria, VA	0.093	-		-		-		-		-	Continuing	Continuing	-
		Subtotal	0.491	0.000		0.195		0.195		-		0.195	Continuing	Continuing	N/A

Remarks

NA

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603161D8Z / *Nuclear and Conventional Physical Security/Countering Nuclear Threats*	Project (Number/Name) 040 / *National Technical Nuclear Forensics Systems*	

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	36.910	0.905		1.543		0.195		-		0.195	Continuing	Continuing	N/A

Remarks

NA

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603161D8Z / *Nuclear and Conventional Physical Security/Countering Nuclear Threats*	**Project (Number/Name)** 040 / *National Technical Nuclear Forensics Systems*

Harvester Particulate Airborne Collection System & Modular Whole-air Collection System

Particulate Airborne Collection System and Modular Whole-air Collection System Timeline

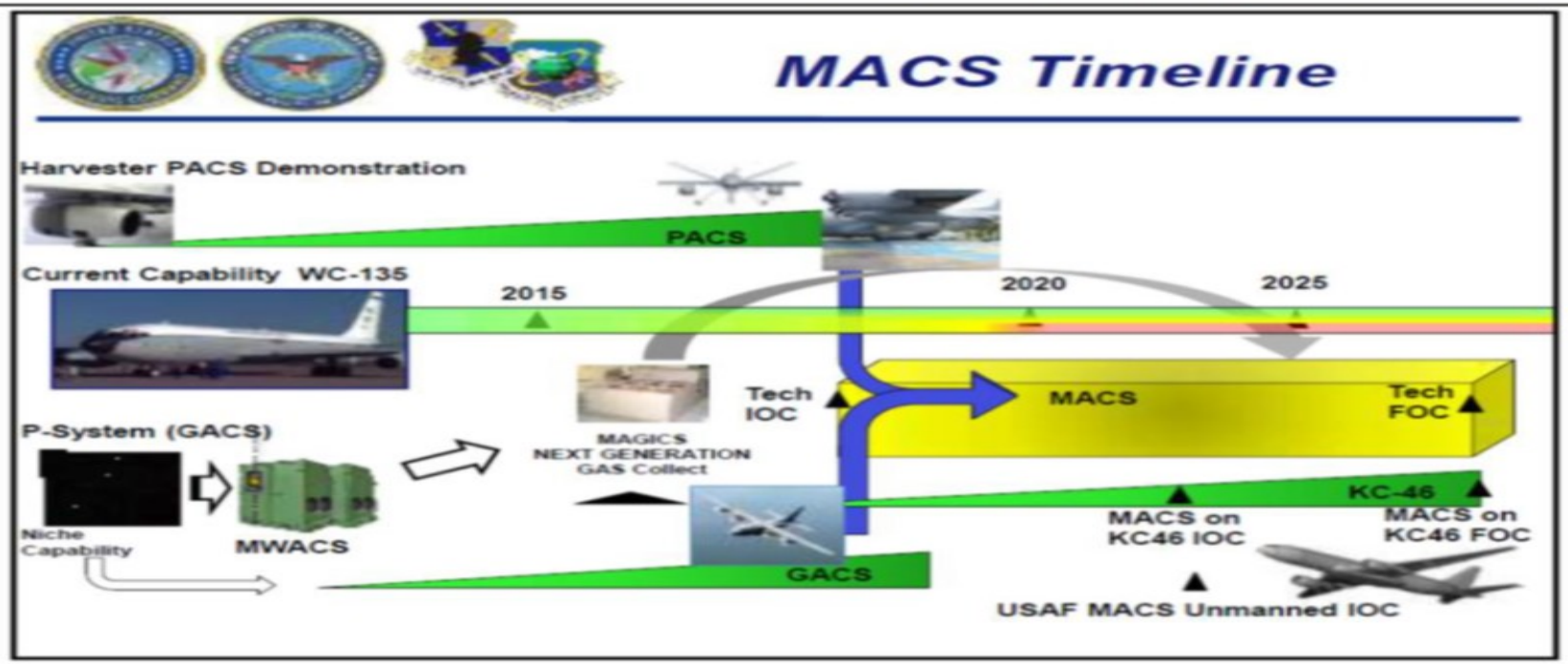


Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603161D8Z / *Nuclear and Conventional Physical Security/Countering Nuclear Threats*	**Project (Number/Name)** 040 / *National Technical Nuclear Forensics Systems*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Modular Airborne Collection Systems				
Modular Airborne Collection Systems	1	2014	4	2018
Nuclear Testing, Diagnostics, Forensics and Stockpile Stewardship Course				
Nuclear Testing, Diagnostics, Forensics and Stockpile Stewardship Course	1	2018	4	2023

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603600D8Z / *WALKOFF*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	176.253	96.038	101.714	92.222	-	92.222	93.056	94.877	96.825	98.380	Continuing	Continuing
600: *WALKOFF*	176.253	96.038	101.714	92.222	-	92.222	93.056	94.877	96.825	98.380	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Classified.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	98.143	101.714	94.341	-	94.341
Current President's Budget	96.038	101.714	92.222	-	92.222
Total Adjustments	-2.105	0.000	-2.119	-	-2.119
• Congressional General Reductions	-0.099	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-2.290	-			
• Reprogrammings	0.284	-	-	-	-
• Realignment to O&M	-	-	-1.500	-	-1.500
• Departmental Adjustment	-	-	-0.619	-	-0.619

Change Summary Explanation

FY 2019 decrease is a result of a $1.5 million transfer to O&M as well as Departmental Adjustments. Details are classified.

C. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: WALKOFF	96.038	101.714	92.222
Description: Classified.			
FY 2018 Plans: Classified.			
FY 2019 Plans:			

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603600D8Z / *WALKOFF*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Classified. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Received an $11 million Departmental increase in FY2018. Details are classified.			
Accomplishments/Planned Programs Subtotals	96.038	101.714	92.222

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• 0603600D8Z O&M DW: *WALKOFF*	2.546	2.710	4.159	-	4.159	4.186	4.239	4.296	4.348	Continuing	Continuing

Remarks

E. Acquisition Strategy

Classified.

F. Performance Metrics

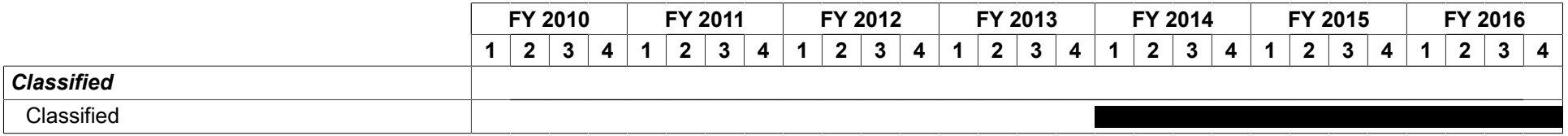
Classified.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603600D8Z / *WALKOFF*	**Project (Number/Name)** 600 / *WALKOFF*

Remarks

Classified.

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603600D8Z / *WALKOFF*	**Project (Number/Name)** 600 / *WALKOFF*



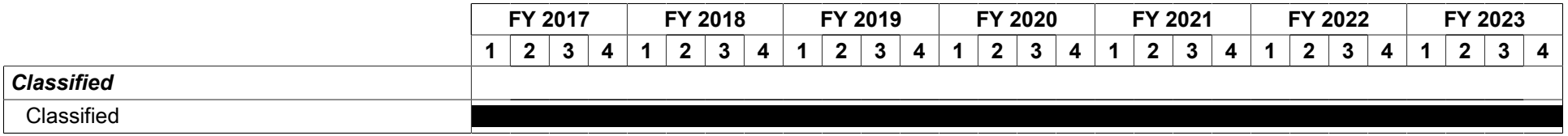


Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603600D8Z / *WALKOFF*	**Project (Number/Name)** 600 / *WALKOFF*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Classified				
Classified	1	2014	4	2023

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603821D8Z / *Acquisition Enterprise Data & Information Services*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	0.000	1.761	2.198	2.506	-	2.506	3.071	3.925	3.987	4.060	Continuing	Continuing
840: *Acquisition Enterprise Data & Information Services*	0.000	1.761	2.198	2.506	-	2.506	3.071	3.925	3.987	4.060	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Acquisition Enterprise Data & Information Services (AEDIS) investment supports enhanced Acquisition Visibility (AV) for the Defense Acquisition Executive (DAE), Component Acquisition Executives (CAE), Service Chiefs of Staff, OSD senior leaders, and OSD and Component analysts who assess and decide the efficiency and effectiveness of acquiring and sustaining the Department's acquisition programs including Major Defense Acquisition Programs (MDAPs), Major IT investments, and Acquisition Category (ACAT) II – IV programs. AEDIS/AV supports DAE, CAE, and Service Chief responsibilities by providing critical information for acquisition analysis, oversight, and decisions. AEDIS/AV institutionalizes the management of data and business rules used in the Department's acquisition decision making, and it integrates the acquisition data stored across multiple disparate Federal and Departmental organizations' data sets and systems. The AEDIS/AV investment delivers a Department-wide accessible collection of acquisition information, techniques, and tools, including the Defense Acquisition Visibility Environment (DAVE), the Defense Acquisition Management Information Retrieval (DAMIR) capability, and acquisition data analysis capabilities as well as data access services and data standards via the Acquisition Visibility Data Matrix (AVDM). Funding supports enhancements to Acquisition Visibility through the definition, development, and fielding of concepts and tools for Department-wide data analysis for use across Congress and the Department, particularly in support of the DAE and his decision authority.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	2.136	2.198	2.523	-	2.523
Current President's Budget	1.761	2.198	2.506	-	2.506
Total Adjustments	-0.375	0.000	-0.017	-	-0.017
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.295	-			
• SBIR/STTR Transfer	-0.078	-			
• FFRDC Transfer	-0.002	-	-0.017	-	-0.017

Change Summary Explanation

FY19 reduction from FY18 PB due to anticipated lower inflationary pressures on software licensing required to maintain Acquisition Enterprise Data & Information Services related capabilities.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603821D8Z / *Acquisition Enterprise Data & Information Services*

For FY17 actuals 0.295 reprogrammed from RDT&E to O&M.

C. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Acquisition Enterprise Data & Information Services	1.761	2.198	2.506
Description: Acquisition Enterprise Data & Information Services investments enhance the visibility of the Department's acquisitiion programs for the Defense Acquisition Executive (DAE), Component Acquisition Executives (CAE), Service Chiefs of Staff, OSD senior leaders, and OSD and Component analysts. ***FY 2018 Plans:*** FY2018 plans include the continued development of Defense Acquisition Visibility Environment (DAVE) capability; development and prototyping of a SIPR instance of DAVE; and prototyping of efforts to transition legacy capabilities to DAVE. Development of DAVE includes architecture enhancements, new data and information, and additional capabilities. ***FY 2019 Plans:*** FY2019 plans include continued development and prototyping of legacy capabilities transitioning to Defense Acquisition Visibility Environment (DAVE), as well as development and prototyping of new acquisition visibility capabilities and applications to improve analysis and decision-making. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The increase from FY2018 to FY2019 reflects an anticipated increase in developer costs as well as increase costs for necessary licensing and data subscription services costs. As new applications are developed and prototyped within DAVE, data usage demands and the corresponding fees will increase.			
Accomplishments/Planned Programs Subtotals	1.761	2.198	2.506

D. Other Program Funding Summary ($ in Millions)

N/A

Remarks

E. Acquisition Strategy

Acquisition Enterprise Data & Information Services development and prototyping is acquired through a combination of small-disadvantaged business contract awards.

F. Performance Metrics

Code coverage reports must demonstrate a minimum of 80% code coverage for automated testing.
Delivered capabilities must not exceed 0.5% unscheduled down time annually.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603821D8Z / *Acquisition Enterprise Data & Information Services*	Project (Number/Name) 840 / *Acquisition Enterprise Data & Information Services*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DAVE Development	Option/ FFP	Koniag Information Security Services : Chantilly, VA	-	1.761	Jul 2017	2.198	Jul 2018	2.506	Jul 2019	-		2.506	Continuing	Continuing	N/A
		Subtotal	-	1.761		2.198		2.506		-		2.506	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	1.761		2.198		2.506		-		2.506	Continuing	Continuing	N/A

Remarks

NA

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603821D8Z / *Acquisition Enterprise Data & Information Services*	**Project (Number/Name)** 840 / *Acquisition Enterprise Data & Information Services*

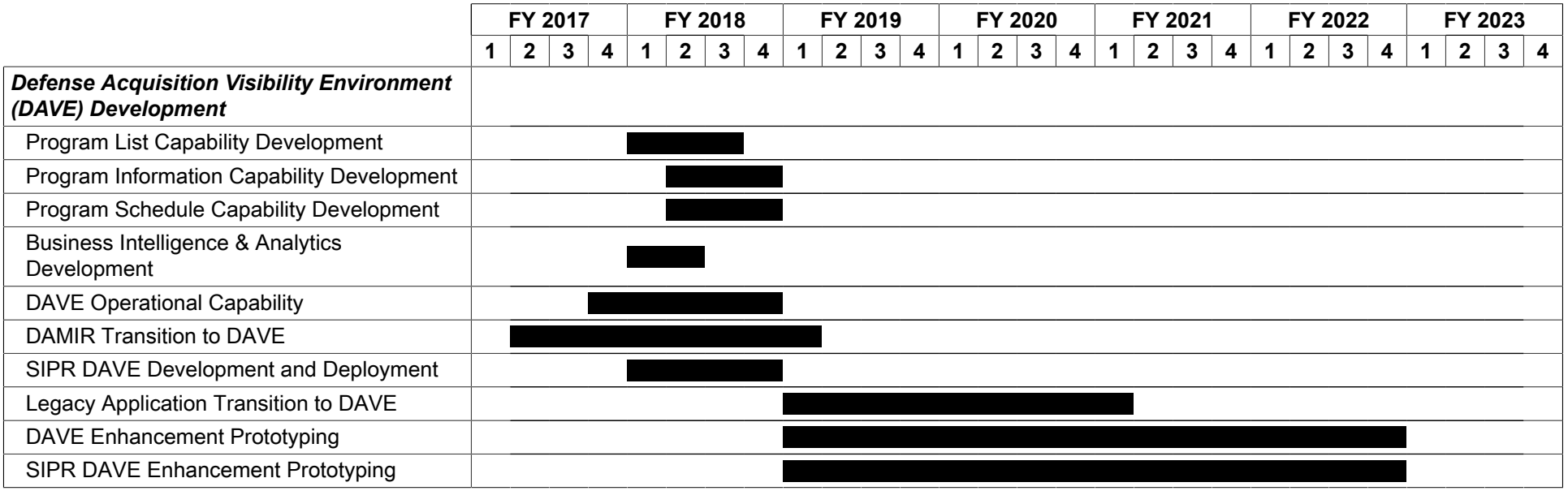

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603821D8Z / *Acquisition Enterprise Data & Information Services*	**Project (Number/Name)** 840 / *Acquisition Enterprise Data & Information Services*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Defense Acquisition Visibility Environment (DAVE) Development				
Program List Capability Development	1	2018	3	2018
Program Information Capability Development	2	2018	4	2018
Program Schedule Capability Development	2	2018	4	2018
Business Intelligence & Analytics Development	1	2018	2	2018
DAVE Operational Capability	4	2017	4	2018
DAMIR Transition to DAVE	2	2017	1	2019
SIPR DAVE Development and Deployment	1	2018	4	2018
Legacy Application Transition to DAVE	1	2019	1	2021
DAVE Enhancement Prototyping	1	2019	4	2022
SIPR DAVE Enhancement Prototyping	1	2019	4	2022

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603851D8Z / *Environmental Security Technology Certification Program*

COST ($ in Millions)	Prior Years (+)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	320.404	46.440	54.583	40.016	-	40.016	67.162	65.077	59.333	60.707	Continuing	Continuing
514: *Environmental Security Technology Certification Program*	314.404	46.440	54.583	40.016	-	40.016	67.162	65.077	59.333	60.707	Continuing	Continuing

(+) The sum of all Prior Years is $6.000 million less than the represented total due to several projects ending

Note

The FY2019 funding request was reduced by $17 million to account for the availability of prior year execution balances.

A. Mission Description and Budget Item Justification

(U) The Environmental Security Technology Certification Program (ESTCP) demonstrates and validates promising and innovative environmental and energy technologies that target DoD's most urgent needs. Technologies selected are projected to provide a return on the investment through cost savings and improved efficiencies. The program responds to: (1) Congressional concern over the slow pace of remediation of environmentally polluted sites on military installations, (2) Congressional direction to conduct demonstrations specifically focused on emerging new technologies, and (3) the need to improve defense readiness by reducing the drain on the Department's operation and maintenance dollars caused by environmental restoration, waste management, and the cost of energy. Preference for demonstrations is given to technologies that have successfully completed all necessary research and development objectives, and address the highest priority DoD requirements.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	52.491	54.583	58.647	-	58.647
Current President's Budget	46.440	54.583	40.016	-	40.016
Total Adjustments	-6.051	0.000	-18.631	-	-18.631
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-6.000	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• FFRDC Transfer	-0.051	-	0.000	-	0.000
• Economic Adjustment	-	-	-0.391	-	-0.391
• Realignment to O&M for REPI Offset	-	-	-0.611	-	-0.611

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603851D8Z *I Environmental Security Technology Certification Program*

• Other Adjustments	-	-	-17.629	-	-17.629

Change Summary Explanation

Economic Adjustment (EA-008) is the comptroller budget decision that reflected OMB directed inflation adjustments. REPI Offset is an OMB decision that EI&E's REPI program be funded at a higher level.

Funds rephase from FY19 to FY20 and FY21 to aid in increasing program execution rates closer to the DoD benchmarks.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603851D8Z / *Environmental Security Technology Certification Program*	Project (Number/Name) 514 / *Environmental Security Technology Certification Program*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
514: *Environmental Security Technology Certification Program*	314.404	46.440	54.583	40.016	-	40.016	67.162	65.077	59.333	60.707	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

(U) The Environmental Security Technology Certification Program (ESTCP) demonstrates and validates promising and innovative environmental and energy technologies that target DoD's most urgent needs. Technologies selected are projected to provide a return on the investment through cost savings and improved efficiencies. The program responds to: (1) Congressional concern over the slow pace of remediation of environmentally polluted sites on military installations, (2) Congressional direction to conduct demonstrations specifically focused on emerging new technologies, and (3) the need to improve defense readiness by reducing the drain on the Department's operation and maintenance dollars caused by environmental restoration, waste management, and the cost of energy. Preference for demonstrations is given to technologies that have successfully completed all necessary research and development objectives, and address the highest priority DoD requirements.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Environmental Technology Demonstration/Validation	21.196	32.223	24.045
Description: Funds are programmed for investments in projects that address priority DoD environmental requirements. The focus of the program is on live site unexploded ordnance (UXO) in the underwater environment, addressing emerging and recalcitrant cleanup issues, range sustainment technologies, and reducing life cycle costs of DoD weapon systems by eliminating hazardous materials. Accomplishments/plans are described for each FY below.			
FY 2018 Plans: Funds are planned for continued investment in projects that address priority DoD environmental requirements and new Investments in technology for the most challenging remaining groundwater restoration sites, scale up demonstrations for Underwater Unexploded Ordnance, and demonstrations of environmentally benign surface engineering technology at larger scales.			
FY 2019 Plans: New investments in detection, quantification and remediation of per- and polyfluorinated substances, large-scale demonstration of low-frequency acoustic systems for underwater UXO detection and classification, monitoring technologies to facilitate the management of threatened and endangered species, and surface preparation for corrosion control.			
FY 2018 to FY 2019 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603851D8Z / *Environmental Security Technology Certification Program*	**Project (Number/Name)** 514 / *Environmental Security Technology Certification Program*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Decrease reflects rephrasing of resources due to execution delays.			
Title: Energy Technology Demonstration/Validation	25.244	22.360	15.971
Description: Funds are programmed for investments in energy projects that constitute the Installation Energy Test Bed Initiative. This initiative responds to Congressional direction for the Department to increase energy efficiency, reduce installation energy intensity, increase the use of renewable energy, and improve energy security. Emerging energy technologies offer DoD a cost effective opportunity to meet these requirements on its installations while reducing energy and operational costs. The DoD test bed program validates and tests the operational cost and performance of innovative energy technologies in a real-world integrated building environment so as to reduce risk, overcome the barriers to deployment, and facilitate wide-scale deployment. The test bed program exploits the Department's existing built infrastructure to evaluate energy efficiency and renewable energy technologies under the varied climatic conditions and building types DoD manages. The test bed's key elements are: 1) competitive selection of new technologies, 2) systematic and consistent evaluation to determine performance, operational readiness and life cycle costs, and 3) development of guidance and design information for future deployment across installations. ***FY 2018 Plans:*** Funds are planned to continue investments in energy and water projects that constitute the Installation Energy Test Bed Initiative. ***FY 2019 Plans:*** Demonstration in FY-19 will continue the emphasis on cyber-security as it relates to installation energy savings and security. Reaping the advantages of modern energy monitoring tools has proven difficult for the DoD because of the need to limit access to base IT networks. ESTCP continues to demonstrate technologies and monitoring schemes that are able to obtain Authority-to-Operate on DoD networks. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease reflects rephrasing of resources due to execution delays.			
Accomplishments/Planned Programs Subtotals	46.440	54.583	40.016

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

ESTCP solicits proposals from all DoD organizations, other Federal Agencies, and the commercial sector. Projects are selected based on an annual competitive process through reviews by multi-agency panels.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603851D8Z / *Environmental Security Technology Certification Program*	**Project (Number/Name)** 514 / *Environmental Security Technology Certification Program*

E. Performance Metrics

Performance in this program is monitored at two levels. At the lowest level, each individual project is measured against technical and financial milestones on a quarterly and annual basis. At a program-wide level, progress is measured against DoD's environmental requirements and the demonstration and transition of technologies that address these requirements.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603851D8Z / *Environmental Security Technology Certification Program*	**Project (Number/Name)** 514 / *Environmental Security Technology Certification Program*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Support Contract	C/IDDQ	Noblis : Falls Church, VA	14.426	2.425		2.380		2.380		-		2.380	Continuing	Continuing	-
		Subtotal	14.426	2.425		2.380		2.380		-		2.380	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Energy and Water	C/Various	Various : Various	131.372	17.981		23.743		15.971		-		15.971	Continuing	Continuing	-
Weapons Systems and Platforms	C/Various	Various : Various	47.280	8.011		9.226		8.224		-		8.224	Continuing	Continuing	-
Munitions Response	C/Various	Various : Various	33.378	4.005		5.300		2.468		-		2.468	Continuing	Continuing	-
Environmental Restoration	C/Various	Various : Various	57.420	9.012		10.051		8.343		-		8.343	Continuing	Continuing	-
Resource Conservation and Resiliency	C/Various	Various : Various	30.528	5.006		3.883		2.630		-		2.630	Continuing	Continuing	-
		Subtotal	299.978	44.015		52.203		37.636		-		37.636	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	314.404	46.440		54.583		40.016		-		40.016	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603851D8Z / *Environmental Security Technology Certification Program*	**Project (Number/Name)** 514 / *Environmental Security Technology Certification Program*

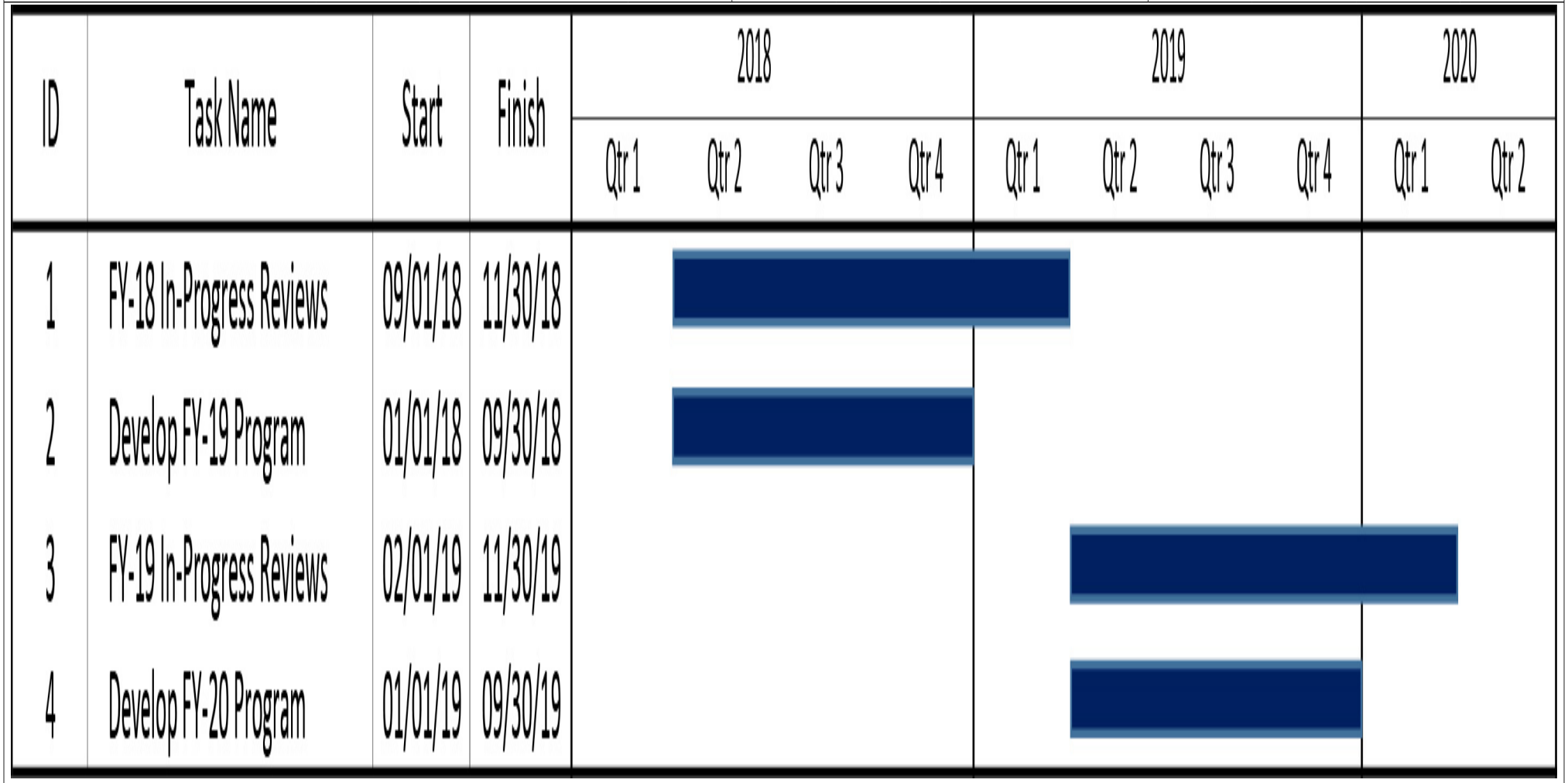

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603851D8Z / *Environmental Security Technology Certification Program*	**Project (Number/Name)** 514 / *Environmental Security Technology Certification Program*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
In Progress Reviews				
FY 2018 In Progress Reviews	2	2018	1	2019
FY 2019 In Progress Reviews	2	2019	1	2020
Develop Program				
Develop FY 2019 Program	2	2018	4	2018
Develop FY 2020 Program	2	2019	4	2019

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603920D8Z / *Humanitarian De-mining*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	57.464	9.740	10.837	11.347	-	11.347	10.820	11.031	11.267	11.260	Continuing	Continuing
920: *Humanitarian De-mining*	57.464	9.740	10.837	11.347	-	11.347	10.820	11.031	11.267	11.260	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Under the Office of the Assistant Secretary of Defense for Special Operations and Low-Intensity Conflict (OASD SO/LIC), the Humanitarian Demining Research and Development (HD R&D) program element develops, demonstrates and validates cost-effective technologies for use in humanitarian demining via operational field evaluations in support of Geographical Combatant Commands (GCC) Humanitarian Mine Action (HMA) goals and objectives.

The HD R&D Program works closely with the GCCs and the Humanitarian Demining Training Center (HDTC) to craft a research and development plan that supports GCC HMA program plans and strategic objectives and enhances mil-to-mil partnerships in key regional states and provides access to live mines/UXO around the world for operational test data collection unavailable to any other DoD organization. The HD R&D Program accomplishes the GCC support by utilizing host nation demining partners to evaluate technology in actual minefields to simultaneously achieve HMA objectives and identify performance parameters; data is delivered to the US military countermine R&D programs to inform future investment decisions. In addition to the improvements made to technologies used by U.S. forces and to the reduction of landmine and UXO threat to US forces and host nation population, the Program's technology trainings and evaluations build mine action capacity and capability within mine-affected countries and improve safety, stability and economic development.

Since 1995 the program has fielded technologies for 202 evaluations in 39 countries, including Afghanistan, Iraq, Vietnam, Cambodia, Angola and Zimbabwe. The program's technologies have cleared 46.7 million square meters of the world's toughest minefields; and found or destroyed 186,000 mines and UXO.

New technology requirements and areas of emphasis are identified and validated at a biennial Requirements Workshop and a biennial UXO Working Group Meeting held by OASD SO/LIC. The meetings involve representatives from Department of State (DOS), GCC Humanitarian Mine Action offices, mine action organizations and mine-affected nations. The program element's work fulfills the Department of Defense's strategic guidance to address instability and reduce the demand for significant US force commitments to stability operations; with DODI 3000.05 to foster security, economic security and development, and build indigenous capacity; and with § 407 and CJCSI 3207.01C to reduce the social, economic and environmental impact of landmines and unexploded ordnance.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603920D8Z / *Humanitarian De-mining*

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	10.007	10.837	11.347	0.000	11.347
Current President's Budget	9.740	10.837	11.347	0.000	11.347
Total Adjustments	-0.267	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	-	-			
• Internal Adjustments	-0.267	-	-	-	-

Change Summary Explanation

Reductions were in support of Departmental efficiencies and economic assumptions.

C. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: 0603920D8Z - SO/LIC Humanitarian De-mining	9.740	10.837	11.347

Description: The HD R&D Program adapts commercial-off-the-shelf equipment, integrates mature technologies, and leverages R&D activity within DoD, particularly in the Army's Night Vision and Electronic Sensors Directorate (NVESD) Tactical Countermine mission area. The program aims to improve existing technologies for: mine/unexploded ordnance (UXO) detection, technical survey/area reduction, mechanical mine/UXO clearance, underwater UXO detection and clearance, vegetation clearance, mechanical mine neutralization, and post-clearance quality control (QC).

FY 2018 Plans:

Deploy new technology, including Ferex to Israel; Armored Operator Station, Empact, and improvements to Piranha to Cambodia; Little Storm, HSTAMIDS and Bearcat to Colombia; and Traxx to Ukraine

- Develop new technology for mine clearance in Iraq and Colombia
- Complete ongoing equipment developments/modifications and test technology including Advanced Positioning System, Delta, Empact 3D, VMX10, UPEX-745, CMD-3, Primetech, and Little Storm
- Continue successful operational evaluations from FY2017
- Support the combatant commands and Embassy staffs by conducting new site surveys and country assessments in Vietnam, Chile, Colombia, Laos, and Ukraine
- Develop, test and evaluate new prototype technologies based on feedback from the field

FY 2019 Plans:

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603920D8Z / *Humanitarian De-mining*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
• Deploy new technology to Colombia, Iraq and other countries • Complete ongoing equipment developments/modifications • Continue successful operational evaluations from FY2017 • Support the combatant commands and Embassy staffs by conducting new site surveys and country assessments • Develop, test and evaluate new prototype technologies based on feedback from the field in the following areas: technical survey, individual mine/UXO and minefield detection, mechanical mine/UXO and vegetation clearance, underwater UXO detection and clearance, mechanical mine neutralization, and post-clearance QA ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase from FY18 to FY19 due to inflation.			
Accomplishments/Planned Programs Subtotals	9.740	10.837	11.347

D. Other Program Funding Summary ($ in Millions)

N/A

Remarks

E. Acquisition Strategy

Following a rapid prototyping strategy, the program emphasizes the use/modification of existing, commercially-available equipment and components to build functional prototype equipment suited for humanitarian demining operations. This approach is required due to the immediate need for new demining technologies in the face of ongoing U.S. forces and host nation citizen casualties in mine-affected countries. The program evaluates prototype equipment by acquiring it off-the-shelf from industry using competition to the extent possible, by leveraging ongoing countermine R&D efforts in other U.S. and foreign R&D activities, and by taking advantage of extensive in-house fabrication capabilities at the Army's Night Vision and Electronic Sensors Division (NVESD).

F. Performance Metrics

Long Term Strategies: Obtain adequate funding to support critical shortfalls; prioritize proposals that are deemed acceptable and allocate funding accordingly; and establish outreach programs to leverage institutional knowledge and expertise.

Performance Indicator and Rating:
FY 2017 Target:
90% of currently funded research technologies are completed on time and within budget
Complete scheduled R&D project tasks
Transition field-ready technologies to host nation demining partners

FY 2018 Target:

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603920D8Z *I Humanitarian De-mining*

90% of currently funded research technologies are completed on time and within budget
Complete scheduled R&D project tasks
Transition field-ready technologies to host nation demining partners
Conduct biennial Humanitarian R&D Program Requirements Workshop

FY 2017 Performance Rating: Funded research technologies were completed per the target.

Verification: The Humanitarian Demining Program performs program reviews with other USG agencies (DOS PM WRA, DSCA, HDTC, CENTCOM, PACOM, SOUTHCOM, AFRICOM, EUCOM) and has oversight from OSD SO/LIC.

Validation: Completed R&D products increase the capabilities of the DoD to effectively perform demining missions.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603920D8Z / *Humanitarian De-mining*	Project (Number/Name) 920 / *Humanitarian De-mining*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Primary Hardware Development	Various	RDECOM-NVESD : Ft Belvoir, VA	34.099	5.116		5.796		6.095		0.000		6.095	-	-	-
		Subtotal	34.099	5.116		5.796		6.095		0.000		6.095	-	-	N/A

Remarks

The HD R&D Program adapts commercial-off-the-shelf equipment, integrates mature technologies, and leverages R&D activity within DoD, particularly in the Army's Night Vision and Electronic Sensors Directorate (NVESD) Tactical Countermine mission area.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Humanitarian Demining Research and Development Program	Various	RDECOM-NVESD : Ft Belvoir, VA	21.634	4.354		4.770		4.980		0.000		4.980	-	-	-
		Subtotal	21.634	4.354		4.770		4.980		0.000		4.980	-	-	N/A

Remarks

Evaluations of HD R&D Program-developed technologies in actual minefields are conducted by host nation demining partners (foreign military, non-governmental organizations and mine action centers) and provide valuable data for US military countermine R&D and next generation HD technology developments while directly contributing to world-wide mine and UXO clearance.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Humanitarian Demining Program Management Support	Various	RDECOM-NVESD : Ft Belvoir, VA	1.731	0.270		0.271		0.272		0.000		0.272	-	-	-
		Subtotal	1.731	0.270		0.271		0.272		0.000		0.272	-	-	N/A

Remarks

The HD R&D Program managers oversee adaptation of commercial-off-the-shelf equipment, integration of mature technologies, and leverage of R&D activity within DoD, particularly in the Army's Night Vision and Electronic Sensors Directorate (NVESD) Tactical Countermine mission area. Areas of emphasis are identified and validated at a

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603920D8Z / *Humanitarian De-mining*	Project (Number/Name) 920 / *Humanitarian De-mining*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
biennial Requirements Workshop held by OASD SO/LIC. The Requirements Workshop involves representatives from Department of State (DoS), U.S. combatant commands (COCOMS) and mine-affected nations.															

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	57.464	9.740		10.837		11.347		0.000		11.347	-	-	N/A

Remarks

The Humanitarian Demining Research and Development (HD R&D) program element rapidly develops, demonstrates and validates new technologies for DoD-supported nations to detect and clear landmines and unexploded ordnance (UXO), and to contribute to US military countermine R&D. The HD R&D Program focuses on development of new technologies to improve the efficiency and safety of indigenous nation-conducted, post-conflict clearance of residual mines and UXO, which pose a serious threat to US forces conducting stability operations, and to the host nation's population and economy.

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603920D8Z / *Humanitarian De-mining*	**Project (Number/Name)** 920 / *Humanitarian De-mining*

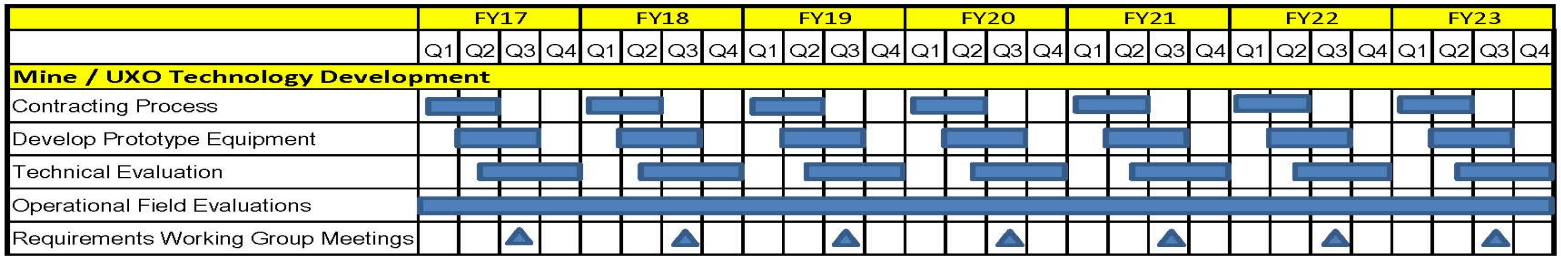

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603920D8Z / *Humanitarian De-mining*	**Project (Number/Name)** 920 / *Humanitarian De-mining*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Mechanical Mine/UXO Clearance Systems	1	2017	4	2023
Mine/UXO Detection Systems	1	2017	4	2023

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603923D8Z / *Coalition Warfare Program*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	52.446	9.789	10.740	8.528	-	8.528	12.501	12.226	11.439	11.649	Continuing	Continuing
923: *Coalition Warfare*	52.446	9.789	10.740	8.528	-	8.528	12.501	12.226	11.439	11.649	Continuing	Continuing

Note

The FY 2019 funding request was reduced by $2.486 million to account for the availability of PY execution balances.

A. Mission Description and Budget Item Justification

The Coalition Warfare Program (CWP) supports DoD organizations that: 1) work with foreign partners to collaboratively address strategic technology gaps for current and future missions; 2) develop interoperability solutions for coalition operations; and 3) develop and strengthen defense relationships. CWP is the only Office of the Secretary of Defense (OSD) program with this mission. Coalition warfare and multinational operations are fundamental features of the U.S. National Security Strategy. Coalitions provide a broad base of technological, operational, and logistical support for military operations and ease the U.S. financial and manpower burdens associated with meeting military goals and objectives. Coalitions and relationships with international partners are high priorities for the nation and the Department of Defense.

CWP supplements a U.S. Government proponent's funding for cooperative efforts, ensuring U.S. funds are sufficient to complete the engagement with the foreign partner(s). When CWP funds are used to help fund a cooperative project, that project leverages technical and financial contributions of the foreign partner(s) and speeds the development and delivery of technical solutions to the warfighter. In its seventeen-year history, CWP has leveraged $3 of foreign partner funding from 75 foreign partners and $2 of other U.S. Government funding for every $1 CWP has invested in cooperative projects. CWP funding enables DoD project teams to move a technology into the next stage of development or to complete and transition a technology to operational forces. These projects may also form the basis for future cooperation with international partners.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	10.126	10.740	11.014	-	11.014
Current President's Budget	9.789	10.740	8.528	-	8.528
Total Adjustments	-0.337	0.000	-2.486	-	-2.486
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.011	-			
• SBIR/STTR Transfer	-0.326	-			
• FFRDC Transfer	-	-	-0.074	-	-0.074

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense					Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*			R-1 Program Element (Number/Name) PE 0603923D8Z / *Coalition Warfare Program*		
• Other Program Adjustments	-	-	-2.412	-	-2.412

Change Summary Explanation

The FY 2019 funding request was reduced by $2.486 million to account for the availability of PY execution balances.
Funds rephased from FY19 to FY20 and FY21 to aid in increasing program execution rates closer to the DoD benchmarks.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603923D8Z / *Coalition Warfare Program*	Project (Number/Name) 923 / *Coalition Warfare*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
923: *Coalition Warfare*	52.446	9.789	10.740	8.528	-	8.528	12.501	12.226	11.439	11.649	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Coalition Warfare Program (CWP) supports DoD organizations that: 1) work with foreign partners to collaboratively address strategic technology gaps for current and future missions; 2) develop interoperability solutions for coalition operations; and 3) develop and strengthen defense relationships. CWP is the only Office of the Secretary of Defense (OSD) program with this mission. Coalition warfare and multinational operations are fundamental features of the U.S. National Security Strategy. Coalitions provide a broad base of technological, operational, and logistical support for military operations and ease the U.S. financial and manpower burdens associated with meeting military goals and objectives. Coalitions and relationships with international partners are high priorities for the nation and the Department of Defense.

CWP supplements a U.S. Government proponent's funding for cooperative efforts, ensuring U.S. funds are sufficient to complete the engagement with the foreign partner(s). When CWP funds are used to help fund a cooperative project, that project leverages technical and financial contributions of the foreign partner(s) and speeds the development and delivery of technical solutions to the warfighter. In its seventeen-year history, CWP has leveraged $3 of foreign partner funding from 75 foreign partners and $2 of other U.S. Government funding for every $1 CWP has invested in cooperative projects. CWP funding enables DoD project teams to move a technology into the next stage of development or to complete and transition a technology to operational forces. These projects may also form the basis for future cooperation with international partners.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Coalition Warfare Program (Continuing Projects)	9.789	10.740	8.528
Description: CWP provides funding on a competitive basis to DoD organizations to conduct cooperative research, development, test, and evaluation projects with foreign partners. The goals of the CWP program are to: collaboratively address strategic technology gaps for current and future missions, develop interoperability solutions for coalition operations, and strengthen current defense partnerships and developing new relationships. CWP selects projects for funding through an annual competitive process in accordance with Department of Defense and Combatant Command needs. Overall, the program provided additional funding to projects that began in earlier selection cycles. Currently, the funded portfolio includes projects with 12 different foreign partners. Including prior year project selections, for FY 2018 selections, the following projects will encompass CWP funding in FY 2018 and FY 2019:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603923D8Z / *Coalition Warfare Program*	**Project (Number/Name)** 923 / *Coalition Warfare*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- Artic High Frequency Surveillance (US Air Force) - Autonomous Tunnel Exploitation (DTRA) - Digital Enhanced Lowlight Tactical Asset – Individual (US Army) - Terrestrial Free-Space Laser Communication Network (US Army) - Micro-Satellite Maritime Domain Awareness using Imagery and Automatic Identification System (US Navy) - Broad Spectrum Detection of Maritime Traffic Using Hyperspectral Imagery (US Navy) - Low-Cost Space Solar Cell Calibration by High Altitude Balloon (US Air Force) - Collaboration Intiatives ***FY 2018 Plans:*** Completion of efforts that will improve directed energy weapons interface with ships' electrical power, maintain warfighters' access to position, navigation, and timing signals when GPS is unavailable, and improve tracking of space objects and debris in real-time. ***FY 2019 Plans:*** Completion of efforts that will reduce size, weight, and power of imaging sensors, develop autonomous undersea power stations and improve capability of scalable warhead for an unmanned air vehicle. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** FY 2018 to FY 2019 decrease is driven by directed reductions to account for the availability of PY execution balances.			
Accomplishments/Planned Programs Subtotals	9.789	10.740	8.528

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The Combatant Commands, Services, Defense Agencies, and the Office of the Secretary of Defense nominate candidate projects on an annual basis. CWP provides selected projects up to three years of funding. The Program selects projects that address DoD priorities and meet the needs and requirements specified by the Joint Staff and the Combatant Commanders. Projects have equitable contributions from international partners, strong potential for transition, and contribute to allied interoperability and/or meet a user need.

E. Performance Metrics

After successful completion of the competitive nomination process, initial project funding is dependent on receipt of project documentation, which includes financial information, project plan, description of project team, etc. Continued project funding is dependent on compliance with CWP requirements, which include: adequate

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603923D8Z / *Coalition Warfare Program*	**Project (Number/Name)** 923 / *Coalition Warfare*

progress toward each project's stated goals, timely reporting on financial status and project activities, financial document close-out, provision of updated project plans and charts, and progress towards transition goals.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603923D8Z / *Coalition Warfare Program*	**Project (Number/Name)** 923 / *Coalition Warfare*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Coalition Warfare Program Project Product Development Costs	Various	Various : Various	35.553	7.423		8.800		6.533		-		6.533	-	-	-
		Subtotal	35.553	7.423		8.800		6.533		-		6.533	-	-	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Coalition Warfare Program Project Test and Evaluation Costs	Various	Various : Various	9.766	1.556		0.848		0.875		-		0.875	-	-	-
		Subtotal	9.766	1.556		0.848		0.875		-		0.875	-	-	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Coalition Warfare Program Project Management Services Costs	Various	Various : Various	7.127	0.810		1.092		1.120		-		1.120	-	-	-
		Subtotal	7.127	0.810		1.092		1.120		-		1.120	-	-	N/A

	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	52.446	9.789		10.740		8.528		-		8.528	-	-	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603923D8Z / *Coalition Warfare Program*	**Project (Number/Name)** 923 / *Coalition Warfare*

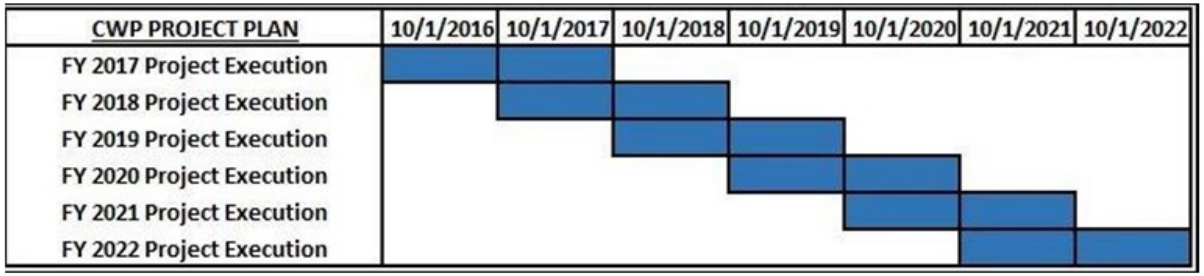

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603923D8Z / *Coalition Warfare Program*	**Project (Number/Name)** 923 / *Coalition Warfare*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
FY 2017 CWP Project Execution	1	2016	4	2017
FY 2018 CWP Project Execution	1	2017	4	2018
FY 2019 CWP Project Execution	1	2018	4	2019
FY 2020 CWP Project Execution	1	2019	4	2020
FY 2021 CWP Project Execution	1	2020	4	2021
FY 2022 CWP Project Execution	1	2021	4	2022

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604016D8Z / *Department of Defense Corrosion Program*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	104.097	14.394	3.837	3.477	-	3.477	3.514	3.582	3.639	3.705	Continuing	Continuing
015: *Corrosion Protection Projects*	104.097	14.394	3.837	3.477	0.000	3.477	3.514	3.582	3.639	3.705	Continuing	Continuing

A. Mission Description and Budget Item Justification

The purpose of this program is to develop a comprehensive capability to prevent and mitigate corrosion and its effects on Department of Defense (DoD) weapon systems and infrastructure. Corrosion severely impacts system and facility reliability, readiness and safety, and consumes a disproportionate amount of material and labor hours for repair and treatment of corrosion damaged systems and facilities. The cost of corrosion across the DoD is currently estimated at approximately $19 billion per year (down from approximately $22 billion in Fiscal Year 2007). The impact and cost of corrosion are so pervasive that Congress enacted Public Law 107-314 Sec: 1067 [portions codified in 10 U.S.C. 2228]: Prevention and mitigation of corrosion of military infrastructure and equipment. This legislation requires that DoD develop a long-term corrosion strategy to include establishment of a coordinated R&D program with transition plans. The legislation also requires that DoD designate a responsible official or organization to oversee a corrosion prevention and mitigation program. The responsibilities of the Director, Corrosion Policy and Oversight and the Military Department Corrosion Prevention and Control Executives were further delineated in DODI 5000.67 "Prevention and Mitigation of Corrosion on Military Equipment and Infrastructure" of 01 February 2010.

The Deputy Secretary of Defense designated the Principal Deputy Under Secretary of Defense (Acquisition, Technology, and Logistics) (PDUSD(AT&L)) as the DoD Corrosion Executive in May 2003. The DoD Corrosion Executive subsequently established a Corrosion Control and Oversight office to implement the program. Subsequently, in accordance with Section 371 of the 2008 National Defense Authorization Act, the Under Secretary of Defense (USD(AT&L)) designated a Director, Corrosion Policy and Oversight to perform the duties of the DoD Corrosion Executive with responsibilities as described in the 2008 NDAA legislation. A major responsibility of the Director, Corrosion Policy and Oversight is to select high payoff research and development projects that promise to prevent or mitigate corrosion and significantly reduce the total cost of corrosion along with the adverse impact of corrosion effects on weapon system and infrastructure operational capability. This office chartered a Corrosion Prevention and Control Integrated Product Team (CPCIPT) that has selected and funded Operation and Maintenance projects for each Fiscal Year (FY) commencing in FY 2005. However, the DoD CPCIPT has determined that the biggest payoff in corrosion prevention and mitigation will come from investing in up-front prevention technologies, materials, and processes to leverage downstream cost avoidance in corrosion maintenance and repair. Likewise, development of improved predictive and prognostic techniques can eliminate unseen failure and reduce unnecessary maintenance and repair costs. Thus, technology development, demonstration, and transition projects have been selected and funded since FY 2006. In addition, the University Corrosion Collaboration (now the Technical Corrosion Collaboration (TCC)) was formed as collaboration between universities, Armed Forces Academies and DoD laboratories focused on corrosion technology research and development and producing individuals with corrosion expertise for the DoD corrosion control community of the future. Research areas include performance prediction, assessment of finish, surface engineering, and product support. This advanced corrosion research has been ongoing since FY 2008 and performed by teams from TCC participating organizations.

In FY 2009, the Military Departments assigned corrosion executives and began submitting reports to Congress on inserting corrosion planning into the acquisition process. The FY 2011 NDAA added a requirement for the DoD to report the amount of funds requested in the preceding year budget for each planned project or activity,

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604016D8Z / *Department of Defense Corrosion Program*

as compared to the funding required for each project or activity. These funds provide a portion of the funds used to implement associated corrosion control projects and activities.

These projects address critical corrosion issues in both Department of Defense systems and infrastructure. A number of low-risk, high-payoff technologies promise to vastly improve the service life and significantly reduce the maintenance costs and improve the availability and safety of weapon systems and facilities essential to maintain support for the warfighter. A total of 151 projects have been completed to date and 111 have resulted in new technology implementation. The overall return on investment as estimated by the Military Departments is 16:1.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	3.893	3.837	3.505	-	3.505
Current President's Budget	14.394	3.837	3.477	-	3.477
Total Adjustments	10.501	0.000	-0.028	-	-0.028
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	10.000	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Program Adjustments	0.501	-	-0.028	-	-0.028

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2017	FY 2018
Project: 015: *Corrosion Protection Projects*		
Congressional Add: *Corrosion Control, Prevention and Prediction through Coatings, Materials and Maintenance R&D*	10.000	-
Congressional Add Subtotals for Project: 015	10.000	-
Congressional Add Totals for all Projects	10.000	-

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604016D8Z / *Department of Defense Corrosion Program*	Project (Number/Name) 015 / *Corrosion Protection Projects*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
015: *Corrosion Protection Projects*	104.097	14.394	3.837	3.477	0.000	3.477	3.514	3.582	3.639	3.705	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The purpose of this program is to develop a comprehensive capability to prevent and mitigate corrosion and its effects on Department of Defense (DoD) weapon systems and infrastructure. Corrosion severely impacts system and facility reliability, readiness and safety, and consumes a disproportionate amount of material and labor hours for repair and treatment of corrosion damaged systems and facilities. The cost of corrosion across the DoD is currently estimated at approximately $19 billion per year (down from approximately $22 billion in Fiscal Year 2007). The impact and cost of corrosion are so pervasive that Congress enacted Public Law 107-314 Sec: 1067 [portions codified in 10 U.S.C. 2228]: Prevention and mitigation of corrosion of military infrastructure and equipment. This legislation requires that DoD develop a long-term corrosion strategy to include establishment of a coordinated R&D program with transition plans. The legislation also requires that DoD designate a responsible official or organization to oversee a corrosion prevention and mitigation program. The responsibilities of the Director, Corrosion Policy and Oversight and the Military Department Corrosion Prevention and Control Executives were further delineated in DODI 5000.67 "Prevention and Mitigation of Corrosion on Military Equipment and Infrastructure" of 01 February 2010.

The Deputy Secretary of Defense designated the Principal Deputy Under Secretary of Defense (Acquisition, Technology, and Logistics) (PDUSD(AT&L)) as the DoD Corrosion Executive in May 2003. The DoD Corrosion Executive subsequently established a Corrosion Control and Oversight office to implement the program. Subsequently, in accordance with Section 371 of the 2008 National Defense Authorization Act, the Under Secretary of Defense (USD(AT&L)) designated a Director, Corrosion Policy and Oversight to perform the duties of the DoD Corrosion Executive with responsibilities as described in the 2008 NDAA legislation. A major responsibility of the Director, Corrosion Policy and Oversight is to select high payoff research and development projects that promise to prevent or mitigate corrosion and significantly reduce the total cost of corrosion along with the adverse impact of corrosion effects on weapon system and infrastructure operational capability. This office chartered a Corrosion Prevention and Control Integrated Product Team (CPCIPT) that has selected and funded Operation and Maintenance projects for each Fiscal Year (FY) commencing in FY 2005. However, the DoD CPCIPT has determined that the biggest payoff in corrosion prevention and mitigation will come from investing in up-front prevention technologies, materials, and processes to leverage downstream cost avoidance in corrosion maintenance and repair. Likewise, development of improved predictive and prognostic techniques can eliminate unseen failure and reduce unnecessary maintenance and repair costs. Thus, technology development, demonstration, and transition projects have been selected and funded since FY 2006. In addition, the University Corrosion Collaboration (now the Technical Corrosion Collaboration (TCC)) was formed as collaboration between universities, Armed Forces Academies and DoD laboratories focused on corrosion technology research and development and producing individuals with corrosion expertise for the DoD corrosion control community of the future. Research areas include performance prediction, assessment of finish, surface engineering, and product support. This advanced corrosion research has been ongoing since FY 2008 and performed by teams from TCC participating organizations.

In FY 2009, the Military Departments assigned corrosion executives and began submitting reports to Congress on inserting corrosion planning into the acquisition process. The FY 2011 NDAA added a requirement for the DoD to report the amount of funds requested in the preceding year budget for each planned project or activity,

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604016D8Z / *Department of Defense Corrosion Program*	**Project (Number/Name)** 015 / *Corrosion Protection Projects*

as compared to the funding required for each project or activity. These funds provide a portion of the funds used to implement associated corrosion control projects and activities.

These projects address critical corrosion issues in both Department of Defense systems and infrastructure. A number of low-risk, high-payoff technologies promise to vastly improve the service life and significantly reduce the maintenance costs and improve the availability and safety of weapon systems and facilities essential to maintain support for the warfighter. A total of 151 projects have been completed to date and 111 have resulted in new technology implementation. The overall return on investment as estimated by the Military Departments is 16:1.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Corrosion Prevention and Control Projects and Activities	4.394	3.837	3.477
FY 2018 Plans: • Work with the Services to develop and transition mature technologies. • Refine and improve acquisition policies related to corrosion control. • Provide oversight of corrosion planning for ACAT I systems. • Complete impact of corrosion studies on additional defense segments; perform pilot evaluation of selected ACAT I program using predictive capabilities. • Partner with the Services to provide corrosion training to military and DoD civilians.			
FY 2019 Plans: Continue to: • Work with the Services to develop and transition mature technologies; • Refine and improve acquisition policies related to corrosion control; • Perform independent risk assessments relative to corrosion for ACAT I systems; • Complete impact of corrosion studies on all defense segments; • Integrate corrosion control into critical specifications and standards; • Partner with the Services to provide corrosion training to military and DoD civilians; • Engage in communication and outreach activities to create awareness of the impact of corrosion.			
FY 2018 to FY 2019 Increase/Decrease Statement: Level of effort is consistent between FY 2018 and FY 2019. Small changes reflect minor budget fluctuations.			
Accomplishments/Planned Programs Subtotals	4.394	3.837	3.477

	FY 2017	FY 2018
Congressional Add: Corrosion Control, Prevention and Prediction through Coatings, Materials and Maintenance R&D	10.000	-

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604016D8Z / *Department of Defense Corrosion Program*	**Project (Number/Name)** 015 / *Corrosion Protection Projects*

	FY 2017	FY 2018
FY 2017 Accomplishments: • Conducted 2017 DoD - Allied Nations Technical Corrosion Conference – over 700 attendees and 140 technical papers presented. Participation by eight allied nations. • Continued to execute the Technical Corrosion Collaboration (TCC) • Funded corrosion control research at the University of Alabama, University of Virginia, Southern Mississippi, University of Hawaii, Ohio State University, and Pennsylvania State University. • Funded corrosion activities at each of the Armed Services Academies including research, curriculum improvements, and Cadet/Midshipmen capstone projects • Program has produced 176 articles in refereed journals, involved over 300 graduate and undergraduate students at civilian institutions, and over 120 Cadets and Midshipmen. • Undergraduate Corrosion Engineering degree at the University of Akron became fully accredited. • Developed a long distance learning course through the University of Florida • Funded the following additional Corrosion Prevention and Control Demonstration/Implementation Projects - Rustproofing for Corrosion Control in Hidden Areas - Corrosion Estimation App - Internal Curing of High Performance Pier Deck Concrete - Plastic Lumber Foundations - Zinc Rich Primer - Volumetric Superhydrophopic Coating for Corrosion Prevention of Galvanized Steel Shore Structures - Inorganic Polymer Rehab RR Ties		
Congressional Adds Subtotals	10.000	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Acquisitions are accomplished in three categories including projects, research opportunities, and activities as described in the DoD Corrosion Prevention and Mitigation Strategic Plan.

Projects are funded jointly by CPO and the Military Departments and are led by subject matter experts at the Military Department laboratories. CPO issues a call for proposed project plans in April and projects are submitted in June. The project plan format is contained in the DoD Corrosion Prevention and Mitigation Strategic Plan. CPO receives project plans and convenes an evaluation panel to review proposed projects and make recommendations regarding project selection. Projects are also evaluated using Data Envelopment Analysis (DEA) to rank projects by relative efficiency. DEA factors include project performance period, ratio of OSD funding

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604016D8Z / *Department of Defense Corrosion Program*	**Project (Number/Name)** 015 / *Corrosion Protection Projects*

to Service funding, return-on-investment (ROI), degree to which the proposed technology addresses high-cost corrosion problems, potential benefits, joint service applicability, and probability of transition. Upon acceptance and approval of the projects, funding is distributed to the Military Departments by Military Interdepartmental Purchase Request (MIPR) based on funding priorities associated with the evaluation process results. Project execution is monitored through submission of quarterly quad charts and by conducting an annual review.

Research opportunities are funded through the Technical Corrosion Collaboration (TCC). A call for white paper proposals is issued by CPO through an existing U.S. Air Force Academy (USAFA) Broad Agency Announcement (BAA). Submissions are evaluated by a technical panel chaired by the Deputy Director, CPO. Evaluation factors include quality of proposed research, potential impact on DoD corrosion problems, level of student involvement, and proposed collaboration between the research institutions and DoD laboratories. Projects are ranked by the selection panel and funded based on merit and available funds. Research institutions receive funds for the TCC through the establishment of cooperative agreements with USAFA. Research execution is monitored through submission of quarterly quad charts and by conducting an annual review.

Activities are those work efforts associated with the Working Integrated Product Teams (WIPT) under the CPCIPT and include policy, training, specifications and standards, metrics, science and technology, facilities, and communication and outreach. WIPT Leads submit funding requirements associated with their annual tactical plan submission to CPO. The proposed activities are prioritized by CPO and funded based on merit and available funds. Activities are accomplished by both government and contractor personnel. Funds are transferred to government personnel through the MIPR process. Funds are transferred to contractor personnel through competitively awarded contracts including the multiple-award Blanket Purchase Agreement held by CPO. Progress on activities is reviewed tri-annually at meetings of the CPCIPT.

E. Performance Metrics

Not applicable.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604016D8Z / *Department of Defense Corrosion Program*	**Project (Number/Name)** 015 / *Corrosion Protection Projects*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Corrosion Policy and Oversight	MIPR	Various (Army, Navy, Air Force) : Various	91.657	11.080	Jan 2017	0.408	Jan 2018	3.477	Jan 2019	-		3.477	Continuing	Continuing	Continuing
		Subtotal	91.657	11.080		0.408		3.477		-		3.477	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Corrosion Policy and Oversight	MIPR	Logistics Management Institute : McLean, VA	8.484	2.061	Oct 2016	2.148	Oct 2017	-		-		-	Continuing	Continuing	Continuing
Corrosion Policy and Oversight	MIPR	Decisive Analytics Corporation : Arlington, VA	3.956	1.253		1.281	Oct 2017	-		-		-	Continuing	Continuing	-
		Subtotal	12.440	3.314		3.429		-		-		-	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	104.097	14.394		3.837		3.477		-		3.477	Continuing	Continuing	N/A

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604016D8Z / *Department of Defense Corrosion Program*	**Project (Number/Name)** 015 / *Corrosion Protection Projects*

EXHIBIT R-4, SCHEDULE PROFILE	Date: 2 January 2018
Appropriation/ Budget Category: RDT&E, CORROSION PREVENTION AND CONTROL / BA 4	Program Element: 0604016D8Z

PROJECT / TASK	2014				2015				2016				2017				2018			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	OCT NOV DEC	JAN FEB MAR	APR MAY JUN	JUL AUG SEP	OCT NOV DEC	JAN FEB MAR	APR MAY JUN	JUL AUG SEP	OCT NOV DEC	JAN FEB MAR	APR MAY JUN	JUL AUG SEP	OCT NOV DEC	JAN FEB MAR	APR MAY JUN	JUL AUG SEP	OCT NOV DEC	JAN FEB MAR	APR MAY JUN	JUL AUG SEP
TO 0001: CORROSION POLICY AND OVERSIGHT																				
DOD 5000-Series Review	100%				100%				100%				100%				0%			
Integration of CPC and CPC-Related Policy	100%				100%				100%				100%				0%			
DAG Review	100%				100%				100%				100%				0%			
Corrosion Board of Directors	100%				100%				100%				100%				0%			
DOD Corrosion Prevention and Mitigation Strategic Plan	100%				100%				100%				100%				0%			
USC Engagement	100%				100%				100%				100%				0%			
GAO Engagement	100%				100%				100%				100%				0%			
Corrosion Technology Implementation Projects Support	100%				100%				100%				100%				0%			
Training Gap Analysis	100%				100%				100%				100%				0%			
Corrosion Website Sustainment	100%				100%				100%				100%				0%			
Product Introduction and Qualification Tool	100%				100%				100%				100%				0%			
Facilitate/Support Corrosion Events	100%				100%				100%				100%				0%			
International Corrosion Partnerships and Engagements	100%				100%				100%				100%				0%			
Programmatic Support	100%				100%				100%				100%				0%			
Technical Corrosion Collaboration	100%				100%				100%				100%				0%			
TO 0001: CORROSION TECHNOLOGY SUPPORT																				
Corrosion Prevention and Control (CPC) Review	100%				100%				100%				100%				0%			
Guidebook and Manual Support	100%				100%				100%				100%				0%			
DFARS Support	100%				100%				100%				100%				0%			
Funding Reviews	100%				100%				100%				100%				0%			
Weapon Systems and Infrastructure Oversight Support	100%				100%				100%				100%				0%			
Military Department Corrosion Program Review	100%				100%				100%				100%				0%			
Corrosion Technology Implementation Project Reviews	100%				100%				100%				100%				0%			
Corrosion Subject Matter Expertise	100%				100%				100%				100%				0%			

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604016D8Z / *Department of Defense Corrosion Program*	**Project (Number/Name)** 015 / *Corrosion Protection Projects*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Corrosion Policy and Oversight				
DOD 5000 Series Review	1	2017	4	2017
Integration of CPC and CPC-Related Policy	1	2017	4	2017
DAG Review	1	2017	4	2017
Corrosion Board of Directors	1	2017	4	2017
DOD Corrosion Prevention and Mitigation Strategic Plan	1	2017	4	2017
USC Engagement	1	2017	4	2017
GAO Engagement	1	2017	4	2017
Corrosion Technology Implementation Projects Support	1	2017	4	2017
Training Gap Analysis	1	2017	4	2020
Corrosion Website Sustainment	1	2017	4	2020
Product Introduction and Qualification Tool	1	2017	4	2017
Facilitate/Support Corrosion Events	1	2017	4	2017
International Corrosion Partnerships and Engagements	1	2017	4	2017
Programmatic Support	1	2017	4	2017
Technical Corrosion Collaboration	1	2017	4	2017
Corrosion Technology Support				
Corrosion Prevention and Control (CPC) Review	1	2017	4	2017
Guidebook and Manual Support	1	2017	4	2017
DFARS Support	1	2017	4	2017
Funding Reviews	1	2017	4	2017
Weapon Systems and Infrastructure Oversight Support	1	2017	4	2017

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604016D8Z / *Department of Defense Corrosion Program*	**Project (Number/Name)** 015 / *Corrosion Protection Projects*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Military Department Corrosion Program Review	1	2017	4	2017
Corrosion Technology Implementation Project Reviews	1	2017	4	2017
Corrosion Subject Matter Expertise	1	2017	4	2017

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604132D8Z / *Missile Defeat Project*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	0.000	138.350	124.769	58.607	-	58.607	17.867	9.927	6.946	6.941	Continuing	Continuing
072: *Missile Defeat Project*	0.000	138.350	124.769	58.607	-	58.607	17.867	9.927	6.946	6.941	Continuing	Continuing

Program MDAP/MAIS Code:
Project MDAP/MAIS Code(s): 000

A. Mission Description and Budget Item Justification

The Missile Defeat Project counters the growing global advancement and proliferation of road-mobile ballistic missile threats. This effort develops and integrates new capability and architectures to optimize fielded weapon systems and Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) to defeat these emerging threats.

The Missile Defeat Project coordinates and integrates Department of Defense (DoD) and Intelligence Community (IC) efforts to develop counter threat capability. This effort measures the effectiveness of new architectures and revolutionary concepts against evolving threats by working with the IC, Combatant Commands, government labs, program offices, industry, and academia.

To meet this challenge the Missile Defeat Project leverages existing test and simulated environments to perform analysis of industry and government reference concepts and architectures to provide innovative technical solutions for missile defeat. We are developing virtual and physical testbeds to robustly test, evaluate, and prototype architectures and assess their ability to improve time critical targeting and defeat of road-mobile threats. The virtual testbed complements testing at physical ranges by providing an infrastructure for addressing different training, test, and evaluation needs. This effort also includes systems engineering and analysis to devolve technical requirements, identify promising solutions, and inform future investment decisions.

In accordance with the National Defense Authorization Act (NDAA) for Fiscal Year FY 2017, the Department shall designate a military department or Defense Agency with acquisition authority with respect to missile defeat. The Missile Defeat Project will transfer all activities and funding to other stakeholders starting in FY 2019. The FY 2019 request enables this transfer without interrupting ongoing efforts.

FY 2018 AMENDED BUDGET REQUEST JUSTIFICATION: $26.400 million Base is required to address emergency warfighting readiness requirements. Funds are required for various classified projects. Additional classified details can be provided under a separate cover.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604132D8Z / *Missile Defeat Project*

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	45.000	98.369	0.000	-	0.000
Current President's Budget	138.350	124.769	58.607	-	58.607
Total Adjustments	93.350	26.400	58.607	-	58.607
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.593	-			
• FFRDC Transfer	-0.050	-	-	-	-
• Other Adjustments	-0.007	-	-	-	-
• Continue Priority Efforts	-	-	59.001	-	59.001
• Additional Appropriations	70.500	-	-	-	-
• Prior Approval Reprogramming Action	24.500	-	-	-	-
• Economic Assumption	-	-	-0.394	-	-0.394
• FY 2018 Missile Defeat and Defense Enhancements	-	26.400	-	-	-

Change Summary Explanation

FY 2017 Missile Defeat Enhancements Reprogramming (FY 17-26 PA): $+24.500 million was required to address emergency warfighting requirements in support of various classified projects. Additional details are available at a higher classification level.

FY 2018 Missile Defeat and Defense Enhancements (MDDE) Budget Amendment: $+26.400 million was required to address emergency warfighting requirements in support of various classified projects. Additional details are available at a higher classification level.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604132D8Z / *Missile Defeat Project*	Project (Number/Name) 072 / *Missile Defeat Project*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
072: *Missile Defeat Project*	0.000	138.350	124.769	58.607	-	58.607	17.867	9.927	6.946	6.941	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 000

A. Mission Description and Budget Item Justification

The Missile Defeat Project coordinates and integrates joint DoD and IC efforts to develop counter threat capability solutions in five key areas: 1) dynamic command and control; 2) intelligence, surveillance and reconnaissance; 3) responsive conventional counterforce; 4) national missile defense; and 5) an enduring demonstration and experimentation capability to integrate and measure the effectiveness of developed solutions.

The Missile Defeat Project will transfer all activities and funding to other stakeholders starting in FY 2019. The FY 2019 request enables this transfer without interrupting ongoing efforts.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Missile Defeat Project efforts	138.350	124.769	58.607
Description: The Missile Defeat Project counters the growing global advancement and proliferation of ballistic missile threats through development of counter threat capability solutions that monitor, coordinate and integrate the DoD efforts. Missile Defeat is integrating existing capacity and identifying and developing new capabilities to address these threats.			
FY 2018 Plans: - In FY 2018, Missile Defeat Project will evaluate results from development and testing to enhance experimental and existing system architectures for Missile Defeat. - Deliver architecture improvements to enhance time critical targeting. - Develop and deliver prototype hardware and software for evaluation during test events. - Deliver component, system, and architecture analysis to the warfighter for recommendations on improved time critical targeting, concepts of operation, and missile defeat. - Perform systems engineering to deliver technical requirements documentation and analysis of candidate architectures. - Deliver detailed test objectives, test event planning, and post-test evaluation for time critical targeting test events in FY 2018.			
FY 2019 Plans: - Deliver post-test evaluation for time critical targeting test events. - Deliver final recommendations and analysis to the warfighter for recommendations on improved time critical targeting, concepts of operation, and missile defeat.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604132D8Z / *Missile Defeat Project*	**Project (Number/Name)** 072 / *Missile Defeat Project*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- The current funding request will enable the transition for all current activities and funding. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** - The FY 2018 to FY 2019 decrease is due to a transition of current activities to other stakeholders.			
Accomplishments/Planned Programs Subtotals	138.350	124.769	58.607

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The acquisition strategy consists of partnering with small businesses, industry, Federally Funded Research and Development Centers and University Affiliated Research Centers. The Office of the Secretary of Defense (OSD) will leverage DoD, the Intelligence Community, and government model-based assessments to inform Better Buying Power philosophy acquisition decisions.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604132D8Z / *Missile Defeat Project*	Project (Number/Name) 072 / *Missile Defeat Project*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Various	C/TBD	MULTI : MULTI	-	138.350		124.769		58.607		-		58.607	Continuing	Continuing	-
		Subtotal	-	138.350		124.769		58.607		-		58.607	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	138.350		124.769		58.607		-		58.607	Continuing	Continuing	N/A

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604132D8Z / *Missile Defeat Project*	**Project (Number/Name)** 072 / *Missile Defeat Project*

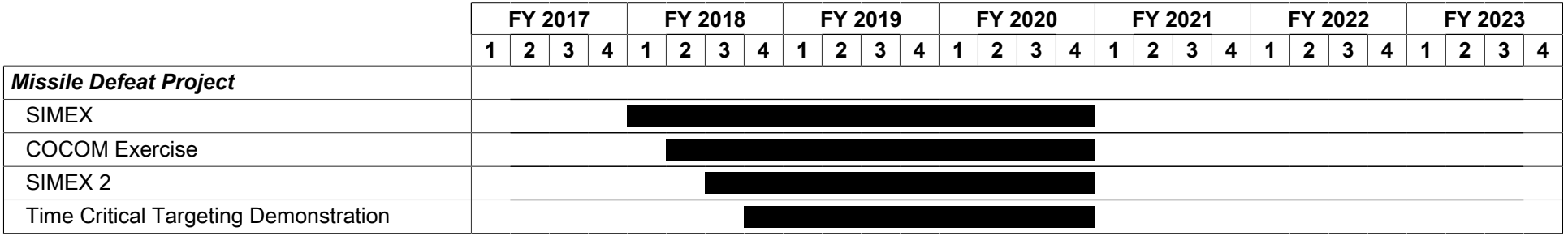

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604132D8Z / *Missile Defeat Project*	**Project (Number/Name)** 072 / *Missile Defeat Project*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Missile Defeat Project				
SIMEX	1	2018	4	2020
COCOM Exercise	2	2018	4	2020
SIMEX 2	3	2018	4	2020
Time Critical Targeting Demonstration	4	2018	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604250D8Z / *Advanced Innovative Technologies*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	756.649	850.762	1,482.532	1,431.702	-	1,431.702	1,107.245	530.958	357.604	139.287	Continuing	Continuing
250: *Advanced Innovative Technologies*	756.649	850.762	1,482.532	1,431.702	-	1,431.702	1,107.245	530.958	357.604	139.287	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Strategic Capabilities Office (SCO) identifies, analyzes, demonstrates, and transitions game-changing applications of existing and near-term technology (and other U.S. Government capabilities) to shape and counter emerging threats. The SCO combines capability innovation with concepts of operation and information management to develop novel concepts solving critical national security challenges in partnership with the Services, Defense Agencies, Combatant Commands (CCMDS), Joint Chiefs of Staff, Intelligence Community, and the Office of the Secretary of Defense (OSD).

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	846.470	1,175.832	958.802	-	958.802
Current President's Budget	850.762	1,482.532	1,431.702	-	1,431.702
Total Adjustments	4.292	306.700	472.900	-	472.900
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-10.000	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	33.383	-			
• SBIR/STTR Transfer	-18.052	-			
• FFRDC	-0.916	-	-	-	-
• FY 2017 Cancelled Account	-0.123	-	-	-	-
• FY 2018 budget amendment	-	306.700	-	-	-
• FY 2019 Program Adjustment	-	-	472.900	-	472.900

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604250D8Z / *Advanced Innovative Technologies*	Project (Number/Name) 250 / *Advanced Innovative Technologies*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
250: *Advanced Innovative Technologies*	756.649	850.762	1,482.532	1,431.702	-	1,431.702	1,107.245	530.958	357.604	139.287	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Strategic Capabilities Office (SCO) identifies, analyzes, demonstrates, and transitions game-changing applications of existing and near-term technology (and other U.S. Government capabilities) to shape and counter emerging threats. The SCO combines capability innovation with concepts of operation and information management to develop novel concepts solving critical national security challenges in partnership with the Services, Defense Agencies, Combatant Commands (CCMDS), Joint Chiefs of Staff, Intelligence Community, and the Office of the Secretary of Defense (OSD).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Advanced Navigation ***Description:*** Leverage existing technologies to analyze, build and demonstrate a prototype advanced navigation technique for contested environments and integrate into a mature weapons system.	3.350	-	-
Title: Alternate Strike ***Description:*** The Alternative Strike program demonstrates feasibility and utility of launching existing/modified weapons from existing launch platforms. This project will retire risks associated with cross platform integration to enable transition of new weapon/system combinations to Service partners. Due to the nature of these projects, specific applications and detailed plans are available at a higher classification level. ***FY 2018 Plans:*** • Conduct initial design review. • Develop initial weapon designs. • Develop weapon system simulation. • Continue ground testing. ***FY 2019 Plans:*** • Complete final design. • Conduct Systems Integration Lab testing. • Conduct environmental testing.	198.000	175.760	157.383

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604250D8Z / *Advanced Innovative Technologies*	**Project (Number/Name)** 250 / *Advanced Innovative Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
• Conduct ground testing. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease in budget from FY 2018 - FY 2019 is due to tapering-off of long-lead material purchases needed for FY 2020 events.			
Title: AVATAR ***Description:*** SCO will convert manned aircraft and target drones to avatars in order to develop enhanced combat capabilities. Due to the nature of this project, specific applications and detailed plans are available at a higher classification level. ***FY 2018 Plans:*** • Conduct detailed design and systems engineering activities in support of system architecture, hardware design and platform integration requirements. • Establish a ground-based simulator for further system development and testing. • Complete design review and execute vendor down-select. • Finalize sensor package requirements and select systems for integration. ***FY 2019 Plans:*** • Demonstrate autonomy algorithms on surrogate aircraft. • Integrate prototype Pilot-Vehicle Interface (PVI) into manned command and control aircraft. • Conduct preliminary flight-testing of prototype manned-unmanned teaming capabilities to confirm design and functionality. • Complete design review and execute vendor down-select. • Continue open systems architecture refinement. • Continue autonomous flight behavior algorithm refinement • Continue mission and operational effectiveness analysis ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase is needed to build and acquire hardware and conduct multiple risk reduction prototype flight test activities.	-	25.000	49.666
Title: Breaker ***Description:*** The Breaker demonstration provides Combatant Commanders with long range effects against targets. This project will demonstrate the feasibility and utility of launching this modified weapon from existing systems and aircraft. Due to the nature of these projects, specific applications and detailed plans are available at a higher classification level. ***FY 2018 Plans:*** • Conduct preliminary and detailed munition integration and dispense design. • Conduct planning for integration into existing Army long-range systems.	-	47.782	43.707

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604250D8Z / *Advanced Innovative Technologies*	**Project (Number/Name)** 250 / *Advanced Innovative Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
• Order legacy delivery system long lead hardware. • Initiate tests to confirm design and functionality. • Conduct munition enhancement study to inform recommendations for future improvements. • Conduct tailored preliminary design review (tPDR) and tailored critical design review (tCDR) for weapon integration, and function. ***FY 2019 Plans:*** • Fabricate hardware and conduct engineering development testing to verify integration and design. • Complete aircraft-weapon air-worthiness verification in preparation for captive flight testing and weapon demonstration. • Complete ground-based tests to confirm design and functionality. • Initiate demonstration flight tests. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease in budget from FY 2018 - FY 2019 for Breaker is in accordance with original approved funding profile.			
Title: Carnac ***Description:*** The Carnac project applies machine learning algorithms and techniques to existing sensors in order to reduce operator workload and data throughput requirements. This project will retire risks associated with upgrading existing on-board processors to support AI to enable transition of dramatically more capable sensors to partners. Due to the nature of this project, specific applications and detailed plans are available at a higher classification. ***FY 2019 Plans:*** • Begin data collection activities. • Develop model for assessment of machine learning algorithms against sensor data. • Demonstrate machine learning algorithms in simulated environments. • Complete system design of on-board processor. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The Carnac project is a new start in FY2019.	0.000	-	22.066
Title: Command and Control of the Information Environment (C2IE) ***Description:*** The Command and Control of the Information Environment (C2IE) project provides Combatant Commands, Services, Agencies, and Department of Defense leadership the ability to detect, monitor, understand, and act in the information environment. Due to the nature of this project, specific applications and detailed plans are available at a higher classification level.	31.880	36.570	24.366

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604250D8Z / *Advanced Innovative Technologies*	**Project (Number/Name)** 250 / *Advanced Innovative Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
FY 2018 Plans: • Conduct multiple operational validation demonstrations in support of Combatant Commanders (CCMDs). • Complete accreditation of C2IE components and system on redundant Secret Internet Protocol Router (SIPR) networks. • Refine automated cross-domain data transfer. • Install and test C2IE components and system on Joint Worldwide Intelligence Communication System (JWICS). • Evaluate and down-select Machine Learning solutions. ***FY 2019 Plans:*** • Conduct multiple operational validation demonstrations. • Refine automated ingest situational awareness data. • Complete accreditation of C2IE components and system on Joint Worldwide Intelligence Communications System (JWICS) networks. • Refine cross-domain data transfer. • Refine Machine Learning solutions for entity, event and network detection. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The bulk of software development will be completed FY 2017- FY 2018. Budget for FY 2019 reflects decreased need for software development.			
Title: Contender ***Description:*** SCO will develop and demonstrate an operational prototype that will extend the range of torpedoes for use in expanded mission sets. ***FY 2018 Plans:*** • Design and test host platform dynamics. • Conduct in-water risk reduction tests. • Conduct payload launch testing. • Perform subsystem integration planning. ***FY 2019 Plans:*** • Complete full-scale water tunnel testing. • Begin non-vehicle in-water testing. • Begin full system land based propulsion testing. • Being phase 4 fabrication & integration of prototype.	35.550	69.600	89.567

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604250D8Z / *Advanced Innovative Technologies*	**Project (Number/Name)** 250 / *Advanced Innovative Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
• Complete Shock certs and IA approvals. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The increase in budget from FY 2018 – FY 2019 is needed to forward fund long lead materials to build the weapon system within schedule.			
Title: Enhanced Munitions ***Description:*** Leverage existing technologies to analyze and prototype enhancements to current munitions. This project will retire risks associated with transition of enhanced munitions. Due to the nature of these projects, specific applications and detailed plans are available at a higher classification level. ***FY 2018 Plans:*** • Build and test form factor enhancement article. • Conduct third In-Progress Review of munition enhancements. • Integrate enhancements into munitions test article. • Plan and conduct second ground test of integrated enhanced munition test article. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The funding in FY 2018 will complete the demonstrations.	41.960	29.970	-
Title: Ghost Fleet ***Description:*** SCO will develop and demonstrate fleet integrated, operational prototype unmanned maritime vehicles to fill existing mission requirements for Combatant Commanders. The prototypes will include the platforms, autonomy, Command, Control and Communications (C3) and payload integration. Due to the nature of these projects, specific applications and detailed plans are available at a higher classification level. ***FY 2018 Plans:*** • Build and evaluate unmanned capabilities to support future operational demonstrations. • Begin payload integration activities. • Finalize autonomy architecture to support mission, platform, and payload level autonomy development. • Conduct operational assessments for prototype systems. ***FY 2019 Plans:*** • Complete surrogate in-water testing. • Complete platform in-water test event. • Continue integration and fabrication of final platforms.	-	206.000	187.739

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604250D8Z / *Advanced Innovative Technologies*	**Project (Number/Name)** 250 / *Advanced Innovative Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
• Complete component level testing and payload integration designs. • Complete autonomy system delivery. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease in funding is due to long lead material purchases, early state surrogate analysis and in-water testing and autonomy developments taking place in prior year.			
Title: Hoover ***Description:*** The Hoover project applies machine learning algorithms and techniques to existing sensors in order to reduce operator workload and data throughput requirements. This project will retire risks associated with upgrading existing on-board processors to support AI to enable transition more capable sensors. Due to the nature of this project, specific applications and detailed plans are available at a higher classification. The Hoover project is a new start in FY 2018. ***FY 2018 Plans:*** • Complete system design analysis and trade studies. • Conduct system engineering of modified processor and sensor. • Develop OPSEC plan. ***FY 2019 Plans:*** • Complete design and prototype of real-time processor. • Complete machine learning algorithms for existing sensor. • Complete test planning. • Conduct initial flight testing. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The increased budget in FY 2019 is due to significant hardware purchases and integration costs to support range testing.	0.000	46.000	74.500
Title: Hornet's Nest ***Description:*** SCO will develop a multi-mission Unmanned Aerial Vehicle (UAV). Due to the nature of these projects, specific applications and detailed plans are available at a higher classification level. ***FY 2018 Plans:*** • Conduct initial program and testing review. • Conduct wargames to define operational scenarios. • Conduct subsystem development and testing. • Perform initial analysis for platform integration.	-	24.000	28.403

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
• Demonstrate integration of various payloads and capabilities. ***FY 2019 Plans:*** • Conduct UAV Challenge/Fly-off downselect. • Complete CONOPS development modeling. • Conduct integration of UAV onto platform aircrafts. • Conduct air and ground testing. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The increase in funding from FY 2018 - FY 2019 for Hornet's Nest reflects additional resources required for execution of launch tests not conducted in FY 2018, as well as additional resources required for the challenging task of aircraft platform integration.			
Title: Hurt Locker ***Description:*** The Hurt Locker project demonstrates feasibility and utility of alternative sensor/weapon pairing. This project will retire risks associated with cross platform integration of existing weapons with existing sensors to enable transition of new weapon/sensor combinations to Service partners. Due to the nature of this project, specific applications and detailed plans are available at a higher classification. The Hurt Locker project is a new start in FY 2018. ***FY 2018 Plans:*** • Complete candidate system design analysis and trade studies • Conduct environmental control system design • Conduct system modeling and simulation • Conduct sub-system requirements review ***FY 2019 Plans:*** • Conduct hardware-in-the-loop/software-in-the-loop system integration testing • Complete launch platform hardware testing • Complete launch platform electronics testing • Complete system communications testing ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The increased budget in FY 2019 is due to additional hardware purchases and testing in FY 2019.	0.000	56.200	63.573
Title: Hypervelocity Gun Weapon System (HGWS)	245.184	67.050	-

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Description: Cost-effective, large magazine point defense will be demonstrated by closing the fire control loop between existing sensors and prototype projectiles launched from existing families of powder guns. Due to the nature of this project, specific applications and detailed plans are available at a higher classification level. ***FY 2018 Plans:*** • Complete Advanced Projectile design concepts. • Complete target procurement and support flight tests. • Continue closed-loop performance demonstrations by conducting increasingly difficult fly-by engagements. • Deliver Prototype Fire Control Radar and demonstrate enhanced range and precision. • Complete Prototype Surveillance Radar modifications and support demonstrations. • Integrate subsystems and conduct target intercepts. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The funding in FY 2018 will complete the demonstrations.			
Title: Kingfisher ***Description:*** The Kingfisher project will leverage previous investments in undersea systems to demonstrate the feasibility and operational utility of longer range lightweight torpedoes. Due to the nature of this project, specific applications and detailed plans are available at a higher classification. ***FY 2019 Plans:*** • Complete weapon design • Conduct platform integration analysis and design • Develop CONOPS ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The Kingfisher project is a new start in FY 2019.	0.000	-	43.607
Title: LiTE Saber ***Description:*** SCO will develop and demonstrate a commercial-enabled tactical command, control and communication capability to create secure tactical communications in Anti-Access / Area Denial (A2/AD) environments. ***FY 2018 Plans:*** • Conduct preliminary design and systems engineering activities in support of system architecture, hardware design and platform integration	-	65.000	75.493

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
requirements. • Establish metrics and measurements. • Establish candidate operating environments (vignettes/concepts of operation). • Conduct analysis to define system characteristics and effectiveness. • Demonstrate LTE on-the-move communications. ***FY 2019 Plans:*** • Conduct detailed design and systems engineering activities in support of system architecture, hardware design and platform integration requirements. • Integrate prototype Anti-Jamming Interface into End User Device (EUD). • Complete design review and execute vendor down-select. • Continue open systems architecture refinement. • Continue analysis of accreditation of components and system on Secret Internet Protocol Router (SIPR) networks. • Continue analysis to define system characteristics and effectiveness. • Demonstrate secure LTE on-the-move communications. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase needed to build and acquire hardware and conduct multiple prototype activities moving from the squad to platoon level while incorporating secure communications solution.			
Title: MAVEN ***Description:*** Leverage advanced commercial technologies to provide advantage to the warfighter in contested environments. Due to the nature of some of these projects, specific applications and detailed plans are available at a higher classification level. ***FY 2018 Plans:*** • Develop initial data sets. • Demonstrate analytics interfaces with databases. • Demonstrate initial analytic performance. ***FY 2019 Plans:*** • Analyze algorithm performance. • Integrate algorithms with analytic workflow leveraging existing data. ***FY 2018 to FY 2019 Increase/Decrease Statement:***	-	16.000	13.907

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
The FY 2019 budget is less than FY 2018 due to a decrease in the number of algorithm developers following a comparative evaluation in FY 2018.			
Title: Miniature Air Launched Decoy – X (MALD-X) ***Description:*** SCO will leverage existing low-cost payloads by demonstrating focused upgrades of the low cost Miniature Air-Launched Decoy (MALD) platform (MALD-X).	26.230	-	-
Title: Motley Crew ***Description:*** SCO will leverage near term technologies being developed to enable interoperability between weapons. Due to the nature of this project, specific applications and detailed plans are available at a higher classification level. ***FY 2018 Plans:*** • Conduct detailed design and systems engineering activities in support of system architecture, hardware design and platform integration requirements. • Complete and validate lab, ground and flight test capability development activities. • Conduct component- and subsystem-level platform integration development and testing. • Perform platform testing in operationally relevant scenarios, on ground and inflight, to demonstrate basic collaborative capabilities ***FY 2019 Plans:*** • Integrate algorithms into weapon systems. • Integrate mission planning software. • Conduct incremental risk reduction flight-testing of weapon systems. • Continue refinement of algorithms. • Continue mission and operational effectiveness analysis. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase from FY 2018 to FY 2019 needed to build and acquire hardware and conduct multiple risk reduc tion prototype flight test activities.	-	32.000	44.700
Title: Perdix Gen 7 ***Description:*** Develop next generation micro-UAV (unmanned air vehicle) with improved endurance and processing power to allow for a multi-mission capabilities. ***FY 2018 Plans:***	1.600	7.000	10.927

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
• Finalized baseline design and begin build of the micro-UAV. • Test and integrate power source. ***FY 2019 Plans:*** • Perform initial flight tests • Build and refine micro-UAV. • Begin integration of aircraft. • Begin test plan for final demonstration. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increased funding in FY 2019 will allow for the continued development, prototyping, testing and demonstration of the Gen 7 variant of Perdix to allow for smooth transition of capability.			
Title: Red Dawn ***Description:*** The Red Dawn project will leverage previous investments in Special Operations Forces (SOF) capabilities to demonstrate the feasibility of providing Combatant Commanders additional options for early-conflict. Due to the nature of this project, specific applications and detailed plans are available at a higher classification. ***FY 2019 Plans:*** • Complete weapon design • Conduct platform integration analysis and design • Develop CONOPS ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The Red Dawn project is a new start in FY 2019.	0.000	-	112.644
Title: Sea Dragon ***Description:*** A cost-effective capability will be demonstrated by integrating an existing weapon system with an existing Navy platform. Due to the nature of these projects, specific applications and detailed plans are available at a higher classification level. ***FY 2018 Plans:*** • Complete construction of land-based launch support test site. • Commence underwater static testing. • Continue planning for in-water translational testing. • Commence planning for sea-based tactical demonstration.	75.968	357.500	148.998

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
• Continue kill chain analysis within platform communications and fire control system architectures. ***FY 2019 Plans:*** • Complete underwater static testing. • Commence construction of sea-based launch support test site. • Commence underwater translational testing. • Continue planning for sea-based tactical demonstration. • Continue kill chain analysis within platform communications and fire control system architectures. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease in budget from FY 2018 to FY 2019 for the Sea Dragon demonstration project is due to purchasing long-lead material items needed in FY 2018 that will not need to be repurchased in FY 2019.			
Title: Sea Mob ***Description:*** SCO is developing a group of Unmanned Surface Vehicles (USVs) capable of cooperative swarming behaviors. Due to the nature of these projects, specific applications and detailed plans are available at a higher classification level. ***FY 2018 Plans:*** • Complete maturity of Sea Mob autonomy kit for multiple craft. • Conduct in-water exercises against relevant targets for specified missions. • Finalize Sea Mob Technical Data Packages for transition. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The Sea Mob program completes all development objectives in FY 2018 and transitions into a Marine Corps and Naval capabilities in FY 2019.	18.120	10.160	-
Title: Sea Stalker ***Description:*** SCO will leverage existing low-cost, persistent maritime platforms to offer Combatant Commanders immediate options. Due to the nature of these projects, specific applications and detailed plans are available at a higher classification level. ***FY 2018 Plans:*** • Perform payload field testing for operational effectiveness. • Perform in-water integrated payload/platform testing. • Demonstrate platform reliability. • Conduct in-water platform testing with optimized algorithms. ***FY 2019 Plans:***	17.390	27.240	26.045

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
• Demonstrate and test payload capabilities • Finalize final design of platform and payload through testing • Conduct final end-to-end demonstration ***FY 2018 to FY 2019 Increase/Decrease Statement:*** FY 2019 funds will be used to continue the prototyping and demonstration of the Sea Stalker concept with additional payloads and execute a final end-to-end demonstration.			
Title: Serenity ***Description:*** Leverage existing technologies to analyze and demonstrate a prototype solution to disrupt enemy targeting of critical U.S. assets. Due to the nature of these projects, specific applications and detailed plans are available at a higher classification level. ***FY 2018 Plans:*** • Demonstrate prototype in a laboratory environment. • Conduct analysis of subsystem alternatives. • Initiate planning for demonstration. • Complete interface control document. ***FY 2019 Plans:*** • Complete final prototype packaging. • Complete final operational effectiveness analysis updates. • Test and install first prototype units with packaging in a laboratory environment. • Build and integrate second prototype units. • Start installation engineering prior to testing. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase in funding is due to concurrent testing of first prototype units, which begin in FY 2018, and the development of second prototype units and the preparation for integration on a ship test platform.	-	18.000	20.860
Title: StormSystem ***Description:*** StormSystem will leverage existing capabilities to develop a suite of tools that disrupts the adversary cyber exploitation. Due to the nature of these projects, specific applications and detailed plans are available at a higher classification level. ***FY 2018 Plans:***	-	7.000	8.940

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
• Conduct initial system demonstration. • Analyze system performance. ***FY 2019 Plans:*** • Integrate tools into systems. • Begin building prototype infrastructure. • Continue to analyze system performance. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The FY 2019 budget increase is due to transition in efforts from creating modular obfuscation tools to integrating those tools into a deployable prototype system. The FY 2019 budget also includes infrastructure build and testing for housing the integrated system.			
Title: Strike-X ***Description:*** The Strike-X project leverages existing long-range strike capabilities and develops alternative Concepts of Employment (CONEMP) and Tactics, Techniques, and Procedures (TTP) to deliver near-term innovative long-range strike capabilities to Combatant Commanders. Due to the nature of this project, specific applications and detailed plans are available at a higher classification level. ***FY 2018 Plans:*** • Complete detailed design and systems engineering activities in support of system architecture, hardware and software design, and platform integration. • Procure and receive test article hardware to support component-level and system-level testing and integration. • Complete fabrication of system-level demonstrator and initial prototype test articles to facilitate platform integration evaluations. • Complete test site development activities. • Initiate system-level live fire integration and validation engineering tests with demonstrator assets to confirm prototype design to be demonstrated in FY19. • Conduct sensor enhancement trade study and make down-select decision. • Order munition and sensor long lead material. • Conduct munition and sensor preliminary design and conduct system-level preliminary design review (PDR). • Conduct munition and sensor engineering development test (EDT) unit fabrication and assembly. ***FY 2019 Plans:*** • Complete test site development activities. • Complete system-level live fire integration and validation engineering tests with demonstrator assets to confirm prototype design. • Conduct and complete system-level prototype demonstration series and evaluate readiness for transition supporting rapid fielding or program of record.	121.720	114.800	46.706

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
• Conduct system-level munition-sensor design verification testing (DVT). • Conduct system-level critical design review (CDR) • Initiate munition and sensor demonstration unit fabrication and assembly. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease in budget from FY 2018 - FY 2019 for Strike-X is in accordance with original funding profile.			
Title: Third Eye ***Description:*** Third Eye is a data architecture that leverages existing and emerging sensors to provide real-time tracking and targeting. ***FY 2018 Plans:*** • Deploy limited operational capability. • Continue to update capability based on operator feedback. ***FY 2019 Plans:*** • Deploy time-critical targeting limited operational capability. • Transition prototype and enhanced capabilities. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** FY 2019 is the final year for Third Eye. The funding reduction is commensurate with the end of new development and transition of prototype capabilities and transition into service acquisition programs of record.	33.810	35.400	25.162
Title: Vanguard ***Description:*** SCO will provide a capability to detect movements across the battle field. Due to the classified nature of this project, specific applications and detailed plans are available at a higher classification level. ***FY 2018 Plans:*** • Initiate sensor configuration design and analysis. • Develop comprehensive program management plan and integrated master schedule. • Examine scalability and component performance characterizations. • Examine sensor and targeting prototype capabilities. • Validate suitability of proposed design. ***FY 2019 Plans:*** • Complete prototype design. • Begin iterative test and design phase to achieve full-scale system design.	-	8.500	9.437

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
• Field test initial full-scale system. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The increase in budget is necessary to cover the costs of the components required to build-out the full-scale system.			
Title: Wildcat ***Description:*** The Wildcat project will demonstrate the feasibility and operational utility of artillery. Due to the nature of this project, specific applications and detailed plans are available at a higher classification. ***FY 2019 Plans:*** • Complete projectile designs. • Initiate long lead purchases of projectile hardware. • Conduct initial testing. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The Wildcat project is a new start in FY 2019.	0.000	-	103.306
Accomplishments/Planned Programs Subtotals	850.762	1,482.532	1,431.702

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Performance metrics are specific to each of the SCO efforts funded under the Advanced Innovative Technologies Program Element. All of which include measures identified in the management approach, Statement of Work (SOW) and Period of Performance (POP). In addition, completions and successes are monitored against schedules and deliverables stated in the initiative's management approach. Due to the nature of these projects, specific applications and detailed plans are available at a higher classification level.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
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Product Development ($ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Alternate Strike	MIPR	Various : Various	-	190.399	Jun 2017	148.629	May 2018	12.628	Mar 2019	-		12.628	Continuing	Continuing	-
AVATAR	MIPR	Various : Various	-	-		18.000	Mar 2018	38.700	Nov 2018	-		38.700	Continuing	Continuing	-
Breaker	C/CPFF	Various : Various	-	-		36.706	Oct 2017	33.549	Oct 2018	-		33.549	Continuing	Continuing	-
Breaker- 2	C/FFP	TBD : TBD	-	-		19.439	Jan 2018	19.338	Nov 2018	-		19.338	Continuing	Continuing	-
Contender	MIPR	Various : Various	-	35.550	Jun 2017	69.600	Jun 2018	89.567	May 2019	-		89.567	Continuing	Continuing	-
Enhanced Munitions	MIPR	Various : Various	33.923	38.960	Jan 2017	26.970	Jan 2018	-		-		-	Continuing	Continuing	-
Enhanced Munitions - 2	MIPR	Various : Various	-	3.000	Jan 2017	3.000	Jan 2018	-		-		-	Continuing	Continuing	-
Ghost Fleet	C/Various	Various : Various	-	-		168.920	Jun 2018	154.980	May 2019	-		154.980	Continuing	Continuing	-
HGWS	IA	Various : Various	-	6.934	Feb 2017	1.500	Mar 2018	-		-		-	Continuing	Continuing	-
HGWS - SOSSEC	MIPR	Various : Various	-	6.587	Jan 2017	-		-		-		-	Continuing	Continuing	-
HGWS - DOTC	C/Various	Various : Various	-	-		10.000	Feb 2018	-		-		-	Continuing	Continuing	-
HGWS -4	MIPR	Various : Various	-	35.479	Feb 2017	8.000	Feb 2018	-		-		-	Continuing	Continuing	-
HGWS - 5	MIPR	Various : Various	-	22.648	Feb 2017	-		-		-		-	Continuing	Continuing	-
HGWS - 6	MIPR	Various : Various	-	45.397	Jan 2017	19.250	Feb 2018	-		-		-	Continuing	Continuing	-
HGWS - 7	MIPR	Various : Various	-	17.093	Mar 2017	-		-		-		-	Continuing	Continuing	-
HGWS - 8	MIPR	Various : Various	-	18.531	Jan 2017	6.000	Nov 2017	-		-		-	Continuing	Continuing	-
HGWS - 9	MIPR	Various : Various	-	23.215	Apr 2017	7.400	Nov 2017	-		-		-	Continuing	Continuing	-
Hornets Nest	C/FFP	Various, TBD : Various, TBD	-	-		9.000	Jun 2018	10.000	May 2019	-		10.000	Continuing	Continuing	-
LiTE Saber	MIPR	Various, TBD : Various	-	-		65.000	Jul 2018	76.000	Jun 2019	-		76.000	Continuing	Continuing	-
MAVEN	MIPR	Various, TBD : Various	-	-		16.000	Mar 2018	14.000	Apr 2019	-		14.000	Continuing	Continuing	-
Motley Crew	MIPR	Various : Various	-	-		25.000	May 2018	30.000	Jan 2019	-		30.000	Continuing	Continuing	-
Perdix Gen 7	FFRDC	Various : Various	-	1.600	Jun 2017	7.000	Apr 2018	11.000	May 2019	-		11.000	Continuing	Continuing	-
Sea Dragon	Various	Various : Various	81.000	45.990	Dec 2016	263.744	Jan 2018	65.000	Nov 2018	-		65.000	Continuing	Continuing	-
Sea Mob	MIPR	Various : Various	-	8.920	May 2017	3.760	Mar 2018	-		-		-	Continuing	Continuing	-
Sea Mob - 2	MIPR	Various : Various	19.985	9.200	Dec 2016	6.400	Jun 2018	-		-		-	Continuing	Continuing	-
Sea Stalker	MIPR	Various : Various	25.341	12.140	Jun 2017	25.333	Jun 2018	24.385	Apr 2019	-		24.385	Continuing	Continuing	-

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Serenity	Various	Various : Various	-	-		18.000	Jun 2018	21.000	May 2019	-		21.000	Continuing	Continuing	-
Storm System	Various	Various, TBD : Various	-	-		7.000	Apr 2018	9.000	Mar 2019	-		9.000	Continuing	Continuing	-
Strike-X	MIPR	Various : Various	-	82.232	Nov 2016	57.170	Dec 2017	-		-		-	Continuing	Continuing	-
Strike-X - 2	Various	Various, TBD : Various	-	26.571	Aug 2017	17.781	Feb 2018	12.000	Dec 2018	-		12.000	Continuing	Continuing	-
Third Eye	MIPR	Various, TBD : Various	-	28.500	Jul 2016	20.320	May 2018	12.264	May 2019	-		12.264	Continuing	Continuing	-
Vanguard	C/Various	Various,TBD : Various	-	-		3.300	Jun 2018	5.910	Jan 2019	-		5.910	Continuing	Continuing	-
		Subtotal	160.249	658.946		1,088.222		639.321		-		639.321	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Alternate Strike	Various	Various : Various	-	0.598	May 2017	3.348	Mar 2018	124.460	May 2019	-		124.460	Continuing	Continuing	-
AVATAR	MIPR	Various : Various	-	-		7.000	Jan 2018	11.300	Feb 2019	-		11.300	Continuing	Continuing	-
Breaker	MIPR	Various : Various	-	-		11.076	Dec 2017	10.158	Dec 2018	-		10.158	Continuing	Continuing	-
Ghost Fleet	MIPR	Various : Various	-	-		12.360	Mar 2018	11.340	May 2019	-		11.340	Continuing	Continuing	-
HGWS	Various	Various : Various	453.278	39.684	Mar 2017	8.800	Jan 2018	-		-		-	Continuing	Continuing	-
Hornets Nest	MIPR	Various : Various	-	-		7.500	Apr 2017	8.403	Jan 2019	-		8.403	Continuing	Continuing	-
Motley Crew	MIPR	Various : Various	-	-		1.500	Dec 2017	1.500	Jan 2019	-		1.500	Continuing	Continuing	-
Sea Dragon	Various	Various : Various	-	1.420	Dec 2016	3.260	Nov 2017	12.603	Dec 2018	-		12.603	Continuing	Continuing	-
Sea Stalker	MIPR	Various : Various	-	1.200	Dec 2016	1.907	Jan 2018	1.835	Dec 2018	-		1.835	Continuing	Continuing	-
Strike-X	MIPR	Various : Various	-	12.917	Dec 2016	39.849	Dec 2017	13.510	Dec 2018	-		13.510	Continuing	Continuing	-
Third Eye	MIPR	Various : Various	-	3.210	Apr 2017	3.480	May 2018	1.950	Apr 2019	-		1.950	Continuing	Continuing	-
Vanguard	MIPR	Various : Various	-	-		4.700	Dec 2017	2.890	Dec 2018	-		2.890	Continuing	Continuing	-
		Subtotal	453.278	59.029		104.780		199.949		-		199.949	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense			Date: February 2018
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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Advanced Navigation	MIPR	Various : Various	25.000	3.350	May 2017	-		-		-		-	Continuing	Continuing	-
Alternate Strike	MIPR	Various : Various	-	7.033	Apr 2017	23.783	May 2018	19.848	Dec 2018	-		19.848	Continuing	Continuing	-
C2IE	Various	Various : Various	43.122	31.880	Jul 2017	36.570	May 2018	24.366	Jun 2019	-		24.366	Continuing	Continuing	-
Carnac	MIPR	Various : Various	-	-		-		22.066	Dec 2019	-		22.066	Continuing	Continuing	-
Ghost Fleet	Various	Various : Various	-	-		24.720	Dec 2017	22.680	Jan 2019	-		22.680	Continuing	Continuing	-
HGWS	MIPR	Various : Various	75.000	5.568	Jan 2017	1.000	Jan 2018	-		-		-	Continuing	Continuing	-
HGWS - 2	MIPR	Various : Various	-	24.935	Jun 2017	22.367	May 2018	16.016	Jan 2019	-		16.016	Continuing	Continuing	-
Hoover	C/Various	Various : Various	-	-		46.000	Jun 2018	74.500	Mar 2019	-		74.500	Continuing	Continuing	-
Hormets Nest	MIPR	Various : Various	-	-		7.500	Apr 2018	20.000	May 2019	-		20.000	Continuing	Continuing	-
Hurt Locker	C/Various	Various : Various	-	-		56.200	Feb 2018	63.573	Dec 2019	-		63.573	Continuing	Continuing	-
Kingfisher	C/Various	Various : Various	-	-		-		43.607	Feb 2019	-		43.607	Continuing	Continuing	-
Mald-X	Various	Various : Various	-	26.230	Jul 2017	-		-		-		-	Continuing	Continuing	-
Motley Crew	MIPR	Various : Various	-	-		5.500	Jan 2018	13.500	Apr 2019	-		13.500	Continuing	Continuing	-
Red Dawn	MIPR	Various : Various	-	-		-		112.644	Dec 2018	-		112.644	Continuing	Continuing	-
Sea Dragon	Various	Various : Various	-	27.641	Dec 2016	53.790	Jun 2018	33.000	Dec 2018	-		33.000	Continuing	Continuing	-
Sea Stalker	Various	Various : Various	-	4.050	Dec 2016	-		-		-		-	Continuing	Continuing	-
Strike-X	MIPR	Various : Various	-	-		-		21.510	Mar 2019	-		21.510	Continuing	Continuing	-
Third Eye	MIPR	Various : Various	-	2.100	Mar 2017	11.600	Feb 2018	1.116	Dec 2018	-		1.116	Continuing	Continuing	-
Vanguard	MIPR	TBD : Various	-	-		0.500	May 2018	0.700	Jan 2019	-		0.700	Continuing	Continuing	-
Wildcat	MIPR	Various : Various	-	-		-		103.306	Oct 2018	-		103.306	Continuing	Continuing	-
		Subtotal	143.122	132.787		289.530		592.432		-		592.432	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	756.649	850.762		1,482.532		1,431.702		-		1,431.702	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604250D8Z / *Advanced Innovative Technologies*	**Project (Number/Name)** 250 / *Advanced Innovative Technologies*

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604250D8Z / *Advanced Innovative Technologies*	**Project (Number/Name)** 250 / *Advanced Innovative Technologies*

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604250D8Z / *Advanced Innovative Technologies*	**Project (Number/Name)** 250 / *Advanced Innovative Technologies*

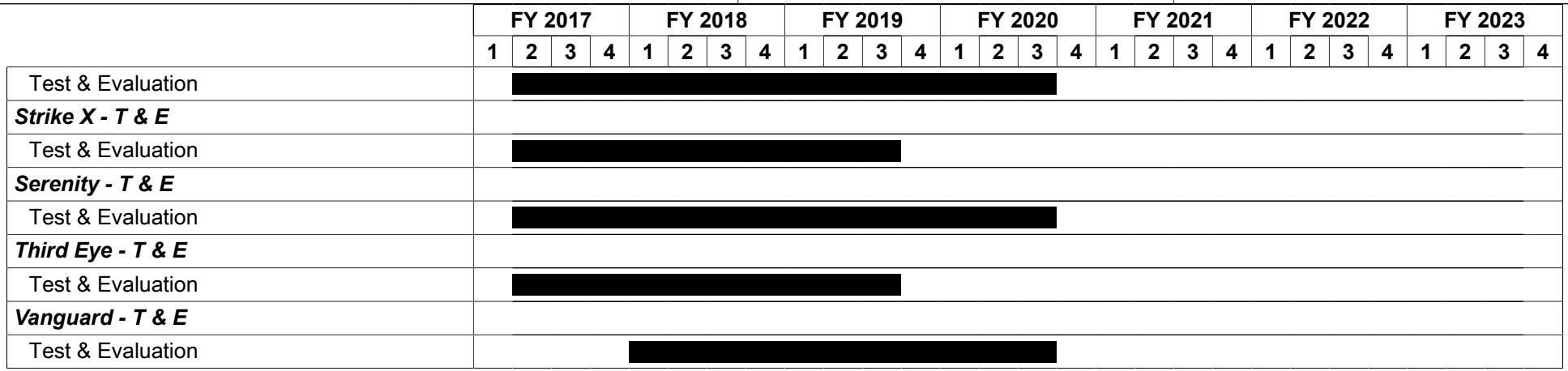

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604250D8Z / *Advanced Innovative Technologies*	**Project (Number/Name)** 250 / *Advanced Innovative Technologies*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
BREAKER Product Development				
Product Development	1	2018	4	2020
C2IE Platform Integration				
Platform Integration	2	2017	4	2018
C2IE Transition Management				
Transition Management	4	2018	4	2019
Contender Product Development				
Product Development	1	2017	4	2020
HGWS - Product Development				
Product Development	1	2017	4	2018
Perdix Gen 7 - Product Development				
Product Development	4	2017	4	2020
Sea Dragon - Product Development				
Product Devlopment	1	2017	4	2017
Strike X - Product Development				
Product Devlopment	1	2017	4	2019
Serenity - Product Development				
Product Development	1	2017	4	2020
Alternative Strike - T & E				
Test & Evaluation	1	2017	4	2020
AVATAR - T & E				
Test & Evaluation	1	2018	4	2022

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604250D8Z / *Advanced Innovative Technologies*	**Project (Number/Name)** 250 / *Advanced Innovative Technologies*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
BREAKER - T & E				
Test & Evaluation	4	2017	3	2019
C2IE - T & E				
Test & Evaluation	4	2017	4	2018
Contender - T & E				
Test & Evaluation	1	2017	4	2020
Enhanced Munitions - T & E				
Test & Evaluation	1	2017	3	2018
Ghost Fleet - T & E				
Test & Evaluation	1	2018	4	2020
Hornet's Nest - T & E				
Test & Evaluation	1	2018	2	2020
HGWS - T & E				
Test & Evaluation	1	2017	3	2019
LiTE Saber - T & E				
Test & Evaluation	1	2017	3	2020
MAVEN - T & E				
Test & Evaluation	1	2018	3	2020
Motley Crew - T & E				
Test & Evaluation	1	2018	3	2020
Sea Dragon - T & E				
Test & Evaluation	1	2017	4	2017
Sea Mob - T & E				
Test & Evaluation	1	2017	4	2018
Sea Stalker - T & E				

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604250D8Z / *Advanced Innovative Technologies*	**Project (Number/Name)** 250 / *Advanced Innovative Technologies*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Test & Evaluation	1	2017	3	2019
Storm System - T & E				
Test & Evaluation	2	2017	3	2020
Strike X - T & E				
Test & Evaluation	2	2017	3	2019
Serenity - T & E				
Test & Evaluation	2	2017	3	2020
Third Eye - T & E				
Test & Evaluation	2	2017	3	2019
Vanguard - T & E				
Test & Evaluation	1	2018	3	2020

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604294D8Z / *Trusted and Assured Microelectronics*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	83.626	233.142	-	233.142	237.209	228.272	239.994	241.626	Continuing	Continuing
645: *Verification & Validation (V&V) Capabilities and Standards for Trust*	0.000	0.000	41.524	41.773	-	41.773	41.007	35.607	36.382	36.831	Continuing	Continuing
646: *New Trust Approach Development*	0.000	0.000	42.102	191.369	-	191.369	196.202	192.665	203.612	204.795	Continuing	Continuing

Note

Service Requirements Review Board (SRRB) efficiencies are included.

A. Mission Description and Budget Item Justification

This Program Element (PE) implements, maintains, and updates the DoD's long-term microelectronics strategy and places emphasis on incentivizing and proving new microelectronics technology solutions. FY 2019 funds in the amount of $2.000 million are being transferred from PE 0603826D8Z for the continuation of Joint Federated Assurance Center (JFAC) hardware and software assurance and integrity analysis activities planned across the Future Years Defense Program (FYDP).

Recognizing that a trusted and assured supply of microelectronics is a U.S. Government (USG)-wide concern, this activity will interface with interagency partners to take into account interagency requirements, opportunities for collaboration, and strategic decisions that can be made to limit the overall cost of these requirements to the USG. Its goal is to eliminate the Department of Defense (DoD)'s reliance on sole source foundries for trusted state-of-the-art (SOTA) microelectronics. It supports activities to ensure critical and sensitive integrated circuits are available to meet the DoD's needs. It refines strategies and management planning activities implementing three integrated, complementary solutions that: (1) protect the Intellectual Property (IP) of microelectronics components; (2) improve capabilities to evaluate and validate the trust and assurance of microelectronic parts and advance standards to incentive the commercial marketplace to recognize hardware assurance as a competitive design standard; and (3) develop and demonstrate alternative approaches to the DoD Trusted Foundry program to assure the microelectronics supply chain in order to enable broader DoD access to commercial SOTA microelectronics technology.

This activity is being led by the Under Secretary of Defense for Research and Engineering. This activity is conducted, in coordination with the JFAC Steering Committee and the Science and Technology (S&T) Advisory Board, by performers, such as the JFAC service providers, Defense Microelectronics Activity (DMEA), the Defense Advanced Research Programs Agency (DARPA), and other DoD and Intelligence Community S&T organizations and laboratories in the area of hardware assurance (HwA) and software assurance (SwA). It is integrating with, and supporting, the functions of the DoD Trusted Foundry Program, the Trusted Supplier accreditation program, JFAC, and related HwA and SwA S&T actions. This activity is also expected to maintain and update the DoD long-term microelectronics strategy based on feedback from the execution of this PE and enable and leverage commercial and academic relationships as necessary to fulfill this mission.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604294D8Z *I Trusted and Assured Microelectronics*

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	0.000	83.626	81.712	-	81.712
Current President's Budget	0.000	83.626	233.142	-	233.142
Total Adjustments	0.000	0.000	151.430	-	151.430
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Realignment of funds	-	-	2.000	-	2.000
• Other Program Adjustments	-	-	-0.025	-	-0.025
• Increase for Priority Requirements	-	-	151.020	-	151.020
• Economic Assumption	-	-	-1.565	-	-1.565

Change Summary Explanation

FY 2019 funds in the amount of $2.000 million are being transferred from PE 0603826D8Z for the continuation of JFAC hardware and software assurance and integrity analysis activities planned across the FYDP. An additional $151.020 million was added to support the following: secure design environments; electronic data automation (EDA) tools; third-party IP and USG IP development; persistent expertise; prototype development; advanced foundry research and development (R&D) access; state-of-the-practice (SOTP) foundry access; process IP procurement and transition; tool development; enabling integrated circuit manufacturing; and assessment of supply security and protection.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604294D8Z / *Trusted and Assured Microelectronics*	Project (Number/Name) 645 / *Verification & Validation (V&V) Capabilities and Standards for Trust*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
645: *Verification & Validation (V&V) Capabilities and Standards for Trust*	0.000	0.000	41.524	41.773	-	41.773	41.007	35.607	36.382	36.831	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project improves microelectronics test and verification methodologies in support of verifying the trust and assurance of parts and develops standards and practices to foster commercial development of secure, trusted and assured parts. Verification and test technologies are required to provide direct program support for microelectronics assurance verification when DoD Trusted Foundry Program options are not available. Core technical laboratories and other HwA and SwA capabilities are chartered as a JFAC to provide this support. Out-year demands will require an increase in capacity, which will take the form of additional personnel and/or equipment to permit scaling of microelectronics assessment capabilities. Challenges have been identified, to include the ability to analyze leading-edge technology nodes (<45 nanometers (nm)), throughput/time required for analysis, ability to analyze third-party IP contained in microelectronic components, and analysis of non-application specific integrated circuit (ASIC) components that are increasingly being used for agility, e.g., Field-Programmable Gate Arrays (FPGAs). This project addresses these gaps in current technical capabilities, in coordination with the JFAC, which prioritizes this investment as required to meet the realized and projected out-year demand for JFAC services. Three capability areas core to microelectronics analysis and verification will be improved:

- Physical verification, i.e., destructive analysis of integrated circuits and printed circuit boards
- Functional analysis, i.e., non-destructive screening/verification of select, critical parts
- Design verification, i.e., verification/assurance of designs, IP, netlists, bitstreams, firmware, etc.

These improvements address two primary attributes: (1) technical capability including laboratory equipment, IP, analysis tools, such as imaging software, and highly skilled tradecraft, and (2) the capacity to perform microelectronics assessments.

This project develops and matures assurance mitigations, evaluates the effectiveness of protections of IP in support of integrity, and develops and validates obfuscation and disaggregation technologies. The project will address physical validation tool and capability development, design software validation tool development, counterfeit detection and imaging techniques, and system vulnerability assessments and testbeds.

This project also develops standards and practices in support of assured designs and supply chains and formal relationships with industry to foster commercial development of secure, trusted, and assured parts and for acquisition of USG access to proprietary designs, software, development, and quality assurance processes and test procedures to develop practices that minimize security flaws in designs and facilitate verification. Two capability areas that are core to improved commercial designs will be improved, i.e., assured designs and supply chains.

This project enables JFAC to provide hardware and software assurance and integrity analysis tools, services, best-practices, contract language, and other help to programs that detect, assess, prioritize, and mitigate mission critical vulnerabilities to malicious hardware and software attacks and supply chain exploitation

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604294D8Z / *Trusted and Assured Microelectronics*	**Project (Number/Name)** 645 / *Verification & Validation (V&V) Capabilities and Standards for Trust*

vulnerabilities. Additionally, the JFAC will provide capabilities for programs to keep assessment findings throughout the life cycle of their systems for data mining (e.g., documentation on rationale for previous mitigation decisions regarding software, hardware, and firmware.) The collaboration between the JFAC and program offices will help mitigate existing and emerging critical threats and vulnerabilities in both software and hardware and yield secure architecture and design patterns available to all DoD programs.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Verification & Validation (V&V) Capabilities and Standards for Trust	-	41.524	41.773

Description: The JFAC will: (1) improve its microelectronics test and verification methodologies in support of verifying trust and assurance of parts and (2) develop standards/practices to foster commercial development of secure, trusted and assured parts.

FY 2018 Plans:
Verification and test technologies activities will include:

• Improvements to the core JFAC's (1) technical capability, through the procurement of laboratory equipment, IP, analysis tools, such as imaging software, and highly skilled tradecraft, and (2) capacity to perform microelectronics assessments. FY 2018 and out-year demands will require an increase in capacity supporting weapon system program engagement, which will take the form of additional personnel and/or equipment to permit scaling of assessment capabilities.
• Enhancement of automation and standard processes needed to increase the throughput of information produced by individual JFAC laboratory tools as well as to facilitate information sharing across the families of tools used for analysis and testing.
• Development of common subject matter expert (SME) training and protocols based on the existing tool base, to include both commercial and USG-developed tools.
• Funding for additional SME support in each core laboratory in support of the microelectronics trust verification and other JFAC-related work.
• Increased direct program support focused on addressing technical gaps and trust-related findings.

Standards and practices activities will include:
• Development of standards and best practices, and relationships with industry, to foster commercial development of secure, trusted and assured parts.
• Establishment of formal relationships with FPGA vendors and other key commercial suppliers to improve device and IP security.
• Acquisition of government access to proprietary designs, software, development, and quality assurance processes and test procedures to develop design practices that minimize security flaws and facilitate verification.
• Establishment of government and industry working groups to develop test procedures to validate the trust of designs.
• Documentation and promulgation of security-enhancing design practices across government, industry, and academia.
• Development of industry-wide standards and practices to establish a common understanding of what constitutes verified and trusted hardware/software/firmware at both the component and systems level.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604294D8Z / *Trusted and Assured Microelectronics*	**Project (Number/Name)** 645 / *Verification & Validation (V&V) Capabilities and Standards for Trust*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
• Maintain infrastructure services and staff for the JFAC Coordination Center (CC), enabling the centralized assurance repository, assurance contract language, metrics, the JFAC Ticketing System for SwA tool license distribution, help-desk, and hard problem analysis. • Incorporate S&T, DARPA/ Intelligence Advanced Research Projects Activity (IARPA), Test & Evaluation (T&E), and Defense Acquisition University (DAU) products into the JFAC website. ***FY 2019 Plans:*** Continuation of FY 2018 verification and test technologies activities including: • Improvements to the core JFAC's (1) technical capability, through the procurement of laboratory equipment, IP, analysis tools, such as imaging software, and highly skilled tradecraft, and (2) capacity to perform microelectronics assessments. FY 2019 and out-year demands will require an increase in capacity supporting weapon system program engagement, which will take the form of additional personnel and/or equipment to permit scaling of assessment capabilities. • Enhancement of automation and standard processes needed to increase the throughput of information produced by individual JFAC laboratory tools as well as to facilitate information sharing across the families of tools used for analysis and testing. • Development of common SME training and protocols based on the existing tool base, to include both commercial and USG-developed tools. • Funding for additional SME support in each core laboratory in support of the microelectronics trust verification and other JFAC-related work. • Increased direct program support focused on addressing technical gaps and assurance-related findings. • Continue to maintain infrastructure services and staff for the JFAC CC, enabling the centralized assurance repository, assurance contract language, metrics, the JFAC Ticketing System for SwA tool license distribution, help-desk, and hard problem analysis. • Incorporate S&T, DARPA/IARPA, T&E, and DAU products into the JFAC website. Continuation of FY 2018 standards and practices activities including: • Development of standards and best practices, and relationships with industry, to foster commercial development of secure, trusted and assured parts. • Establishment of formal relationships with FPGA vendors and other key commercial suppliers to improve device and IP security. • Acquisition of USG access to proprietary designs, software, development, and quality assurance processes and test procedures to develop design practices that minimize security flaws and facilitate verification. • Establishment of USG and industry working groups to develop test procedures to validate the assurance of designs. • Documentation and promulgation of security-enhancing design practices across the USG, industry, and academia. • Development of industry-wide standards and practices to establish a common understanding of what constitutes assured hardware, software, and firmware at both the component and system level.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604294D8Z / *Trusted and Assured Microelectronics*	**Project (Number/Name)** 645 / *Verification & Validation (V&V) Capabilities and Standards for Trust*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
• Development of a common lexicon for secure hardware, software, and firmware in collaboration with the Committee for National Security Systems, National Institute of Standards and Technology, and the broader USG, industry, and academia. • Definition of supply chain controls for assured chain of custody for critical and other microelectronics devices and IP. • Development of security training and education of USG and industry system security engineers and material managers on supply chain and life-cycle management best practices using agreed-upon language, standards, and practices. • Alignment of DoD Instruction 5200.44 (Protection of Mission Critical Functions to Achieve Trusted Systems and Networks (TSN)), and other related policies and guidance, with other USG, e.g., NIST 800-161 (Supply Chain Risk Management Practices for Federal Information Systems and Organizations), and industry standards identifying and addressing gaps in definition and criteria and establishing accepted levels of supplier and part assurance. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Funds transferred from PE 0603826D8Z in FY 2019 to correctly align funding in support of the mission.			
Accomplishments/Planned Programs Subtotals	-	41.524	41.773

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

Performance for this project is monitored in the following ways:

• Increases in throughput in current JFAC laboratories, and stand-up of additional capability and capacity as required, so that at least two laboratories will have capability in physical verification, functional analysis, and design verification to increase the DoD's overall microelectronics trust verification and test capacity for analysis of parts.
• Increased Probability of Detection of malicious insertion and/or counterfeit parts.
• Decreased cost to evaluate components.
• Decreased time to evaluate components.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604294D8Z / *Trusted and Assured Microelectronics*	**Project (Number/Name)** 645 / *Verification & Validation (V&V) Capabilities and Standards for Trust*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
V&V Capabilities and Standards for Trust	MIPR	Various (Air Force, Army, Navy, NSA) : Various	-	-		41.524	Mar 2018	41.773	Mar 2019	-		41.773	Continuing	Continuing	-
		Subtotal	-	-		41.524		41.773		-		41.773	Continuing	Continuing	N/A

Remarks

N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		41.524		41.773		-		41.773	Continuing	Continuing	N/A

Remarks

NA

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604294D8Z / *Trusted and Assured Microelectronics*	**Project (Number/Name)** 645 / *Verification & Validation (V&V) Capabilities and Standards for Trust*

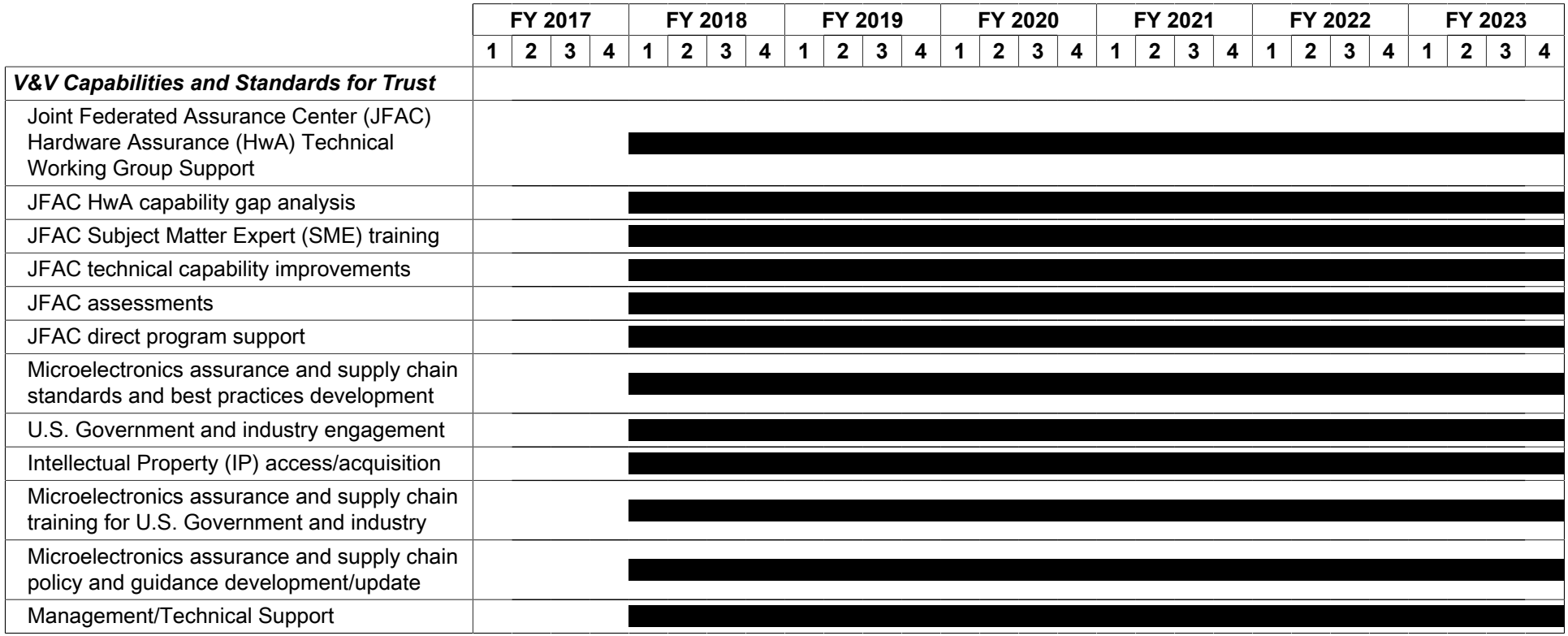

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604294D8Z / *Trusted and Assured Microelectronics*	**Project (Number/Name)** 645 / *Verification & Validation (V&V) Capabilities and Standards for Trust*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
V&V Capabilities and Standards for Trust				
Joint Federated Assurance Center (JFAC) Hardware Assurance (HwA) Technical Working Group Support	1	2018	4	2023
JFAC HwA capability gap analysis	1	2018	4	2023
JFAC Subject Matter Expert (SME) training	1	2018	4	2023
JFAC technical capability improvements	1	2018	4	2023
JFAC assessments	1	2018	4	2023
JFAC direct program support	1	2018	4	2023
Microelectronics assurance and supply chain standards and best practices development	1	2018	4	2023
U.S. Government and industry engagement	1	2018	4	2023
Intellectual Property (IP) access/acquisition	1	2018	4	2023
Microelectronics assurance and supply chain training for U.S. Government and industry	1	2018	4	2023
Microelectronics assurance and supply chain policy and guidance development/update	1	2018	4	2023
Management/Technical Support	1	2018	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604294D8Z / *Trusted and Assured Microelectronics*	Project (Number/Name) 646 / *New Trust Approach Development*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
646: *New Trust Approach Development*	0.000	0.000	42.102	191.369	-	191.369	196.202	192.665	203.612	204.795	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project funds a program of research to develop the next generation, technology-driven approach to microelectronics trust and assurance, to include state-of-the-art (SOTA) microelectronics, to ensure continued access to SOTA microelectronic technologies while maintaining the required level of assurance in all environments. DoD's ability to access commercial technology for its custom, secure, trusted and assured needs is diminishing as SOTA suppliers become fewer and more focused on serving the global commercial market. DoD's technology needs are broad, and relying on a single source supplier is not feasible. Alternative, advanced manufacturing methods, technologies, and design tools are needed to produce secure, trusted and assured SOTA parts from commercial sources and to preserve access to these advanced nodes while protecting DoD and Defense Industrial Base IP from exploitation. It is also intended to dramatically improve the capabilities of the JFAC with regard to verification and validation of SOTA microelectronics assurance.

This program of research will develop innovative design, manufacturing, imaging, tagging, and control and assessment approaches for protecting DoD's microelectronics supply chain and IP, including alternatives for trusted and assured strategic radiation-hardened electronics in advanced technology nodes for next-generation strategic systems, obfuscation and disaggregation technology development, and other assurance mitigations. It will develop advanced imaging technologies and forensics, Design for Assurance techniques, active hardware assurance controls, electronic component markers, and a data and analysis capability to enable auditing and independent verification and validation of commercial designs. It also develops, demonstrates, and implements concepts for the cost-effective production of custom microelectronics in low volumes and protection of sensitive IP from exploitation.

Assurance technologies that can be applied in a broad range of trusted and commercial environments can mitigate the risk associated with sole-source suppliers and increase the Government's ability to leverage commercial capabilities. The suite of developed technologies, e.g., alternative manufacturing methods and design tools, will enable DoD to obfuscate the purpose of sensitive devices, verify their origin and function, and protect sensitive IP from exploitation even while using the global supply chain for most hardware. In cases where the risk involved precludes that level of commercial collaboration, low-volume manufacturing technologies developed under this project would permit DoD to more cheaply produce low volumes of sensitive microelectronics in trusted environments. The project would also support using a repository of vetted third-party IP and EDA tools to expedite circuit design and transition promising technologies to use.

This project has received additional funding starting in FY 2019 to support microelectronics innovation efforts in the following focus areas: capture and secure microelectronics R&D; new microelectronics development, demonstration, and capability insertion; radiation hardening by process (RHBP) and radiation hardening by design (RHBD); and radio frequency (RF) and opto-electronics.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: New Trust Approach Development	-	42.102	191.369

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604294D8Z / *Trusted and Assured Microelectronics*	**Project (Number/Name)** 646 / *New Trust Approach Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Description: This project's activities will mature and evaluate assurance technologies and techniques through efforts that may include the conduct of studies and Broad Agency Announcements (BAAs) and other efforts to coordinate research programs across USG R&D organizations, academia, and industry. In addition, the JFAC will initiate the conduct of identified acquisition program pilots and technology demonstrations in coordination with research programs across government R&D organizations, academia and industry. ***FY 2018 Plans:*** This project will initiate and support at least one R&D activity in each of the following technical focus areas: • Design-For-Trust techniques • IP protection • Low-volume SOTA manufacturing • Electronic component markers • Imaging technologies and forensics • Computing infrastructure and processing methods. Primary efforts will include reducing-to-practice technologies enabling trusted (1) design, (2) access, (3) component integrity and (4) IP protection. FY 2018 primary activities include development of these technologies, followed by transition of these capabilities to new programs in the following fiscal years under PE 0605294D8Z. This project will engage early on with potential stakeholders to identify potential transition issues and aid in transition through joint collaboration between research teams and stakeholders with a focus on evaluations of prototypes, test articles, and beta versions of tools, IP, techniques, methods, etc. and their use in operationally-realistic scenarios. ***FY 2019 Plans:*** This project will use the augmented funding in FY19 to initiate and support R&D activities in each of the following technical focus areas: • Capture and secure microelectronics R&D, including support and enhanced manufacturing at SOTP foundries. • New microelectronics development, demonstration, and capability insertion including supporting public/private co-development of new COTS programmable devices that address USG needs during their development by industry when it is the most cost-effective to do so. • RHBP and RHBD including supporting secure design of RHBD IP in all major domestic foundries and fabrication of SOTA test articles for evaluation and qualification.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604294D8Z / *Trusted and Assured Microelectronics*	**Project (Number/Name)** 646 / *New Trust Approach Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
• RF and opto-electronics including supporting secure design of IP and access to SOTP government and commercial facilities for RF and optical devices. Primary efforts will include reducing-to-practice technologies enabling assured (1) design, (2) access, (3) component integrity and (4) IP protection. This project will engage early on with potential stakeholders to identify potential transition issues and aid in transition through joint collaboration between research teams and stakeholders with a focus on evaluations of prototypes, test articles and beta versions of tools, IP, techniques, methods, etc. and their use in operationally-realistic scenarios. Primary activities in FY 2019 will continue the development of these technologies, followed by transition of these capabilities to new programs in the fiscal years that follow under PE 0605294D8Z. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** FY 2019 increase supports additional efforts in this USG priority area.			
Accomplishments/Planned Programs Subtotals	-	42.102	191.369

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

Performance for this project is monitored in the following ways:

• Enhanced capability in physical verification, functional analysis, and design verification.
• Increased Probability of Detection of malicious insertion and/or counterfeit parts.
• Expanded access to leading SOTA technology and enhanced availability of essential SOTP design and fabrication capabilities.
• Successful transition demonstrations from commercial technology to modernized military applications, e.g., such as strategic radiation-hardened and RF-optical microelectronics.
• Effectiveness of developed technologies, as measured by:

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604294D8Z / *Trusted and Assured Microelectronics*	**Project (Number/Name)** 646 / *New Trust Approach Development*

- The speed and reliability of new validation and verification techniques in identifying known microelectronics issues (e.g., tampering) in laboratory and non-laboratory situations.
- Successful demonstration of advanced, alternative manufacturing techniques, such as disaggregated manufacturing.
- Resilience of microelectronics protected by new trust approach technologies in red teaming exercises.

• Adoption of next-generation commercial technologies, as measured by:

- The number of DoD and other USG programs employing assured access to SOTP and SOTA technologies, design approaches, and best practices developed in cooperation with commercial partners.
- The volume and criticality of components employing these technologies, design approaches, or best practices.
- Promulgation in DoD guidance and program protection plans.

• Commercial partnerships established for, or enhanced by, the development and manufacture of DoD microelectronics using next-generation assurance technologies.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604294D8Z / *Trusted and Assured Microelectronics*	**Project (Number/Name)** 646 / *New Trust Approach Development*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
New Trust Approach Development	MIPR	Various (DARPA, Air Force, Army, Navy, NSA) : Various	-	-		42.102	Mar 2018	191.369	Mar 2019	-		191.369	Continuing	Continuing	-
		Subtotal	-	-		42.102		191.369		-		191.369	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		42.102		191.369		-		191.369	Continuing	Continuing	N/A

Remarks

NA

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604294D8Z / *Trusted and Assured Microelectronics*	**Project (Number/Name)** 646 / *New Trust Approach Development*

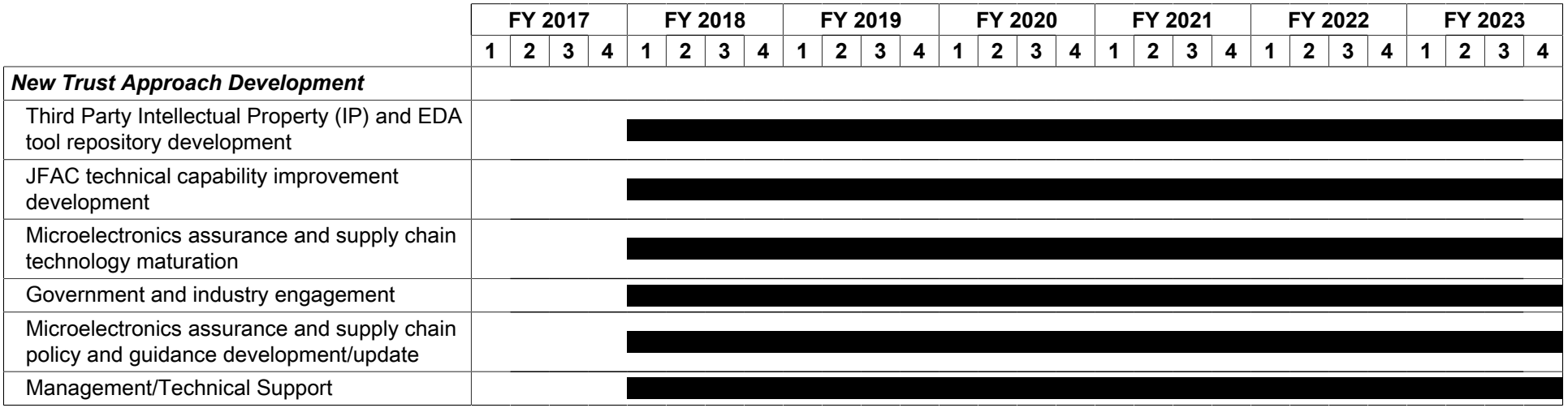

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604294D8Z / *Trusted and Assured Microelectronics*	**Project (Number/Name)** 646 / *New Trust Approach Development*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
New Trust Approach Development				
Third Party Intellectual Property (IP) and EDA tool repository development	1	2018	4	2023
JFAC technical capability improvement development	1	2018	4	2023
Microelectronics assurance and supply chain technology maturation	1	2018	4	2023
Government and industry engagement	1	2018	4	2023
Microelectronics assurance and supply chain policy and guidance development/update	1	2018	4	2023
Management/Technical Support	1	2018	4	2023

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604331D8Z / *Rapid Prototyping Program*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	0.000	100.000	100.000	99.333	0.000	99.333	101.246	103.277	105.298	107.338	Continuing	Continuing
638: *Rapid Prototyping Program*	0.000	0.000	100.000	99.333	0.000	99.333	101.246	103.277	105.298	107.338	Continuing	Continuing
639: *Rapid Prototyping Program - Congressional Add*	0.000	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	100.000

Note

The Rapid Prototyping Program is a new effort in FY 2018. To accelerate delivery to the warfighter, Congress provided additional funding in FY 2017 above the President's Budget Request, as indicated in project code 639.

A. Mission Description and Budget Item Justification

The Rapid Prototyping Program (RPP) develops prototypes that deliver needed capabilities, reduce technical and integration risk, and produce warfighter feedback leading to improved requirements and technology upgrades for programs of record. RPP project selection is guided by the priorities of the Department of Defense, the Office of the Under Secretary of Defense for Research and Engineering, the Chairman's Gap Assessment, and Service-identified gaps and needs. RPP rapidly develops and fields cross-cutting prototype capabilities that can be demonstrated in an operational environment to inform Department of Defense and Service leadership.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	0.000	100.000	100.000	0.000	100.000
Current President's Budget	100.000	100.000	99.333	0.000	99.333
Total Adjustments	100.000	0.000	-0.667	0.000	-0.667
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	100.000	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Economic Assumption	-	-	-0.667	-	-0.667

Change Summary Explanation

To accelerate delivery of Rapid Prototyping Program capabilities, Congress provided additional funding in FY 2017 above the President's Budget Request.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604331D8Z / *Rapid Prototyping Program*	Project (Number/Name) 638 / *Rapid Prototyping Program*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
638: *Rapid Prototyping Program*	0.000	0.000	100.000	99.333	0.000	99.333	101.246	103.277	105.298	107.338	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This program develops prototypes to deliver capabilities, reduce risk, and inform requirements. RPP facilitates and accelerates joint, cross-cutting prototyping efforts for the Services and Defense Agencies. Funding in this project includes focus areas that enable the new Under Secretary of Defense for Research and Engineering (USD(R&E)) to anticipate and respond to emergent Service and Agency issues and time-sensitive threats by selecting projects within the year of execution. RPP focus areas include artificial intelligence; autonomy; directed energy; electronic warfare; intelligence, surveillance and reconnaissance (ISR) and counter-ISR; force projection; and countering dynamic threats.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Artificial Intelligence (AI) Technologies Focus Area	0.000	7.000	7.000
Description: This focus area leverages joint prototyping capabilities and key AI technologies to enable increased situational awareness and faster reaction time. Prototype technologies will advance capabilities such as cognitive performance, object discrimination, and interactive task learning. Specific activities include algorithm development, machine learning transfer, and cognitive architecture and modeling. These prototype capabilities will reduce technical and integration risk and provide joint cross-cutting value to the warfighter. A cross functional team, led by the Office of the Under Secretary of Defense for Research and Engineering, will review and select prototyping proposals from across the Department of Defense in the year of execution. ***FY 2018 Plans:*** Selected RPP prototype projects are anticipated to start in FY 2018. RPP will support one to two AI technology prototyping projects in FY 2018. Deliverables will include developmental and fieldable prototypes demonstrated in an operational environment with warfighter participation. The projects will provide new capabilities, reduce risk, and inform future requirements. ***FY 2019 Plans:*** RPP anticipates supporting one to two AI projects in FY 2019. Deliverables will include developmental and fieldable prototypes demonstrated in an operational environment with warfighter participation.			
Title: Autonomy Technologies Focus Area	0.000	7.000	7.000
Description: This focus area explores advances in autonomy technology to develop prototypes that enable more effective man-machine teaming and collaboration; use of autonomous systems in complex urban environments; and low-cost, scalable autonomous assets to defeat threats. Prototype technologies will advance capabilities such as scalable autonomous behavior, collaborative actions between autonomous systems, human-above the loop control, and hardware for next-generation			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604331D8Z / *Rapid Prototyping Program*	**Project (Number/Name)** 638 / *Rapid Prototyping Program*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
autonomous systems. Specific activities include autonomy algorithm development, modeling and design, and experimentation and evaluation of autonomy systems. These prototype capabilities will reduce technical and integration risk and provide joint cross-cutting value to the warfighter. A cross functional team, led by the Office of the Under Secretary of Defense for Research and Engineering, will review and select prototyping proposals from across the Department of Defense in the year of execution. ***FY 2018 Plans:*** Selected RPP prototype projects are anticipated to start in FY 2018. RPP will support one to two autonomy prototype projects in FY 2018. Deliverables will include developmental and fieldable prototypes demonstrated in an operational environment with warfighter participation. The projects will provide new capabilities, reduce risk, and inform future requirements. ***FY 2019 Plans:*** RPP anticipates supporting one to two autonomy projects in FY 2019. Deliverables will include developmental and fieldable prototypes demonstrated in an operational environment with warfighter participation.			
Title: Directed Energy (DE) Technologies Focus Area ***Description:*** This focus area matures key technologies through rapid prototyping to develop DE capabilities while informing concept-of-operations (CONOPS) for operational use. DE weapons provide the warfighter with scalable, targeted, and precision engagement while minimizing collateral damage. This focus area will prototype advanced technologies required to enable the broad employment of DE technologies across the joint force. Example technologies include compact, efficient energy generation, energy storage, and thermal management technologies; high efficiency laser diodes; advanced manufacturing and fabrication techniques; and, robust beam control technologies. Specific activities include effects testing to quantify target susceptibility to DE; development, testing, and optimization of DE subsystems; and, integration of weapon prototypes. These prototyping activities will enable faster transition of DE technologies to the warfighter by reducing technical risk, informing joint force CONOPS, and demonstrating the capability DE provides to the warfighter. A cross functional team, led by the Office of the Under Secretary of Defense for Research and Engineering, will review and select prototyping proposals from across the Department of Defense in the year of execution. ***FY 2018 Plans:*** Selected RPP prototype projects are anticipated to start in FY 2018. RPP will support one to two DE prototype projects in FY 2018. Deliverables will include developmental and fieldable prototypes demonstrated in an operational environment with warfighter participation. The projects will provide new capabilities, reduce risk, and inform future requirements. ***FY 2019 Plans:***	0.000	21.000	20.400

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604331D8Z / *Rapid Prototyping Program*	**Project (Number/Name)** 638 / *Rapid Prototyping Program*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
RPP anticipates supporting one to two DE projects in FY 2019. Deliverables will include developmental and fieldable prototypes demonstrated in an operational environment with warfighter participation. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** FY 2018 and FY 2019 are funded for a similar level of effort in this focus area. Minor changes are due to small internal baseline adjustments.			
Title: Electronic Warfare (EW) Technologies Focus Area ***Description:*** This focus area develops new concepts and key technologies to improve the ability to detect, locate, and classify electronic threats; deter electronic attacks targeting military operations; defeat electronic attacks using kinetic and non-kinetic methods; and, create electromagnetic interference effects on enemy systems. Prototype technologies will advance capabilities like air and ground electronic support (ES) and electronic attack (EA), tactical EW systems, and EW mission command systems. Specific activities include development and testing of electronic protection systems, distributed and coordinated ES/EA systems, broadband radio frequency components and systems, and EW analysis support systems. These prototype capabilities will reduce technical and integration risk and provide joint cross-cutting value to the warfighter. A cross functional team, led by the Office of the Under Secretary of Defense for Research and Engineering, will review and select prototyping proposals from across the Department of Defense in the year of execution. ***FY 2018 Plans:*** Selected RPP prototype projects are anticipated to start in FY 2018. RPP will support one to two EW prototype projects in FY 2018. Deliverables will include developmental and fieldable prototypes demonstrated in an operational environment with warfighter participation. The projects will provide new capabilities, reduce risk, and inform future requirements. ***FY 2019 Plans:*** RPP anticipates supporting one to two EW projects in FY 2019. Deliverables will include developmental and fieldable prototypes demonstrated in an operational environment with warfighter participation. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** FY 2018 and FY 2019 are funded for a similar level of effort in this focus area. Minor changes are due to small internal baseline adjustments.	0.000	19.000	18.993
Title: Intelligence, Surveillance, and Reconnaissance (ISR) and Counter-ISR Technologies Focus Area ***Description:*** This focus area explores joint prototypes and concept-of-operations for long range ISR capabilities while deterring the adversary's ISR capabilities. Developed prototypes will improve situational awareness; indications and warnings; threat detection; and, inform tactical and strategic decisions. Counter-ISR capabilities will prevent or disrupt the adversary's ability to detect, track, localize, and engage our forces. Specific activities include design and development of interoperable ISR	0.000	17.000	16.940

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604331D8Z / *Rapid Prototyping Program*	**Project (Number/Name)** 638 / *Rapid Prototyping Program*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
system architectures; vulnerability analysis and exploitation; advanced sensors; anti-jam antenna systems; materials with novel electromagnetic properties; on-board processing; fusion of intelligence data; and, platform integration testing. These prototype capabilities will reduce technical and integration risk and provide joint cross-cutting value to the warfighter. A cross functional team, led by the Office of the Under Secretary of Defense for Research and Engineering, will review and select prototyping proposals from across the Department of Defense in the year of execution. ***FY 2018 Plans:*** Selected RPP prototype projects are anticipated to start in FY 2018. RPP will support one to two ISR and counter-ISR prototype projects in FY 2018. Deliverables will include developmental and fieldable prototypes demonstrated in an operational environment with warfighter participation. The projects will provide new capabilities, reduce risk, and inform future requirements. ***FY 2019 Plans:*** RPP anticipates supporting one to two ISR and counter-ISR projects in FY 2019. Deliverables will include developmental and fieldable prototypes demonstrated in an operational environment with warfighter participation. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** FY 2018 and FY 2019 are funded for a similar level of effort in this focus area. Minor changes are due to small internal baseline adjustments.			
Title: Force Projection Technologies Focus Area ***Description:*** This focus area matures joint prototypes to maintain U.S. dominance in the air, space, and ground domains; rapidly and precisely defeat foreign threats; and maintain a decisive conventional force. Prototype technologies will advance capabilities in long range weapons; kinetic and non-kinetic precision weapons; novel delivery systems and weapon effects; and, countermeasure mitigation. Specific activities include weapon development, effects testing, CONOPS experimentation, and scalable lethality based on target characterization. These prototype capabilities will reduce technical and integration risk and provide joint cross-cutting value to the warfighter. A cross functional team, led by the Office of the Under Secretary of Defense for Research and Engineering, will review and select prototyping proposals from across the Department of Defense in the year of execution. ***FY 2018 Plans:*** Selected RPP prototype projects are anticipated to start in FY 2018. RPP will support one to two weapon prototype projects in FY 2018. Deliverables will include developmental and fieldable prototypes demonstrated in an operational environment with warfighter participation. The projects will provide new capabilities, reduce risk, and inform future requirements. ***FY 2019 Plans:***	0.000	15.000	15.000

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604331D8Z / *Rapid Prototyping Program*	**Project (Number/Name)** 638 / *Rapid Prototyping Program*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
RPP anticipates supporting one to two weapon projects in FY 2019. Deliverables will include developmental and fieldable prototypes demonstrated in an operational environment with warfighter participation.			
Title: Prototyping for Countering Dynamic Threats Technologies Focus Area ***Description:*** This focus area enables experimentation and red teaming to evaluate emerging capabilities against dynamic threats. Projects enable the warfighter to identify technical and operational deficiencies; rapidly identify and characterize new threats; explore emerging and novel attack capabilities; and, improve warfighter readiness. Prototypes explore advanced capabilities to conduct dynamic attacks on military operations with artificial intelligence, autonomy, directed energy, electronic warfare, and kinetic systems. Specific activities include evaluating advanced attack or penetration systems; developing and replicating adversary techniques and procedures; using effective simulation and modeling; and, identifying mitigation strategies. These prototype capabilities will reduce technical and integration risk and provide joint cross-cutting value to the warfighter. A cross functional team, led by the Office of the Under Secretary of Defense for Research and Engineering, will review and select prototyping proposals from across the Department of Defense in the year of execution. ***FY 2018 Plans:*** Selected RPP prototype projects are anticipated to start in FY 2018. RPP will support one to two dynamic threat prototype projects in FY 2018. Deliverables will include developmental and fieldable prototypes demonstrated in an operational environment with warfighter participation. The projects will provide new capabilities, reduce risk, and inform future requirements. ***FY 2019 Plans:*** RPP anticipates supporting one to two dynamic threat projects in FY 2019. Deliverables will include developmental and fieldable prototypes demonstrated in an operational environment with warfighter participation.	0.000	14.000	14.000
Accomplishments/Planned Programs Subtotals	0.000	100.000	99.333

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

N/A

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604331D8Z / *Rapid Prototyping Program*	**Project (Number/Name)** 638 / *Rapid Prototyping Program*

E. Performance Metrics

RPP performance metrics are specific to each effort and include measures identified in the specific project plans. In addition, project completions and successes are monitored against schedules and deliverables stated in the execution documents. The ultimate measure of success is adoption and transition of RPP capabilities by the Services and supporting entities.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604331D8Z / *Rapid Prototyping Program*	**Project (Number/Name)** 638 / *Rapid Prototyping Program*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
VARIOUS	MIPR	MULTI : MULTI	0.000	-		100.000		99.333		-		99.333	Continuing	Continuing	-
		Subtotal	0.000	-		100.000		99.333		-		99.333	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		100.000		99.333		-		99.333	Continuing	Continuing	N/A

Remarks

NA

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604331D8Z / *Rapid Prototyping Program*	**Project (Number/Name)** 638 / *Rapid Prototyping Program*

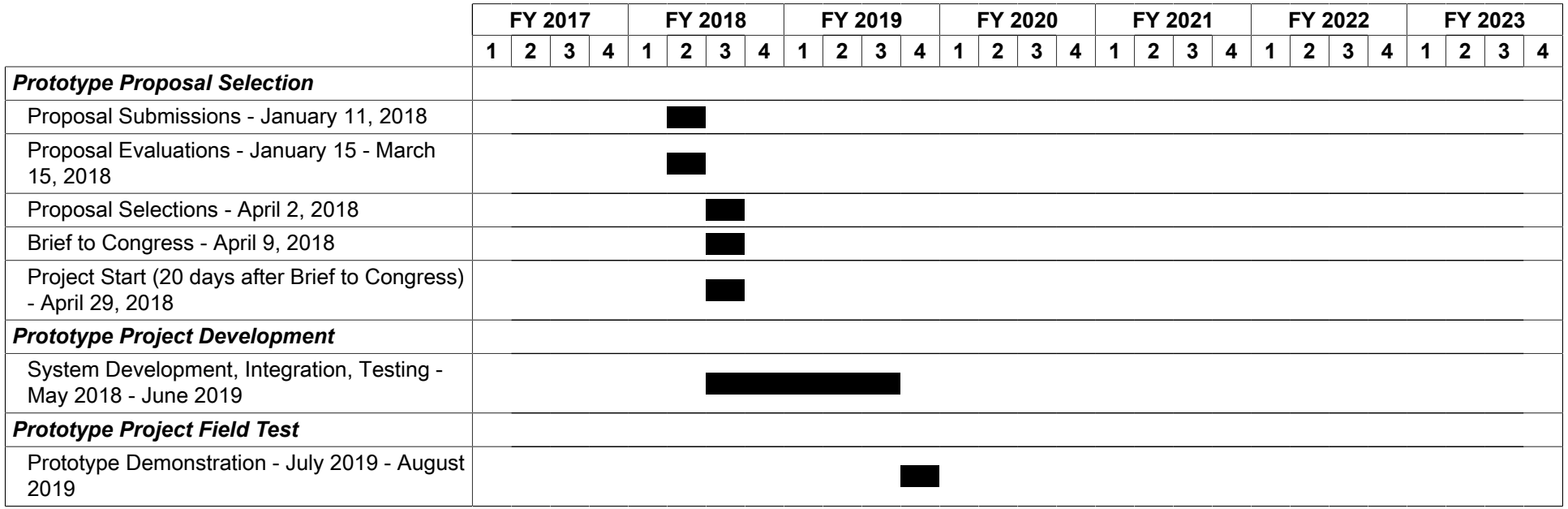

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604331D8Z / *Rapid Prototyping Program*	**Project (Number/Name)** 638 / *Rapid Prototyping Program*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Prototype Proposal Selection				
Proposal Submissions - January 11, 2018	2	2018	2	2018
Proposal Evaluations - January 15 - March 15, 2018	2	2018	2	2018
Proposal Selections - April 2, 2018	3	2018	3	2018
Brief to Congress - April 9, 2018	3	2018	3	2018
Project Start (20 days after Brief to Congress) - April 29, 2018	3	2018	3	2018
Prototype Project Development				
System Development, Integration, Testing - May 2018 - June 2019	3	2018	3	2019
Prototype Project Field Test				
Prototype Demonstration - July 2019 - August 2019	4	2019	4	2019

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604331D8Z / *Rapid Prototyping Program*	Project (Number/Name) 639 / *Rapid Prototyping Program - Congressional Add*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
639: *Rapid Prototyping Program - Congressional Add*	0.000	100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	100.000
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

To accelerate delivery of Rapid Prototyping Program (RPP) capabilities, Congress provided additional funding in FY 2017 above the President's Budget Request. In FY 2017, RPP funded eight Service and Defense Agency selected projects under project 639. Focus areas for future RPP projects are included in project 638.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Electronic Warfare (EW) ***Description:*** This is a twelve month project that developed and demonstrated prototypes to address emerging Service challenges resulting from the increasingly congested and contested electromagnetic spectrum (EMS) battlespace. The EW project prototyped seven coordinated capabilities to expand the Army toolset, extend EW capabilities to lower echelons of troops, and address priority operational needs. These capabilities include enhanced mobility for terrestrial signals intelligence (SIGINT), aerial and ground tactical EW systems, radio frequency interference mitigation, EW common visualization and planning tools, improved direction finding, and distributed dismounted EW systems. Each of these technologies were tested in individual and integrated technical assessments with warfighter participation. The prototypes leveraged partners from Army, Marine Corps, Air Force, and industry. Using FY 2017 funding, the capabilities individually transitioned to several programs of record in FY 2018 including Prophet; Terrestrial Layer Support (TLS) to Multi-Domain Battle/Joint Combined Arms Maneuver; Multi-Function Electronic Warfare Air-Large; and, EW Planning and Management Tool.	22.601	-	-
Title: Position, Navigation, and Timing (PNT) ***Description:*** This twelve month project integrated commercial-off-the-shelf (COTS) technologies to provide PNT assurance by using emerging technologies for operations in a global positioning system (GPS) challenged environment. Current Army systems lack a common, integrated PNT capability to enable free maneuver in an anti-assess/area denial (A2/AD) environment. The PNT prototype system uses an enhanced defense GPS receiver (DAGR) device (ED3) with a chip-scale atomic clock (CSAC) accessory module to integrate multiple global navigation satellite system (GNSS) receivers; an embedded chip-scale atomic clock for independent timing; and, a native inertial navigation unit (INU) to provide a cross-checking reference signal. The project developed platform-specific interfaces to integrate these COTS systems into the Abrams, Bradley, Paladin, and Stryker tactical vehicle platforms. Using FY 2017 funds, additional platform integration, safety testing, technical assessment, and operational demonstrations with the warfighter will be completed in FY 2018. The PNT prototype system and demonstrations informed senior	12.523	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604331D8Z / *Rapid Prototyping Program*	**Project (Number/Name)** 639 / *Rapid Prototyping Program - Congressional Add*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Army leadership and transitioned to the Army PM PNT portfolio; Assured PNT, Mounted; and, Anti-Jam Antenna System (AJAS) programs of record.			
Title: Passive Wide-Area Detection of Small Unmanned Aerial Systems (sUAS) ***Description:*** This twelve month project developed and prototyped a counter-UAS capability to automatically detect, track, and classify targets; and, provided threat alerts indicating small unmanned aerial systems (sUAS) in complex land and shipboard environments. The counter sUAS system integrated an all-passive sensor suite including acoustic sensors, wide-area electro-optical (EO) and infrared (IR) cameras, and high-speed EO and IR inspection cameras. This prototype capability was developed to address shortfalls in the ability of currently deployed counter-UAS systems to detect emerging classes of targets. The project also developed an open architecture fusion engine that correlates and classifies threats to alert an operator to sUAS incursions more rapidly than current systems. Using FY 2017 funding, the prototype system was demonstrated against Class 1 and 2 UASs in a variety of operational environments in FY 2018. This project directly supports a U.S. Strategic Command Joint Emerging Operational Need and a U.S. Central Command Joint Urgent Operational Need. After a successful demonstration, the capability will transition to the Service and joint rapid capability fielding programs in support of multiple counter-sUAS efforts.	4.600	-	-
Title: Ship-to-Shore Maneuver Exploration and Experimentation (S2ME2) ***Description:*** This twelve month effort prototyped and demonstrated capabilities to enable U.S. Marine Corps 21st century maneuver in complex terrain and contested littoral environments. Prior to S2ME2, the Marine Corps did not have the equipment, training, or concept-of-operations (CONOPS) to operate in the increasingly non-permissive maritime domain. This effort matured and demonstrated a subset of technologies identified in the S2ME2 2017 Advanced Naval Technology Exercise, which were validated at the Bold Alligator and Dawn Blitz 2017 exercises. Specifically, S2ME2 focused on seven technology thrusts with disruptive potential: 1) Long Range Littoral Reconnaissance: Unmanned capabilities to safely increase the reach and situational awareness of individual Marines; 2) Unmanned Intelligence, Surveillance, Reconnaissance, and Targeting (ISR-T): Maturation of an existing commercial vertical takeoff and landing aircraft for shipboard operations; 3) Unmanned Fire Support: Precision fire support with autonomous magazines deployed from off shore staging forces; 4) Coalition Tactical Awareness and Response (CTAR): Extension of commercial satellite services to the Regiment level; 5) Fourth Generation Long Term Evolution (4GLTE) Long Range Communications: Modified commercial technology to provide ship-to-ship high bandwidth communications; 6) Global Positioning System (GPS) Anti-jam Steerable Parasitic Array: A novel, low size, weight, power, and cost GPS antenna array with the ability to null jammers; and 7) Low Probability of Intercept/Low Probability of Detection/Anti-Jam Communications: Replacement of omni-directional communications with tracked and targeted communication links. For each thrust, S2ME2 investigated emerging and mature government and commercial technologies; developed requirements; integrated technologies on operational systems for relevant demonstrations; explored improved CONOPS; and, informed senior Navy and Marine Corps	7.076	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604331D8Z / *Rapid Prototyping Program*	**Project (Number/Name)** 639 / *Rapid Prototyping Program - Congressional Add*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
leadership on future procurement and training needs. Following a series of live tests and field demonstrations, the S2ME2 project transitioned to the U.S. Navy and Marine Corps.			
Title: High Power Microwave (HPM) for Air Base Air Defense ***Description:*** This twelve month project leveraged Air Force Research Laboratory experimentation to rapidly prototype an advanced High Power Microwave (HPM) capability. Two HPM prototypes were developed to demonstrate stand-off, non-kinetic defeat of enemy unmanned aerial systems (UAS) and missiles. The Tactical HPM Operational Responder (THOR) counter-UAS prototype provides an ability to address autonomous UAS swarms as part of an integrated base air defense. The second HPM prototype, Counter Cruise Missile Extended Range Air Base Air Defense (ABAD), is designed to deliver sufficient power levels to negate cruise missile threats. Both systems provide a low cost per shot and a deep magazine. The HPM for ABAD project conducted risk mitigation for both prototype systems optimizing size, weight, and power; developed hardware and software solutions to increase lethality; validated desired effects; and, integrated subsystems for demonstration. The two prototypes were technically and operationally assessed at multiple facilities with military operators. The HPM prototypes will transition to the Air Force and Navy and will provide capabilities to the U.S. Pacific Command and U.S. Strategic Command.	26.000	-	-
Title: Open Mission Systems Contribution for Next-Generation Architectures (OCNA) ***Description:*** This is a twenty-four month project that combined open systems architecture standards; on-board, high-speed data communications with shared apertures; and shared processing to enable the rapid integration and fielding of new cutting-edge warfighting capabilities. Open Mission Systems (OMS) is a non-proprietary, open standard that allows rapid integration of new capabilities and reduces vendor lock. This project conducted research, development, and experimentation to expand OMS for next generation military capabilities. In FY 2017, the project designed on-board, high-speed data communications and conducted a lab demonstration of representative OMS services using a government reference software. Leveraging FY 2017 funds, the project continues to mature this capability through FY 2020, leading to a flight demonstration of on-board, high-speed data communications, together with OMS-compliant advanced services including timing, sensing, and communication. The demonstrated capability will transition to multiple classified programs and support the Air Force Life Cycle Management Center.	10.000	-	-
Title: Army Navy/Transportable Radar Surveillance and Control Model 2 (AN/TPY-2) Adjunct Sensor Prototype (ADJ-P) for Hypersonic Glide Defense (HGD) ***Description:*** This an eighteen month project that developed and integrated a Phase 1 and Phase 2 configuration of an ADJ-P for HGD to increase the effectiveness of the TYP-2 radar system. The ADJ-P uses the X-band frequency, enabling a threat track quality comparable to the existing AN/TPY-2 radars. The Phase 1 configuration included hardware, firmware, and software enhancements that were tested in a scaled environment to prove operational relevancy. The Phase 2 configuration integrated additional enhancements to the ADJ-P including a high power transmitter and improved threat track software. With FY 2017	12.000	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604331D8Z / *Rapid Prototyping Program*	**Project (Number/Name)** 639 / *Rapid Prototyping Program - Congressional Add*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
funding, the ADJ-P completed design reviews in FY 2018 and will conduct testing and demonstrations for both the Phase 1 and Phase 2 configurations in FY 2019. The findings from these demonstrations will inform senior leadership and proven capabilities will transition to the Missile Defense Agency AN/TPY-2 Program of Record.			
Title: Mission Rehearsal Trainer (MRT) ***Description:*** MTR is a twenty-four month effort that developed distributed learning and training system that trains, prepares, and increases the performance of personnel in the Time Sensitive Targeting cell (TSTC). MTR is a scenario-driven training system that enables an instructor to improve the speed and proficiency of target intelligence officers through realistic scenarios of increasing complexity. The MRT project developed hardware hosted on the U.S. Pacific Command Joint Intel Operations Center (U.S. PACOM JIOC) and expanded a current intelligence surveillance and reconnaissance (ISR) training system employed at Massachusetts Institute for Technology (MIT) Lincoln Laboratory (LL). With FY 2017 funds, the MRT system was technically assessed and demonstrated in FY 2018 with intel operators and instructors using real world scenarios, while also validating training scenarios specifically desired by the USPACOM JIOC TSTC. The MTR reached initial operational capability at the U.S. PACOM JIOC TSTC and transitioned to U.S. PACOM JIOC. MTR was developed to support U.S. PACOM's JIOC TSTC cell specific training needs, but the capability is extensible to the TST cells in other Combatant Commands. After full operational capability is achieved in FY 2019, the Mission Rehearsal Trainer will transition to U.S. Pacific Command for operational use.	5.200	-	-
Accomplishments/Planned Programs Subtotals	100.000	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

RPP performance metrics are specific to each effort and include measures identified in the specific project plans. In addition, project completions and successes are monitored against schedules and deliverables stated in the execution documents. The ultimate measure of success is adoption and transition of RPP capabilities by the Services and supporting entities.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604331D8Z / *Rapid Prototyping Program*	**Project (Number/Name)** 639 / *Rapid Prototyping Program - Congressional Add*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Electronic Warfare (EW)	MIPR	U.S. Air Force Research Laboratory (AFRL) : NY (4 MIPRs)	-	5.403	Nov 2017	-		-		-		-	0.000	5.403	-
Electronic Warfare (EW)	MIPR	U.S. Army Product Manager Electronic Warfare & Cyber : MD (7 MIPRs)	-	10.437	Dec 2017	-		-		-		-	0.000	10.437	-
Electronic Warfare (EW)	MIPR	Naval Sea Systems Command (NAVSEA) : DC (1 MIPR)	-	0.500	Dec 2017	-		-		-		-	0.000	0.500	-
Electronic Warfare (EW)	MIPR	U.S. Army Communications-Electronics RD&E Center (CERDEC) : VA (1 MIPR)	-	3.200	Nov 2017	-		-		-		-	0.000	3.200	-
Electronic Warfare (EW)	MIPR	U.S. Army Research, Development and Engineering Command (RDECOM) : MA (1 MIPR)	-	0.100	Dec 2017	-		-		-		-	0.000	0.100	-
Electronic Warfare (EW)	MIPR	U.S. Army S&T Communications Directorate : MD (2 MIPRs)	-	2.961	Dec 2017	-		-		-		-	0.000	2.961	-
Position, Navigation, and Timing (PNT)	MIPR	U.S. Army Program Manager Position, Navigation, and Timing (PNT) : MD (1 MIPR)	-	2.813	Dec 2017	-		-		-		-	0.000	2.813	-
Position, Navigation, and Timing (PNT)	MIPR	U.S. Army Program Manager Position, Navigation, and	-	4.643	Dec 2017	-		-		-		-	0.000	4.643	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604331D8Z / *Rapid Prototyping Program*	Project (Number/Name) 639 / *Rapid Prototyping Program - Congressional Add*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Timing (PNT) Part I : MD (1 MIPR)													
Position, Navigation, and Timing (PNT)	MIPR	U.S. Army Program Manager Position, Navigation, and Timing (PNT) Part II : MD (1 MIPR)	-	3.231	Dec 2017	-		-		-		-	0.000	3.231	-
Position, Navigation, and Timing (PNT)	MIPR	U.S. Army Program Manager Position, Navigation, and Timing (PNT) Part III : MD (1 MIPR)	-	0.498	Dec 2017	-		-		-		-	0.000	0.498	-
Position, Navigation, and Timing (PNT)	IA	Department of Energy (Savannah River Operations) : SC (1 MIPR)	-	1.338	Jan 2018	-		-		-		-	0.000	1.338	-
Passive Wide-Area Detection of Small Unmanned Aerial Systems (sUAS)	MIPR	Naval Undersea Warfare Center : WA (2 MIPRs)	-	0.880	Nov 2017	-		-		-		-	0.000	0.880	-
Passive Wide-Area Detection of Small Unmanned Aerial Systems (sUAS)	MIPR	Naval Research Laboratory : DC (1 MIPR)	-	3.720	Nov 2017	-		-		-		-	0.000	3.720	-
Ship-to-Shore Maneuver Exploration and Experimentation (S2ME2)	MIPR	Space and Warfare Systems Command : CA (5 MIPRs)	-	3.215	Dec 2017	-		-		-		-	0.000	3.215	-
Ship-to-Shore Maneuver Exploration and Experimentation (S2ME2)	MIPR	Naval Research Laboratory : DC (2 MIPRs)	-	0.665	Dec 2017	-		-		-		-	0.000	0.665	-
Ship-to-Shore Maneuver Exploration and Experimentation (S2ME2)	MIPR	Naval Surface Warfare Center Dahlgren : VA (4 MIPRs)	-	2.190	Dec 2017	-		-		-		-	0.000	2.190	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604331D8Z / *Rapid Prototyping Program*	**Project (Number/Name)** 639 / *Rapid Prototyping Program - Congressional Add*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Ship-to-Shore Maneuver Exploration and Experimentation (S2ME2)	MIPR	Defense Logistics Agency : PA (1 MIPR)	-	0.324	Dec 2017	-		-		-		-	0.000	0.324	-
Ship-to-Shore Maneuver Exploration and Experimentation (S2ME2)	MIPR	Naval Undersea Warfare Center : RI (2 MIPRs)	-	0.394	Dec 2017	-		-		-		-	0.000	0.394	-
Ship-to-Shore Maneuver Exploration and Experimentation (S2ME2)	MIPR	Naval Sea Systems Command : DC (1 MIPR)	-	0.142	Dec 2017	-		-		-		-	0.000	0.142	-
Ship-to-Shore Maneuver Exploration and Experimentation (S2ME2)	MIPR	U.S. Army Communications-Electronics Command : MD (1 MIPR)	-	0.121	Dec 2017	-		-		-		-	0.000	0.121	-
Ship-to-Shore Maneuver Exploration and Experimentation (S2ME2)	MIPR	Marine Corps Air Station : NC (2 MIPRs)	-	0.025	Dec 2017	-		-		-		-	0.000	0.025	-
High Power Microwave (HPM) for Air Base Air Defense	MIPR	Air Force Research Laboratory High Powered Electromagnetics Division : NM (4 MIPRs)	-	3.550	Nov 2017	-		-		-		-	0.000	3.550	-
High Power Microwave (HPM) for Air Base Air Defense	MIPR	Defense MicroElectronics Activity : CA (2 MIPRs)	-	18.000	Dec 2017	-		-		-		-	0.000	18.000	-
High Power Microwave (HPM) for Air Base Air Defense	MIPR	Navy Research Laboratory : DC (2 MIPRs)	-	4.450	Dec 2017	-		-		-		-	0.000	4.450	-
Open Mission Systems Contribution for Next-Generation Architectures (OCNA)	MIPR	Air Force Research Laboratory : OH (2 MIPRs)	-	10.000	Dec 2017	-		-		-		-	0.000	10.000	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604331D8Z / *Rapid Prototyping Program*	**Project (Number/Name)** 639 / *Rapid Prototyping Program - Congressional Add*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Army Navy/Transportable Radar Surveillance and Control Model 2(AN/TPY-2) Adjunct Sensor Prototype (ADJ-P) for Hypersonic Glide Defense (HGD)	MIPR	U.S. Army Armament Research, Development and Engineering Center : NJ (1 MIPR)	-	12.000	Dec 2017	-		-		-		-	0.000	12.000	-
Mission Rehearsal Trainer (MRT)	MIPR	Air Force Life Cycle Management : MA (1 MIPR)	-	3.700	Nov 2017	-		-		-		-	0.000	3.700	-
Mission Rehearsal Trainer (MRT)	MIPR	U.S. Pacific Command (USPACOM) : HI (1 MIPR)	-	1.500	Dec 2017	-		-		-		-	0.000	1.500	-
		Subtotal	-	100.000		-		-		-		-	0.000	100.000	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	100.000		0.000		-		-		-	0.000	100.000	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604331D8Z / *Rapid Prototyping Program*	**Project (Number/Name)** 639 / *Rapid Prototyping Program - Congressional Add*

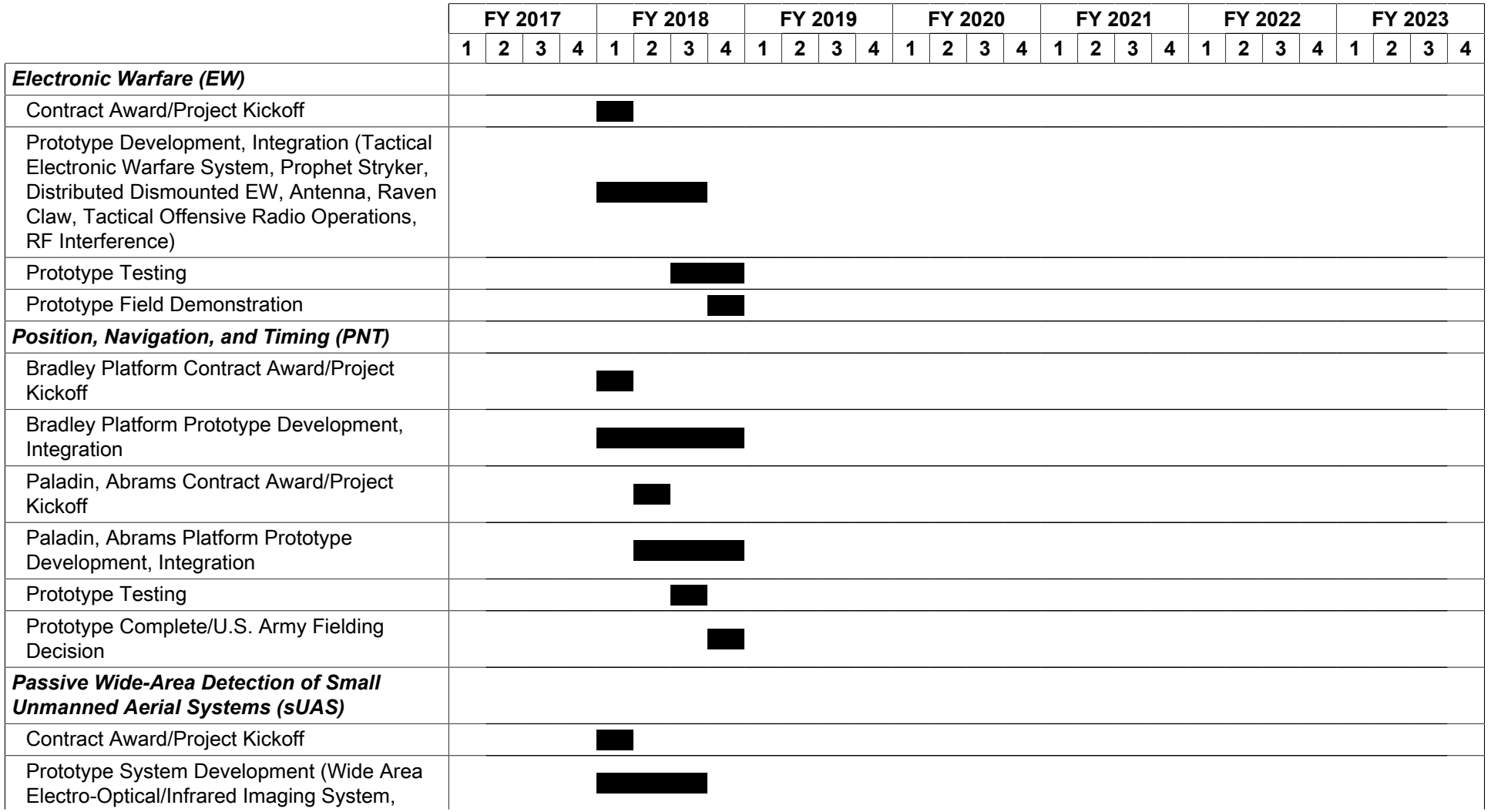

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604331D8Z / *Rapid Prototyping Program*	**Project (Number/Name)** 639 / *Rapid Prototyping Program - Congressional Add*

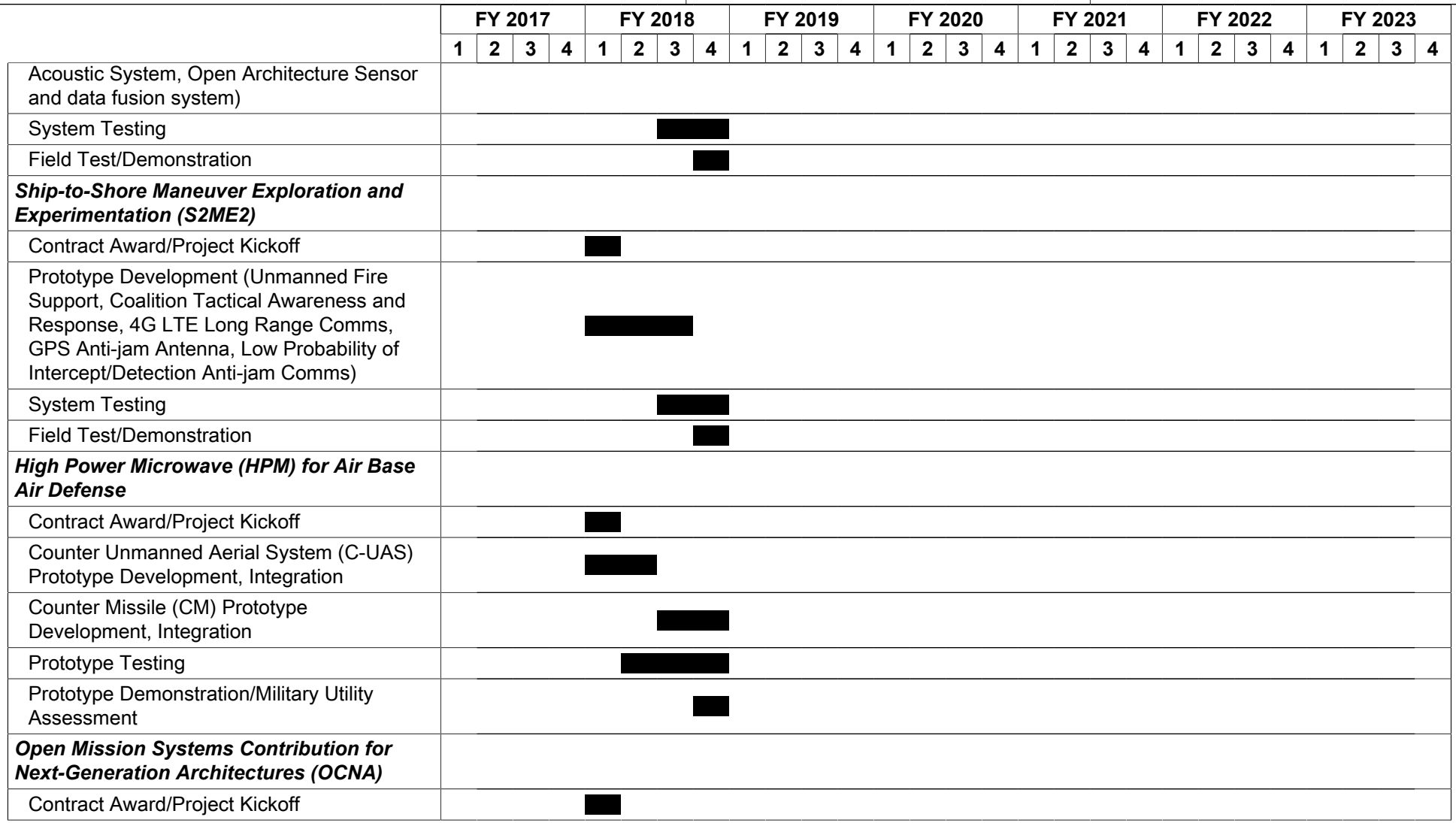

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604331D8Z / *Rapid Prototyping Program*	**Project (Number/Name)** 639 / *Rapid Prototyping Program - Congressional Add*

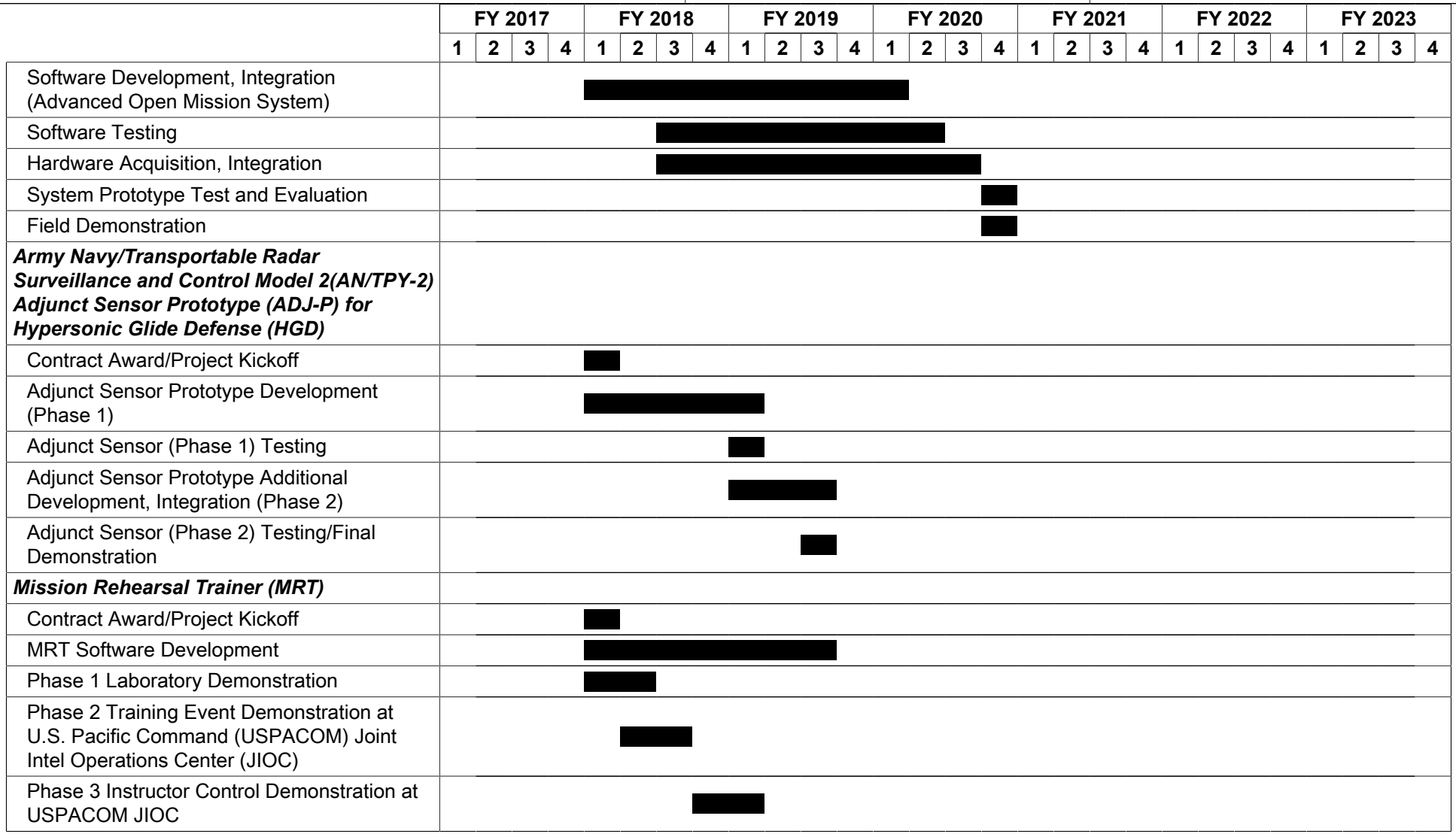

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604331D8Z / *Rapid Prototyping Program*	**Project (Number/Name)** 639 / *Rapid Prototyping Program - Congressional Add*

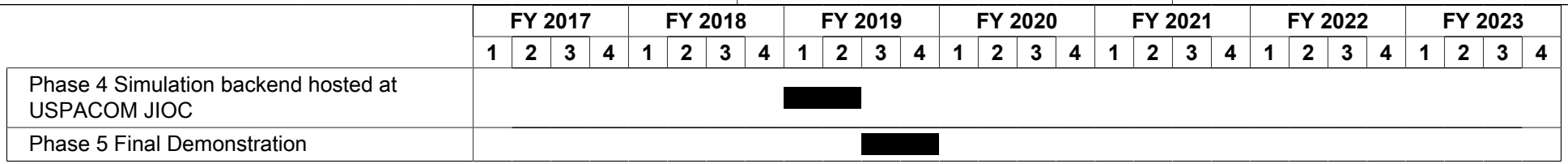

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604331D8Z / *Rapid Prototyping Program*	**Project (Number/Name)** 639 / *Rapid Prototyping Program - Congressional Add*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Electronic Warfare (EW)				
Contract Award/Project Kickoff	1	2018	1	2018
Prototype Development, Integration (Tactical Electronic Warfare System, Prophet Stryker, Distributed Dismounted EW, Antenna, Raven Claw, Tactical Offensive Radio Operations, RF Interference)	1	2018	3	2018
Prototype Testing	3	2018	4	2018
Prototype Field Demonstration	4	2018	4	2018
Position, Navigation, and Timing (PNT)				
Bradley Platform Contract Award/Project Kickoff	1	2018	1	2018
Bradley Platform Prototype Development, Integration	1	2018	4	2018
Paladin, Abrams Contract Award/Project Kickoff	2	2018	2	2018
Paladin, Abrams Platform Prototype Development, Integration	2	2018	4	2018
Prototype Testing	3	2018	3	2018
Prototype Complete/U.S. Army Fielding Decision	4	2018	4	2018
Passive Wide-Area Detection of Small Unmanned Aerial Systems (sUAS)				
Contract Award/Project Kickoff	1	2018	1	2018
Prototype System Development (Wide Area Electro-Optical/Infrared Imaging System, Acoustic System, Open Architecture Sensor and data fusion system)	1	2018	3	2018
System Testing	3	2018	4	2018
Field Test/Demonstration	4	2018	4	2018
Ship-to-Shore Maneuver Exploration and Experimentation (S2ME2)				
Contract Award/Project Kickoff	1	2018	1	2018

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604331D8Z / *Rapid Prototyping Program*	**Project (Number/Name)** 639 / *Rapid Prototyping Program - Congressional Add*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Prototype Development (Unmanned Fire Support, Coalition Tactical Awareness and Response, 4G LTE Long Range Comms, GPS Anti-jam Antenna, Low Probability of Intercept/Detection Anti-jam Comms)	1	2018	3	2018
System Testing	3	2018	4	2018
Field Test/Demonstration	4	2018	4	2018
High Power Microwave (HPM) for Air Base Air Defense				
Contract Award/Project Kickoff	1	2018	1	2018
Counter Unmanned Aerial System (C-UAS) Prototype Development, Integration	1	2018	2	2018
Counter Missile (CM) Prototype Development, Integration	3	2018	4	2018
Prototype Testing	2	2018	4	2018
Prototype Demonstration/Military Utility Assessment	4	2018	4	2018
Open Mission Systems Contribution for Next-Generation Architectures (OCNA)				
Contract Award/Project Kickoff	1	2018	1	2018
Software Development, Integration (Advanced Open Mission System)	1	2018	1	2020
Software Testing	3	2018	2	2020
Hardware Acquisition, Integration	3	2018	3	2020
System Prototype Test and Evaluation	4	2020	4	2020
Field Demonstration	4	2020	4	2020
Army Navy/Transportable Radar Surveillance and Control Model 2(AN/TPY-2) Adjunct Sensor Prototype (ADJ-P) for Hypersonic Glide Defense (HGD)				
Contract Award/Project Kickoff	1	2018	1	2018
Adjunct Sensor Prototype Development (Phase 1)	1	2018	1	2019
Adjunct Sensor (Phase 1) Testing	1	2019	1	2019
Adjunct Sensor Prototype Additional Development, Integration (Phase 2)	1	2019	3	2019
Adjunct Sensor (Phase 2) Testing/Final Demonstration	3	2019	3	2019
Mission Rehearsal Trainer (MRT)				

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604331D8Z / *Rapid Prototyping Program*	**Project (Number/Name)** 639 / *Rapid Prototyping Program - Congressional Add*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Contract Award/Project Kickoff	1	2018	1	2018
MRT Software Development	1	2018	3	2019
Phase 1 Laboratory Demonstration	1	2018	2	2018
Phase 2 Training Event Demonstration at U.S. Pacific Command (USPACOM) Joint Intel Operations Center (JIOC)	2	2018	3	2018
Phase 3 Instructor Control Demonstration at USPACOM JIOC	4	2018	1	2019
Phase 4 Simulation backend hosted at USPACOM JIOC	1	2019	2	2019
Phase 5 Final Demonstration	3	2019	4	2019

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604400D8Z / *Department of Defense (DoD) Unmanned Systems Common Development*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	58.676	7.254	3.967	3.781	-	3.781	3.796	3.868	3.927	4.000	Continuing	Continuing
440: *UAS Airspace Integration*	32.688	4.932	0.980	0.980	-	0.980	1.100	1.200	1.250	1.300	Continuing	Continuing
442: *Interoperability*	24.693	1.972	2.747	2.471	-	2.471	2.446	2.318	2.427	2.350	Continuing	Continuing
443: *Unmanned Systems Roadmap*	1.295	0.350	0.240	0.330	-	0.330	0.250	0.350	0.250	0.350	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Department of Defense (DoD) Unmanned Systems (UxS) Common Development program is a joint effort to develop and demonstrate common standards, architectures, and technologies that address unmanned systems' issues across all Military Services. The intent is to increase interoperability and effectiveness by promoting cooperative development of solutions that are applicable across all unmanned systems. This effort initially focused on addressing DoD unmanned aircraft systems (UAS), to include integration into the National Airspace System (NAS) and a common, interoperable ground station architecture and associated interface standards. While UAS initially were the primary focus, interoperability among all unmanned and manned systems is the long-term goal.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	3.320	3.967	3.806	-	3.806
Current President's Budget	7.254	3.967	3.781	-	3.781
Total Adjustments	3.934	0.000	-0.025	-	-0.025
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	4.000	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• FFRDC Reduction	-0.008	-	-	-	-
• Leadership Adjustments	-0.058	-	-0.025	-	-0.025

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2017	FY 2018
Project: 440: *UAS Airspace Integration*		
Congressional Add: *Airspace Integration*	4.000	-
Congressional Add Subtotals for Project: 440	4.000	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604400D8Z *I Department of Defense (DoD) Unmanned Systems Common Development*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2017	FY 2018
Congressional Add Totals for all Projects	4.000	-

Change Summary Explanation

A $4.0M FY2017 Congressional Add was provided on June 22, 2017.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604400D8Z / *Department of Defense (DoD) Unmanned Systems Common Development*	**Project (Number/Name)** 440 / *UAS Airspace Integration*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
440: *UAS Airspace Integration*	32.688	4.932	0.980	0.980	-	0.980	1.100	1.200	1.250	1.300	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Airborne Sense-and-Avoid (ABSAA) and Ground Based Sense-and-Avoid (GBSAA) technology development transitioned to UAS programs of record during FY2013.

A. Mission Description and Budget Item Justification

Global Hawk and Triton, as well as other Group 3-5 UAS, need a sense-and-avoid (SAA) capability as an alternate means of compliance to Title 14 Code of Federal Regulations, Part 91.111 and Part 91.113, requirement to see-and-avoid other aircraft. The Air Force is leading the effort to develop an ABSAA system that is suitable to support operations within US and foreign national airspace. The RQ-4 Global Hawk, MQ-4C Triton, MQ-1B Predator, MQ-1C Gray Eagle, and MQ-9 Reaper all have a requirement for SAA capability and will leverage the technology being developed by the Air Force. The Army is leading the development of a GBSAA system to provide a solution for improved airspace access in terminal operations as well as operations/training within the GBSAA system's coverage area (e.g., Gray Eagle at Fort Hood, Shadow operations at Cherry Point). This system will provide a near-term solution and is an integral part of the long-term permanent solution. Long term GBSAA systems and Unmanned Traffic Management (UTM) architectures, operating concepts, standards and technology are being developed to allow DoD, commercial and private manned and Group 1-5 Unmanned Aircraft to operate safely and effectively in the national Airspace.

This joint funding also supports development of common operating concepts, policy, standards, modeling and simulation, and technology to enable DoD UAS to routinely access the national and international airspace systems.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Unmanned Aircraft System Airspace Integration Initiatives	0.932	0.980	0.980
Description: Starting in FY 2010 the Department's sense-and-avoid (SAA) developmental efforts are enhanced by this defense-wide program element. This program has provided joint funding to accelerate the development of SAA technology and standards to enable UAS to routinely access the national and international airspace systems. This program also supports development of UAS airspace integration policy and standards, as well as the modeling, simulation, and operational analysis needed to validate the standards. In FY 2013 ABSAA and GBSAA efforts transitioned to the Services. ***FY 2018 Plans:*** Evaluate and validate identified best-candidate solutions for low size, weight, power and cost technology supporting military sUAS operations in national, international and foreign national airspace. Develop future Policy and architectures that support the operation of DoD, Commercial, and Private Group 1-5 UAS systems in the national Airspace safely by developing an Unmanned Traffic Management (UTM) system Develop quantitative safety assessment approaches that support unique UAS operations to			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604400D8Z / *Department of Defense (DoD) Unmanned Systems Common Development*	**Project (Number/Name)** 440 / *UAS Airspace Integration*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
support emerging DoD needs and inform future rulemaking. Make formal recommendations for separation minima that enable low-altitude military UAS to remain well clear of other aircraft. Continue to engage the FAA to advance DoD UAS airspace integration. Investigate and draft Cyber security concept of operations for Manned and Unmanned Aircraft Systems operating in the National Airspace. ***FY 2019 Plans:*** Develop future Policy and architectures that support the operation of DoD, Commercial, and Private Group 1-5 UAS systems in the national Airspace safely by developing an Unmanned Traffic Management (UTM) system. Investigate and draft Cyber security concept of operations for Manned and Unmanned Aircraft Systems operating in the National Airspace with a focus on Groups 1-2 UAS. Evaluate and validate identified best-candidate solutions for low size, weight, power and cost technology supporting military sUAS operations in national, international and foreign national airspace. Develop quantitative safety assessment approaches that support unique UAS operations to support emerging DoD needs and inform future rulemaking. Make formal recommendations for separation minima that enable low-altitude military UAS to remain well clear of other aircraft. Continue to engage the FAA to advance DoD UAS airspace integration. Investigate and draft Cyber security concept of operations for Manned and Unmanned Aircraft Systems operating in the National Airspace. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** FY19 budget reduction was offset by the congressional add in FY17			
Accomplishments/Planned Programs Subtotals	0.932	0.980	0.980

	FY 2017	FY 2018
Congressional Add: Airspace Integration	4.000	-
FY 2017 Accomplishments: Investigated and developed the technology requirements, policies and architectures required to integrate DoD Unmanned systems safely into the national Airspace.		
Congressional Adds Subtotals	4.000	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604400D8Z / *Department of Defense (DoD) Unmanned Systems Common Development*	**Project (Number/Name)** 440 / *UAS Airspace Integration*

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604400D8Z / *Department of Defense (DoD) Unmanned Systems Common Development*	**Project (Number/Name)** 440 / *UAS Airspace Integration*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
GBSAA	MIPR	USAF A3 AFLCMC/ HBAG (VOLPE/ MITRE) : AFLCMC/ HBAG	32.028	1.644	Dec 2017	0.340	Jul 2018	0.340	Jul 2019	0.000		0.340	Continuing	Continuing	-
DoD UTM	MIPR	NASA : Ames Research California	0.000	0.985	Dec 2017	0.000	Oct 2018	0.000		0.000		0.000	Continuing	Continuing	-
National Guard GBSAA	MIPR	Army PM UAS : Army Redstone, Alabama	0.000	1.643	Mar 2018	0.000		0.000		0.000		0.000	Continuing	Continuing	-
		Subtotal	32.028	4.272		0.340		0.340		0.000		0.340	Continuing	Continuing	N/A

Remarks

NA

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
USAF - A3 PBFA Support	Option/ LH	USAF A3 AFLCMC/ HBAG : AFLCMC/ HBAG	0.660	0.660	Feb 2018	0.640	Mar 2018	0.640	Mar 2019	-		0.640	Continuing	Continuing	-
		Subtotal	0.660	0.660		0.640		0.640		-		0.640	Continuing	Continuing	N/A

Remarks

NA

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	32.688	4.932		0.980		0.980		0.000		0.980	Continuing	Continuing	N/A

Remarks

NA

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604400D8Z / *Department of Defense (DoD) Unmanned Systems Common Development*	**Project (Number/Name)** 440 / *UAS Airspace Integration*

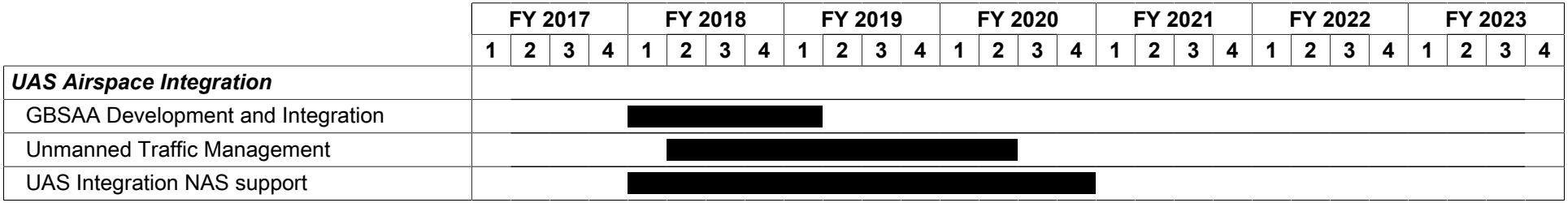

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604400D8Z / *Department of Defense (DoD) Unmanned Systems Common Development*	**Project (Number/Name)** 440 / *UAS Airspace Integration*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
UAS Airspace Integration				
GBSAA Development and Integration	1	2018	1	2019
Unmanned Traffic Management	2	2018	2	2020
UAS Integration NAS support	1	2018	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604400D8Z / *Department of Defense (DoD) Unmanned Systems Common Development*	**Project (Number/Name)** 442 / *Interoperability*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
442: *Interoperability*	24.693	1.972	2.747	2.471	-	2.471	2.446	2.318	2.427	2.350	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Interoperability project will develop and demonstrate an interoperable, standards-based, open architecture solution for cross-domain (air, ground, maritime) unmanned systems. The intent is to improve joint and coalition interoperability and to promote competition through the implementation of open standards and open architectures.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Interoperability	1.972	2.747	2.471
Description: Develop and demonstrate an interoperable, standards-based, open ground station architecture for cross-domain (air, ground, maritime) unmanned systems; improve joint and coalition interoperability; and promote competition through the implementation of open standards and open architectures.			
FY 2018 Plans: Continue SAE working group support for UAS Control Segment Architecture (UCS) interfaces and Joint Architecture Unmanned System (JAUS). Continue JCAUS compliant prototypes to validate and further mature the architecture. Continue support for Unmanned Systems Interoperability and Integration workshop/technical exchange meeting. Continue support to DoD Interoperability IPT.			
FY 2019 Plans: Support the continued development and implementation of the SAE working group for UAS Control Segment Architecture (UCS) interfaces and Joint Architecture Unmanned System (JAUS). Develop a Joint Communications Architecture for Unmanned systems (JCAUS) and demonstrate a JCAUS compliant prototypes to validate and further mature the architecture. Develop Safety standards and policy for Unmanned and Autonomous systems that will allow for the incorporation of Artificial Intelligence (AI). Continue support for Unmanned Systems Interoperability and Integration workshop/technical exchange meeting. Develop and Unmanned system autonomous test and Evaluation standards and architectures using modeling and simulation. Investigate a Cyber secure solution for integrating Artificial Intelligent systems into Unmanned Systems			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604400D8Z / *Department of Defense (DoD) Unmanned Systems Common Development*	**Project (Number/Name)** 442 / *Interoperability*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Continue support to DoD Interoperability IPT. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The development of a Joint Communications Architecture for Unmanned Systems to support bandwidth requirements for multiple program of records based on the DoD's reduction of Spectrum allocation.			
Accomplishments/Planned Programs Subtotals	1.972	2.747	2.471

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

n/a

E. Performance Metrics

n/a

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604400D8Z / *Department of Defense (DoD) Unmanned Systems Common Development*	Project (Number/Name) 442 / *Interoperability*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
UxS Interoperability and Architecture Development	MIPR	Labs, Warfare Centers, and DoD components and support : DoD Labs, Warefare Center, DoD and support service	24.693	1.972	Sep 2017	2.747	Sep 2018	2.471	Sep 2019	0.000		2.471	Continuing	Continuing	-
		Subtotal	24.693	1.972		2.747		2.471		0.000		2.471	Continuing	Continuing	N/A

Remarks

NA

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	24.693	1.972		2.747		2.471		0.000		2.471	Continuing	Continuing	N/A

Remarks

NA

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604400D8Z / *Department of Defense (DoD) Unmanned Systems Common Development*	**Project (Number/Name)** 442 / *Interoperability*

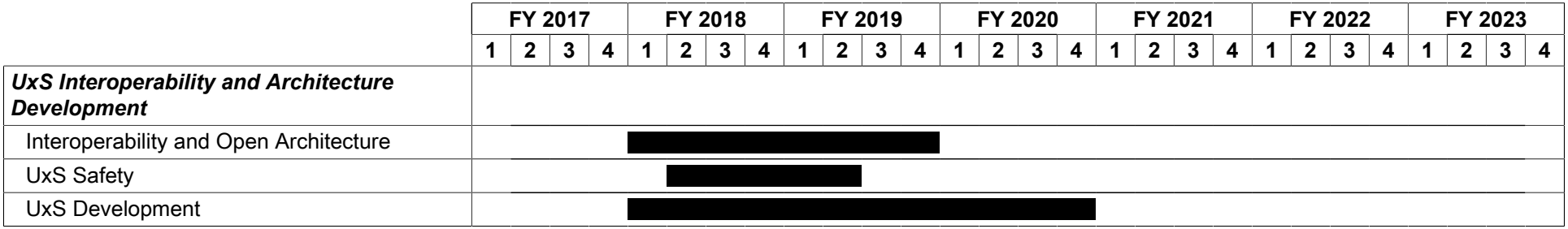

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604400D8Z / *Department of Defense (DoD) Unmanned Systems Common Development*	**Project (Number/Name)** 442 / *Interoperability*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
UxS Interoperability and Architecture Development				
Interoperability and Open Architecture	1	2018	4	2019
UxS Safety	2	2018	2	2019
UxS Development	1	2018	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604400D8Z / *Department of Defense (DoD) Unmanned Systems Common Development*	Project (Number/Name) 443 / *Unmanned Systems Roadmap*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
443: *Unmanned Systems Roadmap*	1.295	0.350	0.240	0.330	-	0.330	0.250	0.350	0.250	0.350	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This effort supports the Department's Unmanned Systems Integrated Roadmap and updates. The roadmap provides a DoD vision for the continuing development, fielding and employment of unmanned systems technologies; establishes the current state of unmanned systems in today's force; and outlines a strategy to address common challenges to achieve the shared vision across all unmanned domains (air, ground, and maritime).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Unmanned Systems Roadmap	0.350	0.240	0.330
Description: Develops, Drafts, and Produces the Department's Unmanned Systems Integrated Roadmap. ***FY 2018 Plans:*** Update the Department's Unmanned Systems Integrated Roadmap and perform related studies supporting the Department's vision for unmanned systems. Integrate feedback, responses and new technology into the FY19 Roadmap. Investigate changes to concept of operations with guidance provided by Department's vision for unmanned systems. ***FY 2019 Plans:*** Release the FY19 Unmanned Systems Integrated Roadmap Update the Department's Unmanned Systems Integrated Roadmap and perform related studies supporting the Department's vision for unmanned systems. Integrate feedback, responses and new technology into the FY19 Roadmap. Investigate changes to concept of operations with guidance provided by Department's vision for unmanned systems. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The Unmanned systems roadmap is Developed and published every other year to provide the Department's vision for unmanned systems based on the rapid change in technology			
Accomplishments/Planned Programs Subtotals	0.350	0.240	0.330

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604400D8Z / *Department of Defense (DoD) Unmanned Systems Common Development*	**Project (Number/Name)** 443 / *Unmanned Systems Roadmap*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Provide up-to-date Unmanned Systems Roadmap providing a DoD vision for the continuing development, fielding and employment of unmanned systems technologies.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604400D8Z / *Department of Defense (DoD) Unmanned Systems Common Development*	Project (Number/Name) 443 / *Unmanned Systems Roadmap*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Unmanned Systems Roadmap	C/LH	Army TARDEC Unmanned System Support services : Army TARDEC	1.295	0.350	Aug 2017	0.240	Aug 2018	0.330	Aug 2019	0.000		0.330	Continuing	Continuing	-
		Subtotal	1.295	0.350		0.240		0.330		0.000		0.330	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	1.295	0.350		0.240		0.330		0.000		0.330	Continuing	Continuing	N/A

Remarks

NA

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604400D8Z / *Department of Defense (DoD) Unmanned Systems Common Development*	**Project (Number/Name)** 443 / *Unmanned Systems Roadmap*

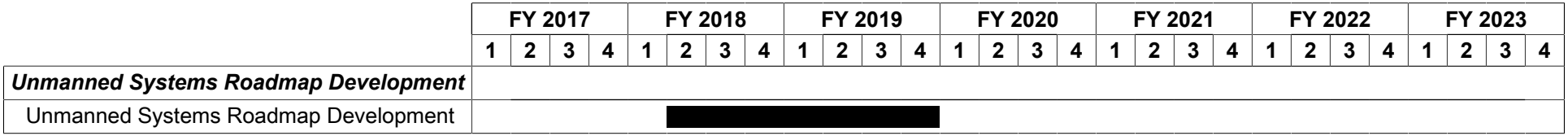

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604400D8Z / *Department of Defense (DoD) Unmanned Systems Common Development*	**Project (Number/Name)** 443 / *Unmanned Systems Roadmap*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Unmanned Systems Roadmap Development				
Unmanned Systems Roadmap Development	2	2018	4	2019

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604682D8Z / *Wargaming & Support for Strategic Analysis (SSA)*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	0.000	3.850	3.833	3.768	-	3.768	3.762	3.760	3.822	3.894	Continuing	Continuing
104: *Wargaming & Support for Strategic Analysis*	0.000	3.850	3.833	3.768	-	3.768	3.762	3.760	3.822	3.894	Continuing	Continuing

A. Mission Description and Budget Item Justification

A. Mission Description and Budget Item Justification

This was a new start program in FY 2017. This program supports the Office of the Director, Cost Assessment & Program Evaluation (CAPE). It funds activities that help CAPE to implement the Department's intent to reinvigorate wargaming. CAPE accomplishes this by leading wargaming activities, developing and managing the Wargaming Portal, and supporting the design, execution, and analysis of wargames.

This program provides for analytical research across a spectrum of issues and concerns. The research agenda is focused on near- to long-term problems identified by the Deputy Secretary of Defense, and addresses difficult and complex questions linked to program alternatives for current and future capabilities and forces in order to enhance the senior leadership's deliberations and decision-making.

This program provides the scientific and technical engineering services needed for research studies in the development of models and simulations and the evaluation of current analytical tools and scientific methods used to evaluate and assess scenarios and concepts of operations (CONOPS) for a wide range of warfighting environments and scenarios. Deliverables from this program will include reports, briefings, and analyses designed to illuminate findings and assessments from wargaming excursions. Outcomes include the compilation and analysis of wargaming data in the Wargaming Portal and support for data use by wargaming participants.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	4.000	3.833	3.805	-	3.805
Current President's Budget	3.850	3.833	3.768	0.000	3.768
Total Adjustments	-0.150	0.000	-0.037	0.000	-0.037
• Congressional General Reductions	-0.004	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.146	-			
• Fiscal Guidance Adjustment	-	-	-0.005	-	-0.005
• Revised Inflation Guidance	0.000	0.000	-0.032	0.000	-0.032

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604682D8Z *I Wargaming & Support for Strategic Analysis (SSA)*

Change Summary Explanation

In FY 2017 this program was added to reinvigorate Wargaming and Support for Strategic Analysis to implement an important Deputy Secretary of Defense priority. The FY 2017 adjustment reflects the final congressional enactment amount. The FY 2019 reduction reflects the Fiscal Guidance that CAPE was required to meet.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604682D8Z / *Wargaming & Support for Strategic Analysis (SSA)*	Project (Number/Name) 104 / *Wargaming & Support for Strategic Analysis*	

COST ($ in Millions)	Prior Years (+)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
104: *Wargaming & Support for Strategic Analysis*	0.000	3.850	3.833	3.768	-	3.768	3.762	3.760	3.822	3.894	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

(+) The sum of all Prior Years is $0.000 million less than the represented total due to several projects ending

A. Mission Description and Budget Item Justification

A. Mission Description and Budget Item Justification

This program supports the Office of the Director, Cost Assessment & Program Evaluation (CAPE). It funds activities that help CAPE to implement the vision of the Deputy Secretary of Defense to reinvigorate wargaming in the Department of Defense. CAPE will accomplish this by leading wargaming activities; developing and managing the Wargaming Portal, and supporting the design, execution, and analysis of wargames.

This program provides for analytical research across a spectrum of issues and concerns. The research agenda is focused on near to long-term problems identified by the Deputy Secretary of Defense, and addresses difficult and complex questions linked to program alternatives for current and future capabilities and forces in order to enhance the senior leadership's deliberations and decision-making.

This program provides the scientific and technical engineering services needed for research studies in the development of models and simulations and the evaluation of current analytical tools and scientific methods used to evaluate and assess scenarios and concepts of operations (CONOPS) for a wide range of warfighting environments and scenarios. Deliverables from this program will include reports, briefings, and analyses designed to illuminate findings and assessments from wargaming excursions. Outcomes include the compilation and analysis of wargaming data in the Wargaming Portal and support for data use by wargaming participants.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019
Title: Wargaming & Support for Strategic Analysis	3.850	3.833	3.768
Articles:	1	1	1
Description: This program provides for analytical research across a spectrum of issues and concerns. The research agenda is focused on near- to long-term problems identified by the Deputy Secretary of Defense, and addresses difficult and complex questions linked to program alternatives for current and future capabilities and forces in order to enhance the senior leadership's deliberations and decision-making.			
FY 2018 Plans: Studies, analyses, and assessments will be focused on: - Developing and refining wargaming objectives from senior leader priorities and Strategic Support Analysis activities. - Overseeing planning, design, and scheduling of additional excursion wargames			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604682D8Z / *Wargaming & Support for Strategic Analysis (SSA)*	**Project (Number/Name)** 104 / *Wargaming & Support for Strategic Analysis*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019
- Leading, participating in, and assessing outcomes of all excursion wargames - Participating in some near-, mid-, and far-term scenarios and CONOPS wargames - Analyzing wargame insights and data in the Wargaming Repository. - Providing requirements for the Wargaming Portal as needed - Providing guidance to DoD on best practices for mid-term wargames. ***FY 2019 Plans:*** Studies, analyses, and assessments will be focused on: - Developing and refining wargaming objectives from senior leader priorities and Strategic Support Analysis activities. - Overseeing planning, design, and scheduling of additional excursion wargames - Leading, participating in, and assessing outcomes of all excursion wargames - Participating in some near-, mid-, and far-term scenarios and CONOPS wargames - Analyzing wargame insights and data in the Wargaming Repository. - Providing ongoing requirements for the Wargaming Portal as needed - Providing guidance to DoD on best practices for mid-term wargames. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** FY 2019 maintains a virtual steady-state level of effort to support senior DoD leadership requirements.			
Accomplishments/Planned Programs Subtotals	3.850	3.833	3.768

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

A mix of competitive contracts with commercial firms and research provided by university-affiliated research centers (UARCs), and Federally Funded Research and Development Centers (FFRDCs).

E. Performance Metrics

The products or expected outcomes of this program are studies and analyses to support issues of high interest to the Deputy Secretary of Defense. Products will also include the Wargaming Repository to provide a knowledge base for the Department of Defense. Performance is measured by the quality of the analyses and is monitored through the review of the organizational assessment process. The primary goal is to ensure that study and analytical products are timely, clear, complete, accurate, responsive, balanced, and objective.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604682D8Z / *Wargaming & Support for Strategic Analysis (SSA)*	Project (Number/Name) 104 / *Wargaming & Support for Strategic Analysis*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Wargaming & Support for Strategic Analysis	C/Various	Various : DC Metro Area	0.000	3.850	Dec 2016	3.833	Jan 2018	3.768	Jan 2019	-		3.768	Continuing	Continuing	N/A
		Subtotal	0.000	3.850		3.833		3.768		-		3.768	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	3.850		3.833		3.768		-		3.768	Continuing	Continuing	N/A

Remarks

CAPE will accomplish this by leading wargaming activities; developing and managing the Wargaming Portal, and supporting the design, execution, and analysis of wargames.
Funds will be awarded for high-priority projects based on competition, and the awards will include analysis of proposed costs.

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604682D8Z / *Wargaming & Support for Strategic Analysis (SSA)*	**Project (Number/Name)** 104 / *Wargaming & Support for Strategic Analysis*

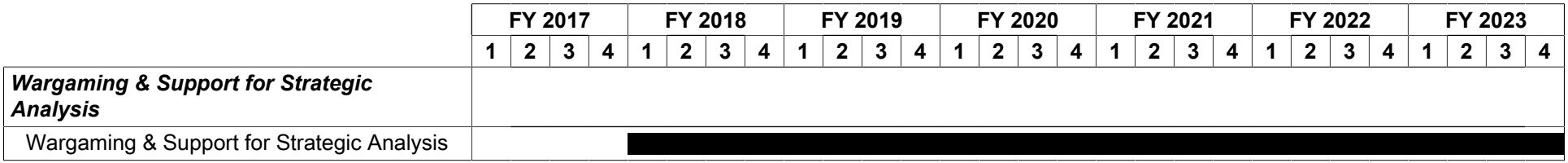

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604682D8Z / *Wargaming & Support for Strategic Analysis (SSA)*	**Project (Number/Name)** 104 / *Wargaming & Support for Strategic Analysis*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Wargaming & Support for Strategic Analysis				
Wargaming & Support for Strategic Analysis	1	2018	4	2023

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604775D8Z / *Defense Rapid Innovation Program*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	1,067.918	250.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
775: *Defense Rapid Innovation Program*	1,067.918	250.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

The National Defense Authorization Act (NDAA) for FY2017 and the Consolidated Appropriations Act, 2017, provide the Department of Defense with authorities and funds to facilitate the rapid insertion of innovative technologies into military systems and programs. Established in Section 1073 of the FY 2011 National Defense Authorization Act (NDAA), the Rapid Innovation Program is a competitive, merit-based program designed to accelerate the fielding of innovative technologies into military systems pursuant to Small Business Innovative Research (SBIR) phase II projects, Technologies developed by the Department of Defense (DoD) laboratories and Other innovative technologies, including dual-use & Independent Research & Development (IRAD) technologies. The NDAA for FY2017 and the Consolidated Appropriations Act, 2017, makes RIP a permanent program.

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B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	250.000	0.000	0.000	-	0.000
Total Adjustments	250.000	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	0.000	-			
• Congressional Rescissions	-	-			
• Congressional Adds	250.000	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2017	FY 2018
Project: 775: *Defense Rapid Innovation Program*		
Congressional Add: *Defense Rapid Innovation Fund*	250.000	-
Congressional Add Subtotals for Project: 775	250.000	-
Congressional Add Totals for all Projects	250.000	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604775D8Z / *Defense Rapid Innovation Program*

Change Summary Explanation

Congressional Add

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604775D8Z / *Defense Rapid Innovation Program*	Project (Number/Name) 775 / *Defense Rapid Innovation Program*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
775: *Defense Rapid Innovation Program*	1,067.918	250.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The National Defense Authorization Act (NDAA) for FY2017 and the Consolidated Appropriations Act, 2017, provide the Department of Defense with authorities and funds to facilitate the rapid insertion of innovative technologies into military systems and programs. The purpose of the DoD-wide Rapid Innovation Fund (RIF) program is to perform a solicitation, evaluation and award of contracts that support the aforementioned Congressional authorities and support the DoD goals of emphasis on rapid, responsive acquisition and engagement of small, innovative businesses in solving defense challenges.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018
Congressional Add: Defense Rapid Innovation Fund	250.000	-
FY 2017 Accomplishments: FY 2017Accomplishments: Funds will be used for research and development in the key areas defined by the Army, Navy, Air Force and various Agencies/Programs within the Office of the Secretary of Defense. Investments are targeted to defense requirements within the budget year of execution. The defense wide focus areas for the FY2017 Rapid Innovation Fund Program include: 1) Deliver near term, emerging technologies to enhance the capabilities for current military operations, e.g., for soldier force protection, for anti-access / area denial operations, or for other near-term solutions that improves ongoing support to the forces; 2) Innovative technologies that enhance the affordability of defense operations, e.g., reduce the cost and footprint of fielded weapon systems, extend system life of aging platforms, or improve interoperability for portable, modular scalable and secure systems; and 3) Develop and demonstrate breakthrough technologies for future military capabilities, e.g., assured communications in space and man-made environments, improved position, navigation, sensors and sensor processing in GPS-denied environments, or for countering unmanned air or underwater systems. FY 2017 funds will be distributed using a merit-based competitive process that considers the highest priority funding candidates across the military services (Army, Navy, Air Force), the 4th estate agencies, and key Combatant Commands. Preferences will be given to funding small business proposals through a competitive broad agency announcement process.		
Congressional Adds Subtotals	250.000	-

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604775D8Z / *Defense Rapid Innovation Program*	**Project (Number/Name)** 775 / *Defense Rapid Innovation Program*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Each RIF project is evaluated at its conclusion based on two measures: 1) technical performance, or extent the RIF project is meeting its technical goals, with an assessment of cost, schedule, and deliverables against stated objectives; and 2) transition status, or the extent to which an acquisition program or customer has been identified and is participating in procuring the technology, assuming the RIF project is successful.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604775D8Z / *Defense Rapid Innovation Program*	**Project (Number/Name)** 775 / *Defense Rapid Innovation Program*

Remarks

The defense wide focus areas for the FY2017 Rapid Innovation Fund Program include: 1) Deliver near-term, emerging technologies to enhance the capabilities for current military operations; 2) Innovative technologies that enhance position, navigation, timing accuracies, improve targeting/delivery in GPS-denied environments and prevent exploitation of systems lost in denied areas (e.g., anti-tamper capabilities); 3) Develop and demonstrate breakthrough technologies for future military capabilities. FY2017 funds will be distributed evenly between the Services (Army, Navy, Air Force) and the fourth estate agencies. Established in Section 1073 of the FY 2011 National Defense Authorization Act (NDAA), the Rapid Innovation Program is a competitive, merit-based program designed to accelerate the fielding of innovative technologies into military systems pursuant to Small Business Innovative Research (SBIR) phase II projects, Technologies developed by the Department of Defense (DoD) laboratories and Other innovative technologies, including dual-use & Independent Research & Development (IRAD) technologies. The NDAA for FY2017makes permanent authority for the Defense Research and Development Rapid Innovation Program. There is a two-step competitive process for participation in the program. Industry is invited to submit white papers that meet the congressional and DoD criteria. Once those white papers have been reviewed the highest ranking white papers are selected and invited to submit full proposals for consideration (there is no guarantee of an award). Those full proposal go through a review and again the highest ranking full proposals are selected for negotiation and ultimately award.

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604775D8Z / *Defense Rapid Innovation Program*	**Project (Number/Name)** 775 / *Defense Rapid Innovation Program*

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Office of the Secretary Of Defense		Date: January 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604775D8Z / *Defense Rapid Innovation Program*	**Project (Number/Name)** P775 / *Defense Rapid Innovation Program*

Rapid Innovation Fund (RIF) Program
FY17 RIF Funding Execution Milestones

Milestone	Date
OSD / 4th Estate Requirements Submitted	March 2017
BAA Release in Federal Business Opportunities (FBO.GOV)	March 17, 2017
BAA Close / White Papers (WP) Due	May 19, 2017
WP Evaluations Complete by Component Agencies	June 30, 2017
Agencies WP Recommendations	July 3-31, 2017
Advisory Team Ratings & WP Down selects	Aug 11, 2017
Review with DASD (EC&P) & OSBP	Aug 31, 2017
WP Approval Package Staffing & Signature	Sept 8, 2017
Notification to All Offerors	Sept 22, 2017
Full Proposal Submissions	NLT October 20, 2017
Proposal Evaluations	NLT January 3, 2018
Negotiations Complete and Award	NLT May 1, 2018

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604775D8Z / *Defense Rapid Innovation Program*	**Project (Number/Name)** 775 / *Defense Rapid Innovation Program*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Army, Navy, Air Force, Fourth Estate				
Army, Navy, Air Force, Fourth Estate	2	2017	4	2017

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0303191D8Z *I Joint Electromagnetic Technology (JET) Program*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	8.456	2.633	2.902	3.104	-	3.104	3.191	3.237	3.284	3.346	Continuing	Continuing
192: *Joint Electromagnetic Technology (JET) Program*	8.456	2.633	2.902	3.104	-	3.104	3.191	3.237	3.284	3.346	Continuing	Continuing

A. Mission Description and Budget Item Justification

The JET Program supports the Defense Community in general with a particular emphasis on the communication requirements of Special Forces and Intelligence. Details of the program are classified. This program is funded under Budget Activity 4, Demonstration and Validation.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	2.636	2.902	3.071	-	3.071
Current President's Budget	2.633	2.902	3.104	-	3.104
Total Adjustments	-0.003	0.000	0.033	-	0.033
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Adjustment	-0.003	-	0.033	-	0.033

Change Summary Explanation

FY 2017: Program Adjustment -0.003 million.
FY 2018: No change.
FY2019: Program Adjustment 0.033 million.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0303191D8Z / *Joint Electromagnetic Technology (JET) Program*	Project (Number/Name) 192 / *Joint Electromagnetic Technology (JET) Program*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
192: *Joint Electromagnetic Technology (JET) Program*	8.456	2.633	2.902	3.104	-	3.104	3.191	3.237	3.284	3.346	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The JET Program supports the Defense Community in general with a particular emphasis on the communication requirements of Special Forces and Intelligence. Details of the program are classified. This program is funded under Budget Activity 4, Demonstration and Validation.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: JET Program Initiatives	2.633	2.902	3.104
FY 2018 Plans: Program Planning and Support			
FY 2019 Plans: Program Planning and Support			
FY 2018 to FY 2019 Increase/Decrease Statement: Program Growth			
Accomplishments/Planned Programs Subtotals	2.633	2.902	3.104

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

- Numbers of operational field demonstrations.
- Numbers of false-positive results.
- Successful technology transfer to service component.
- Number of service requirements satisfied.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0303191D8Z / *Joint Electromagnetic Technology (JET) Program*	**Project (Number/Name)** 192 / *Joint Electromagnetic Technology (JET) Program*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Technical Engineering Services	Option/ FFP	Various : Various	8.456	2.633	Jul 2018	2.902	Jul 2019	3.104	Jul 2019	-		3.104	Continuing	Continuing	-
		Subtotal	8.456	2.633		2.902		3.104		-		3.104	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	8.456	2.633		2.902		3.104		-		3.104	Continuing	Continuing	N/A

Remarks

NA

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0303191D8Z / *Joint Electromagnetic Technology (JET) Program*	**Project (Number/Name)** 192 / *Joint Electromagnetic Technology (JET) Program*

R4

PE: 0303191D8Z/ Joint Electromagnetic Technology

Funding supports the development of Joint Electromagnetic Technologies (JET) that support DoD Special communications and communications assurance.

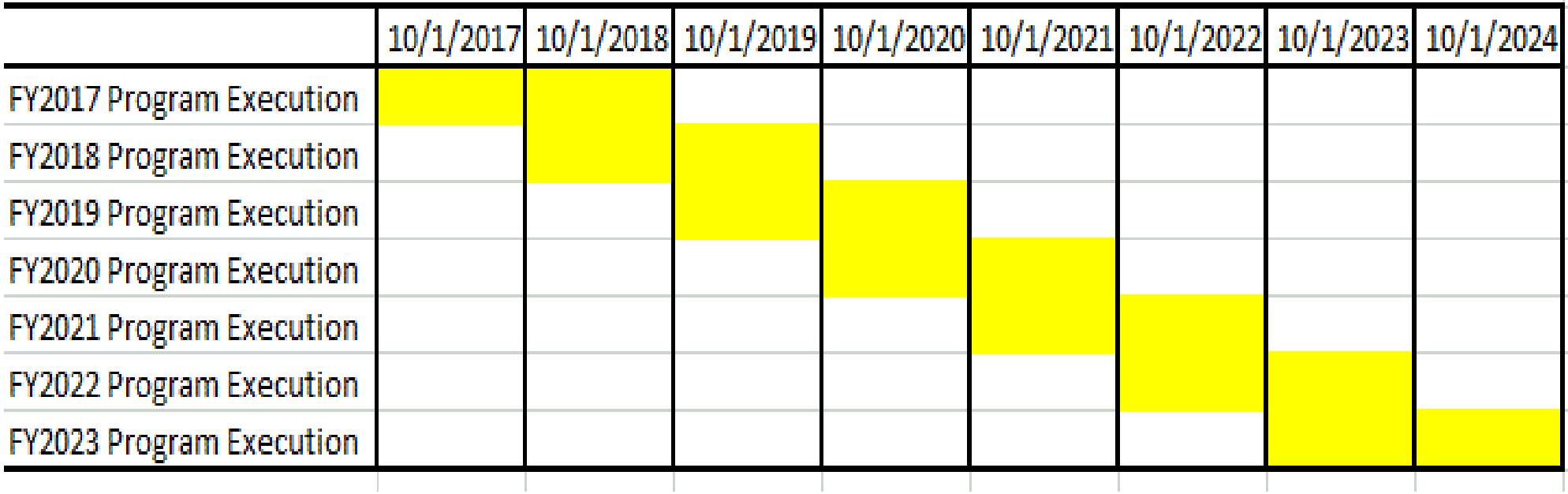

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0303191D8Z / *Joint Electromagnetic Technology (JET) Program*	**Project (Number/Name)** 192 / *Joint Electromagnetic Technology (JET) Program*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
****** SUBPROJECT TITLE ******				
FY18 Project Execution	1	2018	2	2019
FY19 Project Execution	1	2019	2	2020
FY20 Project Execution	1	2020	2	2021
FY21 Project Execution	1	2021	2	2022
FY22 Project Execution	1	2022	2	2023

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604161D8Z / *Nuclear and Conventional Physical Security/Countering Nuclear Threats*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	51.028	10.152	12.536	8.333	-	8.333	12.887	8.270	7.194	7.325	Continuing	Continuing
163: *Nuclear and Conventional Physical Security*	42.526	6.936	7.900	3.373	-	3.373	9.034	8.270	7.194	7.325	Continuing	Continuing
042: *CNT Prevention SDD*	8.502	3.216	4.636	4.960	-	4.960	3.853	0.000	0.000	0.000	Continuing	Continuing

Note

The FY2019 funding request was reduced by $3.461 million to account for the availability of prior year execution balances

A. Mission Description and Budget Item Justification

This Program Element (PE) addresses the need to defend and deter against weapons of mass destruction (WMD) threats and to safeguard personnel; prevent unauthorized access to equipment, installations, material, and documents; and to safeguard the foregoing against espionage, sabotage, damage, and theft. This program oversees advanced engineering development throughout DoD for an integrated and systemic RDT&E approach for countering nuclear threats and nuclear and conventional physical security technology and systems. The funding has been centralized in this Defense-wide PE since the early 1990s and represents a substantial portion of all DoD physical security RDT&E funding. Priorities for this PE RDT&E efforts are driven by inputs from Quadrennial Defense Review guidance, Combatant Command and Service requirements, analysis reports such as “Protecting the Force: Lessons from Fort Hood,” January 2010, the Integrated Unit, Base, and Installation Protection Cost Benefits Analysis, Multi-national Work Plans established through the Nuclear Security Summit process, and DoD Directive 5210.41, Security Policy for Protecting Nuclear Weapons-directed requirements and associated security deviation reports.

Under this integrated approach, funds are used to provide system development and demonstration for the Department in seven capability areas: (1) Detection and Assessment; (2) Access Controls; (3) Installation and Transport Security; (4) Storage and Safeguards; (5) Prevention; (6) Decision Support Systems; and (7) Analytical Support. The program will develop systems that are producible, supportable, and affordable and to demonstrate system integration, interoperability, and utility prior to full-rate production. The projects under the PE become technology insertions into existing programs or advance to being a certified Commercial/Government off-the-shelf product. The PE initiatives are coordinated by the Physical Security Enterprise and Analysis Group. This group is responsible for avoiding duplication of effort and when applicable ensure systems integration and promote interoperability and sustainability.

This PE can fund travel to support the requirements of this program.

This appropriation will finance work, including manpower, performed by a government agency or by private individuals or organizations under a contractual or grant arrangement with the government who conduct research (systematic study directed toward fuller scientific knowledge or understanding of the subject studied), development (systematic use of the knowledge and understanding gained from research, for the production of useful materials, devices, systems, or methods, including the design and development of prototypes and processes) and test and evaluation efforts.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604161D8Z *I Nuclear and Conventional Physical Security/Countering Nuclear Threats*

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	10.324	12.536	13.574	-	13.574
Current President's Budget	10.152	12.536	8.333	-	8.333
Total Adjustments	-0.172	0.000	-5.241	-	-5.241
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.159	-			
• FFRDC	-0.011	-	-	-	-
• FG Adjustment	-	-	-0.019	-	-0.019
• Cancelled Account Withold	-0.002	-	-	-	-
• Internal Realignment	-	-	-1.682	-	-1.682
• EA-008 Inflation Rate	-	-	-0.079	-	-0.079
• INV-001 Under Execution Reduction	-	-	-3.461	-	-3.461

Change Summary Explanation

Internally realigned funding to this RDT&E Program Element to address additional advanced development for the Radiological Detection System

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604161D8Z / *Nuclear and Conventional Physical Security/Countering Nuclear Threats*	Project (Number/Name) 163 / *Nuclear and Conventional Physical Security*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
163: *Nuclear and Conventional Physical Security*	42.526	6.936	7.900	3.373	-	3.373	9.034	8.270	7.194	7.325	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Program Element (PE) addresses the need to defend and deter against weapons of mass destruction (WMD) threats and to safeguard personnel; prevent unauthorized access to equipment, installations, material, and documents; and to safeguard the foregoing against espionage, sabotage, damage, and theft. This program oversees advanced engineering development throughout DoD for an integrated and systemic RDT&E approach for countering nuclear threats and nuclear and conventional physical security technology and systems. The funding has been centralized in this Defense-wide PE since the early 1990s and represents a substantial portion of all DoD physical security RDT&E funding. Priorities for this PE RDT&E efforts are driven by inputs from Quadrennial Defense Review guidance, Combatant Command and Service requirements, analysis reports such as “Protecting the Force: Lessons from Fort Hood,” January 2010, the Integrated Unit, Base, and Installation Protection Cost Benefits Analysis, Multi-national Work Plans established through the Nuclear Security Summit process, and DoD Directive 5210.41, Security Policy for Protecting Nuclear Weapons-directed requirements and associated security deviation reports.

Under this integrated approach, funds are used to provide system development and demonstration for the Department in seven capability areas: (1) Detection and Assessment; (2) Access Controls; (3) Installation and Transport Security; (4) Storage and Safeguards; (5) Prevention; (6) Decision Support Systems; and (7) Analytical Support. The program will develop systems that are producible, supportable, and affordable and to demonstrate system integration, interoperability, and utility prior to full-rate production. The projects under the PE become technology insertions into existing programs or advance to being a certified Commercial/Government off-the-shelf product. The PE initiatives are coordinated by the Physical Security Enterprise and Analysis Group. This group is responsible for avoiding duplication of effort and when applicable ensure systems integration and promote interoperability and sustainability.

This PE can fund travel to support the requirements of this program.

This appropriation will finance work, including manpower, performed by a government agency or by private individuals or organizations under a contractual or grant arrangement with the government who conduct research (systematic study directed toward fuller scientific knowledge or understanding of the subject studied), development (systematic use of the knowledge and understanding gained from research, for the production of useful materials, devices, systems, or methods, including the design and development of prototypes and processes) and test and evaluation efforts.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Detection and Assessment	3.343	4.977	2.125

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604161D8Z / *Nuclear and Conventional Physical Security/Countering Nuclear Threats*	**Project (Number/Name)** 163 / *Nuclear and Conventional Physical Security*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Description: The ability to detect an adversary and assess their intentions is a basic physical security tenant. This capability area will design equipment to identify and warn of unauthorized access to a specified area or installation as well as equipment related to the notification and identification of explosive threats or hazards. ***FY 2018 Plans:*** • Develop Linear Sensor System Development for Multi-Threat Detection • Develop PL1N/PL1 Portable Intrusion Detection System ***FY 2019 Plans:*** • Develop Linear Sensor System Development for Multi-Threat Detection • Develop PL1N/PL1 Portable Intrusion Detection System ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Projects and project cost vary from year to year			
Title: Access Controls ***Description:*** Controlling access to safeguard personnel and their families and to prevent unauthorized access to critical infrastructure and materials is paramount. This capability area will focus on programs and processes related to the validity and verification of individuals entering or already within, a facility. ***FY 2018 Plans:*** • No current projects are being worked in this area ***FY 2019 Plans:*** • No current projects are being planned in this area ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Projects and project cost vary from year to year	1.010	0.000	0.000
Title: Installation and Transport Security ***Description:*** Robust installation and transport security are vital to preventing a weapon of mass destruction attack or the unauthorized access to key assets such as nuclear weapons and special nuclear material. This capability area will focus on programs and equipment intended to improve the physical security profile of fixed sites and facilities, as well as critical items while in-transit. ***FY 2018 Plans:***	0.400	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604161D8Z / *Nuclear and Conventional Physical Security/Countering Nuclear Threats*	**Project (Number/Name)** 163 / *Nuclear and Conventional Physical Security*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
• No current projects are being worked in this area ***FY 2019 Plans:*** • No current projects are being planned in this area ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Projects and project cost vary from year to year			
Title: Prevention ***Description:*** The security procedures taken to discourage an adversary from accessing weapons of mass destruction or gaining unauthorized access to critical assets are at the heart of prevention. This capability area will focus on broad spectrum, generic efforts which have the ability to influence multiple areas. ***FY 2018 Plans:*** • Develop a counter Unmanned Underwater / Surface / Ground Vehicle technology roadmap ***FY 2019 Plans:*** • Continue to develop a counter Unmanned Underwater / Surface / Ground Vehicle technology roadmap ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Projects and project cost vary from year to year	0.660	1.027	0.439
Title: Storage and Safeguards ***Description:*** Properly securing critical assets to prevent access by unauthorized persons and implementing control measures that ensure access is limited to authorized persons is the foundation of physical security. This capability area will focus on equipment (e.g., locks, doors, etc.) designed to delay or stop unauthorized entry/access to a specified/localized area. ***FY 2018 Plans:*** • No current projects are being worked in this area ***FY 2019 Plans:*** • No current projects are being planned in this area ***FY 2018 to FY 2019 Increase/Decrease Statement:*** There were no changes	-	0.000	0.000
Title: Decision Support Systems	0.880	0.553	0.236

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604161D8Z / *Nuclear and Conventional Physical Security/Countering Nuclear Threats*	**Project (Number/Name)** 163 / *Nuclear and Conventional Physical Security*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Description: Decision support systems serve the management, operations, and planning levels of the DoD physical security enterprise to help to make decisions, which may be rapidly changing and not easily specified in advance. This capability area will focus on command and control equipment and projects related to the creation and enhancement of common operating pictures, and the establishment of common architectures / interface standards. ***FY 2018 Plans:*** • Continue to develop Response Force Command, Control & Communications • Continue to develop C2 Enhanced Capability Suite ***FY 2019 Plans:*** • Continue to develop Response Force Command, Control & Communications • Continue to develop C2 Enhanced Capability Suite ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Projects and project cost vary from year to year			
Title: Analytical Support ***Description:*** This capability area will focus on studies related to physical security topics and operational and management efforts related to day-to-day activities of the DoD Physical Security Enterprise RDT&E Program. ***FY 2018 Plans:*** • Conduct physical security test and evaluation efforts • Provide DOD and industry the means to achieve PSE interoperability ***FY 2019 Plans:*** • Conduct physical security test and evaluation efforts • Provide DOD and industry the means to achieve PSE interoperability ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Projects and project cost vary from year to year	0.643	1.343	0.573
Accomplishments/Planned Programs Subtotals	6.936	7.900	3.373

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604161D8Z / *Nuclear and Conventional Physical Security/Countering Nuclear Threats*	**Project (Number/Name)** 163 / *Nuclear and Conventional Physical Security*

C. Other Program Funding Summary ($ in Millions)

Remarks

NA

D. Acquisition Strategy

N/A

E. Performance Metrics

The program performance metrics are established/approved through the Office of the Deputy Assistant Secretary of Defense for Nuclear, Chemical, and Biological Defense Programs / Nuclear Matters. The cost, schedule and technical progress of each project is reviewed at quarterly PSEAG. Performance variances are addressed and corrective action is implemented as necessary.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604161D8Z / *Nuclear and Conventional Physical Security/Countering Nuclear Threats*	Project (Number/Name) 163 / *Nuclear and Conventional Physical Security*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
National Information Exchange Model	Various	SPAWAR Atlantic : Charleston, SC	-	0.474		0.235		-		-		-	Continuing	Continuing	-
Military Ocean Terminal	Various	Various : Various	-	0.285		-		-		-		-	-	-	-
Force Protection Cross-Domain	MIPR	PEO IEW&S : Ft Belvoir, VA	-	0.466		-		-		-		-	Continuing	Continuing	-
Tactical Security System	MIPR	PEO IEW&S : Ft Belvoir, MD	-	0.317		-		-		-		-	Continuing	Continuing	-
C2 Enhanced Capability Suite	MIPR	SPAWAR Pacific : Various	-	0.650		-		-		-		-	Continuing	Continuing	-
Foliage Penetration	MIPR	Various : Various	-	0.187		-		-		-		-	Continuing	Continuing	-
ESS Cyber Security Assessment	MIPR	Various : Various	-	0.261		-		-		-		-	Continuing	Continuing	-
Indoor Gunshot Detection System	MIPR	SPAWAR Atlantic : Charleston, SC	-	0.427		0.497		-		-		-	-	-	-
Physical Security RDT&E	Various	Various : Various	42.526	0.205		1.993		-		-		-	Continuing	Continuing	-
Interoperability Standards	MIPR	SPAWAR Atlantic : Charleston, SC	-	-		0.235		-		-		-	Continuing	Continuing	-
Trace Explosive Detection System Improvement	MIPR	EOD Tech Division : Indian Head, MD	-	-		0.927		-		-		-	-	-	-
Integrating MANTAS USA with NUTR COP	MIPR	SPAWARSYSCEN Pacific : San Diego, CA	-	-		0.250		-		-		-	-	-	-
Detection & Assessment	Various	Various : Various	-	-		-		1.169		-		1.169	Continuing	Continuing	-
Access Control	Various	Various : Various	-	-		-		0.000		-		0.000	Continuing	Continuing	-
Storage & Safeguards	Various	Various : Various	-	-		-		0.000		-		0.000	Continuing	Continuing	-
Analytical Support	Various	Various : Various	-	-		-		0.315		-		0.315	Continuing	Continuing	-
Decision Support	Various	Various : Various	-	-		-		0.130		-		0.130	Continuing	Continuing	-
Prevention	Various	Various : Various	-	-		-		0.241		-		0.241	Continuing	Continuing	-
Installation & Transport Security	Various	Various : Various	-	-		-		0.000		-		0.000	Continuing	Continuing	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604161D8Z / *Nuclear and Conventional Physical Security/Countering Nuclear Threats*	**Project (Number/Name)** 163 / *Nuclear and Conventional Physical Security*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	42.526	3.272		4.137		1.855		-		1.855	Continuing	Continuing	N/A

Remarks

NA

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PSEAG T&E	MIPR	SPAWAR Atlantic : Charleston, SC	-	0.650		0.123		-		-		-	Continuing	Continuing	-
Comparative Evaluation of Man-Portable Mass Spectrometry Explosive Detection Systems	MIPR	EOD Tech Division : Indian Head, MD	-	0.918		-		-		-		-	-	-	-
Comparative Colorimetric	MIPR	EOD Tech Division : Indian Head, MD	-	0.978		-		-		-		-	-	-	-
Detection of Insensitive Munitions	MIPR	EOD Tech Division : Indian Head, MD	-	0.465		-		-		-		-	-	-	-
Development, Test and Evaluation of System Operations Audit and Recording	MIPR	SPAWAR Atlantic : Charleston, SC	-	0.653		0.562		-		-		-	-	-	-
Explosive Vapor Detection Test & Evaluation	MIPR	EOD Tech Division : Indian Head, MD	-	-		0.603		-		-		-	-	-	-
Raman Comparative	MIPR	EOD Techg Division : Indian Head, MD	-	-		0.713		-		-		-	-	-	-
Radiological Detection System	Sub Allot	JPEO CBD : Aberdeen, MD	-	-		0.248		-		-		-	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604161D8Z / *Nuclear and Conventional Physical Security/Countering Nuclear Threats*	**Project (Number/Name)** 163 / *Nuclear and Conventional Physical Security*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Targeted Trace System Test: Fido X4 and Road Runner	MIPR	EOD Tech Division : Indian Head, MD	-	-		0.457		-		-		-	-	-	-
Stand-Off Weapon Defeat IPT	MIPR	NSWC Dahlgren Division : Dahlgren Division	-	-		1.057		-		-		-	-	-	-
PSEAG Test & Evaluation	MIPR	Multiple Performers : Multiple Performers	-	-		-		1.518		-		1.518	Continuing	Continuing	-
		Subtotal	-	3.664		3.763		1.518		-		1.518	Continuing	Continuing	N/A

Remarks

NA

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	42.526	6.936		7.900		3.373		-		3.373	Continuing	Continuing	N/A

Remarks

NA

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604161D8Z / *Nuclear and Conventional Physical Security/Countering Nuclear Threats*	**Project (Number/Name)** 163 / *Nuclear and Conventional Physical Security*

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604161D8Z / *Nuclear and Conventional Physical Security/Countering Nuclear Threats*	**Project (Number/Name)** 163 / *Nuclear and Conventional Physical Security*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Detection & Assessment				
Detection & Assessment	1	2012	4	2023
Decision Support				
Decision Support	1	2012	4	2023
Storage & Safeguards				
Storage & Safeguards	1	2012	4	2023
Installation & Transport Security				
Installation & transport Security	1	2012	4	2023
Prevention				
Prevention	1	2012	4	2023
Access Control				
Access Control	1	2012	4	2023
Analytical Support				
Analytical Support	4	2018	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604161D8Z / *Nuclear and Conventional Physical Security/Countering Nuclear Threats*	**Project (Number/Name)** 042 / *CNT Prevention SDD*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
042: *CNT Prevention SDD*	8.502	3.216	4.636	4.960	-	4.960	3.853	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Establish a Defense-wide Countering Nuclear Threats (CNT) Materiel Development Program focused on prevention. Addresses capability gaps identified by Services, Combatant Commands, and Joint Staff. The CNT acquisition strategy directly applies to Joint requirements for CNT materiel development and addresses the materiel and sustainment gaps for general purpose Joint Forces including the US Army 20th Support Command / Navy Visit, Board, Search, and Seizure / Technical Support Groups (NIMBLE ELDER and the US Special Operations Command).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: CNT Rad/Nuc Passive Defense	3.216	4.636	4.960
Description: Advanced Development of Joint Radiological and Nuclear passive defense systems (i.e. Radiological Detection System and the Joint Personal Dosimeter). The Radiological Detection System will provide a ruggedized Radiation Detection, Indication, and Computation for real time gamma radiation monitoring and low energy x-ray, beta, alpha, and neutron detection. The Joint Personal Dosimeter will provide a joint solution to increase capability and reduce life-cycle costs. Both systems will address Operation TOMODACHI (response to Japan's Fukushima Daiichi nuclear power plant incident) lessons learned for common, interoperable equipment with adequate sensitivity and common units of measure. ***FY 2018 Plans:*** Complete the development of Joint Radiological and Nuclear passive defense systems (i.e. Radiological Detection System and the Joint Personal Dosimeter) ***FY 2019 Plans:*** Complete the development of Joint Radiological and Nuclear passive defense systems (i.e. Radiological Detection System) ***FY 2018 to FY 2019 Increase/Decrease Statement:*** No change			
Accomplishments/Planned Programs Subtotals	3.216	4.636	4.960

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604161D8Z / *Nuclear and Conventional Physical Security/Countering Nuclear Threats*	**Project (Number/Name)** 042 / *CNT Prevention SDD*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

The program performance metrics are established/approved through the Countering Nuclear Threats Program Manager. The cost, schedule and technical progress is reviewed on a quarterly basis. Performance variances are addressed and corrective action(s) is(are) implemented as necessary.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604161D8Z / *Nuclear and Conventional Physical Security/Countering Nuclear Threats*	Project (Number/Name) 042 / *CNT Prevention SDD*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Radiological Detection System	Sub Allot	JPEO CBD : Aberdeen, MD	1.034	0.867		4.636		-		-		-	Continuing	Continuing	-
Joint Personal Dosimeter	Sub Allot	JPEO CBD : Aberdeen, MD	7.468	2.349		-		-		-		-	Continuing	Continuing	-
Prevent Nuclear Threats	TBD	TBD : TBD	-	-		-		4.960		-		4.960	Continuing	Continuing	-
		Subtotal	8.502	3.216		4.636		4.960		-		4.960	Continuing	Continuing	N/A

Remarks

NA

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	8.502	3.216		4.636		4.960		-		4.960	Continuing	Continuing	N/A

Remarks

NA

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604161D8Z / *Nuclear and Conventional Physical Security/Countering Nuclear Threats*	**Project (Number/Name)** 042 / *CNT Prevention SDD*

Radiological Detection System

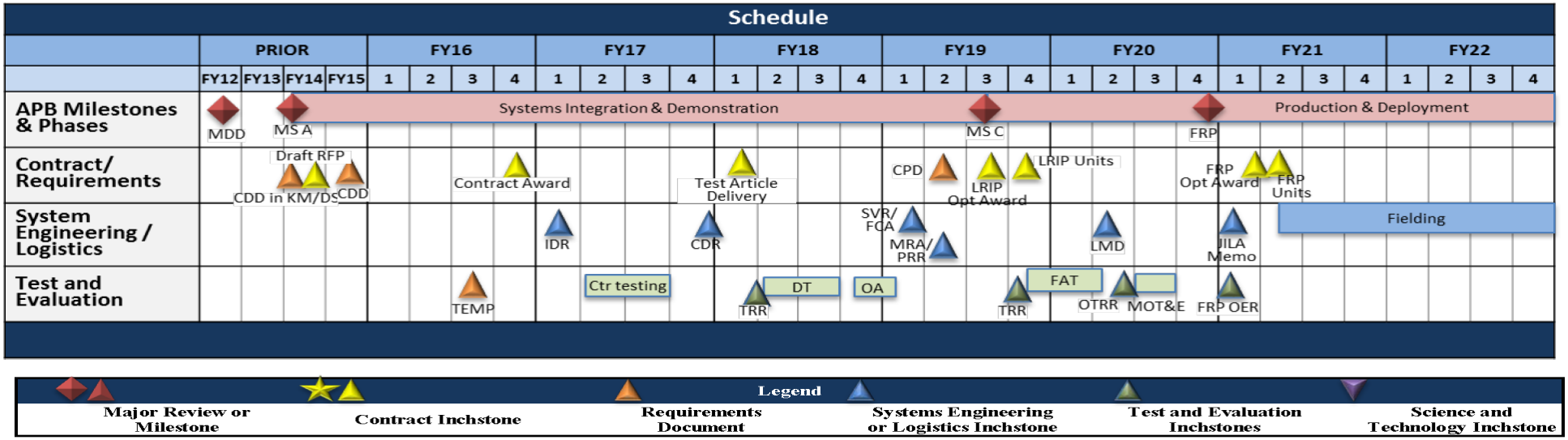

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604161D8Z / *Nuclear and Conventional Physical Security/Countering Nuclear Threats*	**Project (Number/Name)** 042 / *CNT Prevention SDD*

Joint Personal Dosimeter

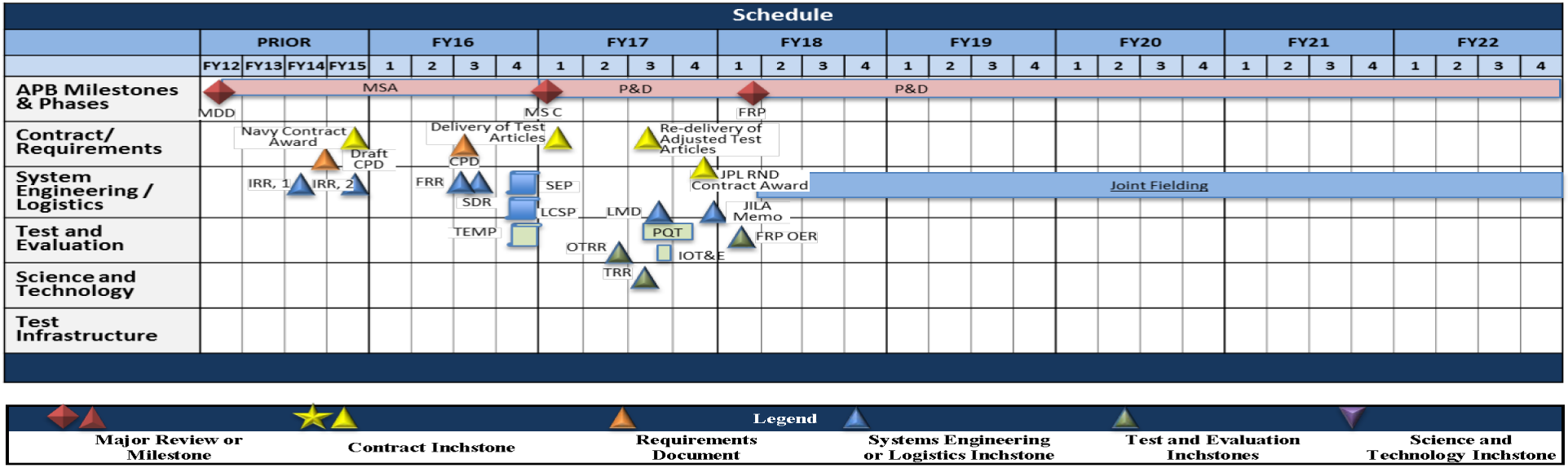

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604161D8Z / *Nuclear and Conventional Physical Security/Countering Nuclear Threats*	**Project (Number/Name)** 042 / *CNT Prevention SDD*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Radiological Detection System				
Radiological Detection System	1	2018	4	2020
Joint Personal Dosimeter				
Joint Personal Dosimeter	4	2014	1	2018
Prevent Nuclear Threats				
Prevent Nuclear Threats	1	2019	4	2023

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604165D8Z / *Prompt Global Strike Capability Development*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	1,073.276	161.100	201.749	263.414	0.000	263.414	0.000	0.000	0.000	0.000	Continuing	Continuing
164: *Hypersonic Glide Experiment and Concepts Demonstration Support*	373.741	2.000	1.000	263.414	0.000	263.414	0.000	0.000	0.000	0.000	Continuing	Continuing
166: *Alternate Re-Entry System/ Warhead Engineering*	562.701	153.810	197.440	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
167: *Test Range Development*	62.446	2.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
168: *OSD CPGS Studies*	74.388	3.290	3.309	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Note

FY17 P168 reduced from 3,290 to 3,264 for reduction tax to pay for cancelled accounts in WHS. Conventional Prompt Strike program and funding transfers to the Navy, PE 0604659N, starting in FY20. Additional information is classified.

A. Mission Description and Budget Item Justification

This Program Element (PE) was established to develop and demonstrate technologies and applications that advance conventional prompt global strike (CPGS) warfighting capabilities. The program uses a national team with participation from the Services, Agencies, national research laboratories, and further involvement of competitive industry. Program emphasis is on demonstrating component and subsystem technology maturity with risk reduction initiatives highlighted by flight tests. The program funds the design, development, and experimentation of boosters, payload delivery vehicles (PDVs), non-nuclear warheads, thermal protection systems, guidance systems, test range modernization, and mission planning and enabling capabilities. To support these development activities, the program procures modeling and simulation capabilities, ground testing, command and control interfaces, test range support, and launch system infrastructure. Additionally, expert resources address strategic policy and treaty issues. Program timing will be driven by the outcome of flight and ground test events as well as DoD budgets. In FY 2018, as in previous years, funding for the individual Service initiatives will be contingent upon their abilities to execute and achieve satisfactory progress towards project goals as determined by the CPGS portfolio manager.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604165D8Z *I Prompt Global Strike Capability Development*

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	181.303	201.749	218.833	0.000	218.833
Current President's Budget	161.100	201.749	263.414	0.000	263.414
Total Adjustments	-20.203	0.000	44.581	0.000	44.581
• Congressional General Reductions	-20.000	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• FFRDC Reduction	-0.177	-	-	-	-
• Reduction Tax for Cancelled Accounts in WHS	-0.026	-	-	-	-
• Economic Adjustment	-	-	-1.450	-	-1.450
• CPS Program Increase	-	-	46.031	-	46.031

Change Summary Explanation

CPGS program funding aligned with CPGS program plan.
$26K reduction tax to pay for cancelled accounts in WHS.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604165D8Z / *Prompt Global Strike Capability Development*	Project (Number/Name) 164 / *Hypersonic Glide Experiment and Concepts Demonstration Support*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
164: *Hypersonic Glide Experiment and Concepts Demonstration Support*	373.741	2.000	1.000	263.414	0.000	263.414	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Program Element (PE) was established to develop and demonstrate technologies and applications that advance conventional prompt global strike (CPGS) warfighting capabilities. The program uses a national team with participation from the Services, Agencies, national research laboratories, and further involvement of competitive industry. Program emphasis is on demonstrating component and subsystem technology maturity with risk reduction initiatives highlighted by flight tests. The program funds the design, development, and experimentation of boosters, payload delivery vehicles (PDVs), non-nuclear warheads, thermal protection systems, guidance systems, test range modernization, and mission planning and enabling capabilities. To support these development activities, the program procures modeling and simulation capabilities, ground testing, command and control interfaces, test range support, and launch system infrastructure. Additionally, expert resources address strategic policy and treaty issues. Program timing will be driven by the outcome of flight and ground test events as well as DoD budgets. In FY 2018, as in previous years, funding for the individual Service initiatives will be contingent upon their abilities to execute and achieve satisfactory progress towards project goals as determined by the CPGS portfolio manager.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Hypersonic Glide Experiments and Concept Demonstration Development/Support	2.000	1.000	263.414
Description: This sub-project develops technologies and applications that could lead to a system with the following characteristics: effects on targets in a very short-period of time from execution order; non-ballistic flight over the majority of the flight path; positive control from launch to impact; adequate cross-range/ maneuverability to avoid overflight issues; controlled stage drop over Broad Ocean Area. This sub-project also oversees development of non-nuclear warhead technologies to defeat time-sensitive targets for near and longer-term CPGS applications. The technologies developed will have cross-Service and cross-concept applicability and will be developed through close coordination among DoD components. This activity will support both ground and flight tests, and provide all national data to inform a potential acquisition program. ***FY 2018 Plans:*** - Conduct trade studies to evaluate system alternatives, affordability, end-to-end system concepts that will study a weaponized integrated system complete with system architecture, and industrial manufacturing readiness - Continue aerodynamic and weapon risk reduction and technology maturation efforts through ground and wind tunnel tests to improve modeling and simulation capabilities and technology readiness, assessing readiness to conducted integrated penetrator component technology tests			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604165D8Z / *Prompt Global Strike Capability Development*	**Project (Number/Name)** 164 / *Hypersonic Glide Experiment and Concepts Demonstration Support*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- Continue Systems Engineering support to CPGS program and acquisition. Apply support to Integrated Product Teams to facilitate judgments of feasibility and risks of all CPGS concepts. Continue to support outreach and strategic messaging to entire CPGS community and COCOMs. ***FY 2019 Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** All of FY2019 funding will be allotted to P166, Alternate Re-Entry System/Warhead Engineering.			
Accomplishments/Planned Programs Subtotals	2.000	1.000	263.414

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604165D8Z / *Prompt Global Strike Capability Development*	**Project (Number/Name)** 164 / *Hypersonic Glide Experiment and Concepts Demonstration Support*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hypersonic Glide Experiment and Concept Development Support	Allot	Army Space and Missile Defense Center/Navy Strategic Systems Program : Huntsville AL/Washington DC	373.741	2.000		1.000		263.414		-		263.414	Continuing	Continuing	N/A
		Subtotal	373.741	2.000		1.000		263.414		-		263.414	Continuing	Continuing	N/A

Remarks

NA

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	373.741	2.000		1.000		263.414		-		263.414	Continuing	Continuing	N/A

Remarks

NA

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604165D8Z / *Prompt Global Strike Capability Development*	**Project (Number/Name)** 164 / *Hypersonic Glide Experiment and Concepts Demonstration Support*

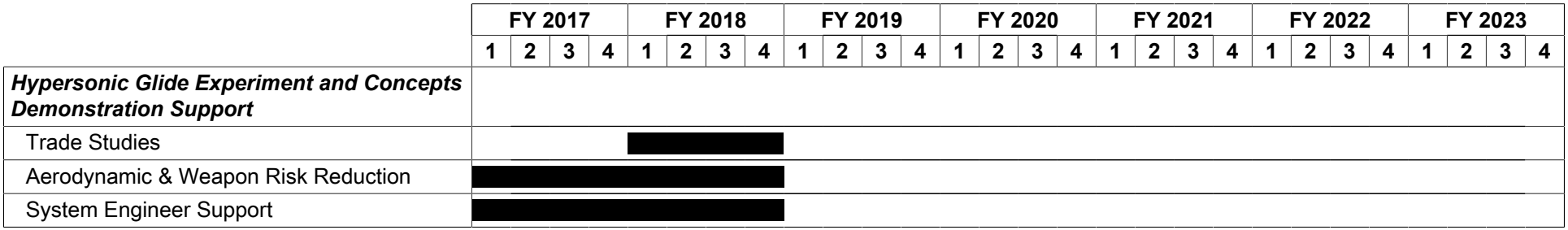

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604165D8Z / *Prompt Global Strike Capability Development*	**Project (Number/Name)** 164 / *Hypersonic Glide Experiment and Concepts Demonstration Support*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Hypersonic Glide Experiment and Concepts Demonstration Support				
Trade Studies	1	2018	4	2018
Aerodynamic & Weapon Risk Reduction	1	2017	4	2018
System Engineer Support	1	2017	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604165D8Z / *Prompt Global Strike Capability Development*	Project (Number/Name) 166 / *Alternate Re-Entry System/Warhead Engineering*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
166: *Alternate Re-Entry System/ Warhead Engineering*	562.701	153.810	197.440	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Program Element (PE) was established to develop and demonstrate technologies and applications that advance conventional prompt global strike (CPGS) warfighting capabilities. The program uses a national team with participation from the Services, Agencies, national research laboratories, and further involvement of industry. Program emphasis is on demonstrating component and subsystem technology maturity with risk reduction initiatives highlighted by flight tests. The program funds the design, development, and experimentation of boosters, payload delivery vehicles (PDVs), non-nuclear warheads, thermal protection systems, guidance systems, test range modernization, and mission planning and enabling capabilities. To support these development activities, the program procures modeling and simulation capabilities, ground testing, command and control interfaces, test range support, and launch system infrastructure. Additionally, expert resources address strategic policy and treaty issues. Program timing will be driven by the outcome of flight and ground test events as well as DoD budgets. In FY 2018, as in previous years, funding for the individual Service initiatives will be contingent upon their abilities to execute and achieve satisfactory progress towards project goals as determined by the CPGS portfolio manager.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Alternative Re-Entry System/Warhead Engineering and Delivery Vehicle Options/Development	153.810	197.440	0.000
Description: This sub-project will test and evaluate alternative booster and delivery vehicle options and will assess the feasibility of producing an affordable solution to fill the CPGS capability gap. It will mature technologies that could lead to advanced systems with the following characteristics: effects on targets in a very short-period of time from execution order; non-ballistic flight over the majority of the flight path; positive control from launch to impact; adequate cross-range/maneuverability to avoid over flight issues; and controlled stage drop over Broad Ocean Area. The technologies developed will have cross-Service and cross-concept applicability and will be developed through close coordination among DoD components. This activity will support both ground and flight tests, and provide all national data to inform a potential acquisition program. ***FY 2018 Plans:*** - Finalize testing of Hypersonic Glide Body and Booster to be used in FE-1,and begin manufacturing and testing of Hypersonic Glide Booster to be used in FE-2 - Continue intermediate range objective technology booster development for FE-3 with competitive industry; to include hardware procurement and fabrication - Support development of future flight test systems for CPGS concepts as required			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604165D8Z / *Prompt Global Strike Capability Development*	**Project (Number/Name)** 166 / *Alternate Re-Entry System/Warhead Engineering*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- Update the Technology Development Strategy and system engineering documentation based on updated CPGS engineering and test data, trade studies, and on-going risk reduction/technology development efforts ***FY 2019 Plans:*** - Continue the manufacturing and testing of Hypersonic Glide Body and Booster to be used in FE-2 - Begin manufacturing and testing of Hypersonic Glide Body to be used in FE-3 - Continue intermediate range objective technology booster development for FE-3 with competitive industry; to include hardware procurement and fabrication - Support development of future flight test systems for CPGS concepts as required - Continue studies for future system development to examine cost, lethality, aerodynamic and thermal characteristics, command and control, operational aspects, and technology integrated product teams - Update the Technology Development Strategy and system engineering documentation based on updated CPGS engineering and test data, trade studies, and on-going risk reduction/technology development efforts - Conduct trade studies to evaluate system alternatives, affordability, end-to-end system concepts that will study a weaponized integrated system complete with system architecture, and industrial manufacturing readiness - Continue aerodynamic and weapon risk reduction and technology maturation efforts through ground and wind tunnel tests to improve modeling and simulation capabilities and technology readiness, assessing readiness to conducted integrated penetrator component technology tests - Continue Systems Engineering support to CPGS program and acquisition. Apply support to Integrated Product Teams to facilitate judgments of feasibility and risks of all CPGS concepts. Continue to support outreach and strategic messaging to entire CPGS community and COCOMs - Continue to support test range infrastructure for long term use - Continue studies for future system development to examine cost, lethality, aerodynamic and thermal characteristics, command and control, operational aspects, and technology integrated product teams ***FY 2018 to FY 2019 Increase/Decrease Statement:*** All of FY2019 funding will be allotted to P166, Alternate Re-Entry System/Warhead Engineering.			
Accomplishments/Planned Programs Subtotals	153.810	197.440	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604165D8Z / *Prompt Global Strike Capability Development*	**Project (Number/Name)** 166 / *Alternate Re-Entry System/Warhead Engineering*

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604165D8Z / *Prompt Global Strike Capability Development*	**Project (Number/Name)** 166 / *Alternate Re-Entry System/Warhead Engineering*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Alternative Reentry System/Warhead Engineering and Delivery Vehicle Options/ Development	Allot	Army Space and Missile Defense Center/Navy Strategic Systems Program : Huntsville AL/Washington DC	562.701	153.810		197.440		0.000		0.000		0.000	Continuing	Continuing	-
		Subtotal	562.701	153.810		197.440		0.000		0.000		0.000	Continuing	Continuing	N/A

Remarks

NA

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	562.701	153.810		197.440		0.000		0.000		0.000	Continuing	Continuing	N/A

Remarks

NA

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604165D8Z / *Prompt Global Strike Capability Development*	**Project (Number/Name)** 166 / *Alternate Re-Entry System/Warhead Engineering*

P166 CPGS Flight Experiment 1 (order 10)

	FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Planning/Design																								
Fabrication/Integration	■	■	■	■																				
Test Execution					■	■	■	■																
Post Test Analysis & Reporting					■	■	■	■	■	■	■	■												

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604165D8Z / *Prompt Global Strike Capability Development*	**Project (Number/Name)** 166 / *Alternate Re-Entry System/Warhead Engineering*

P166 CPGS Flight Experiment 2 (order 20)

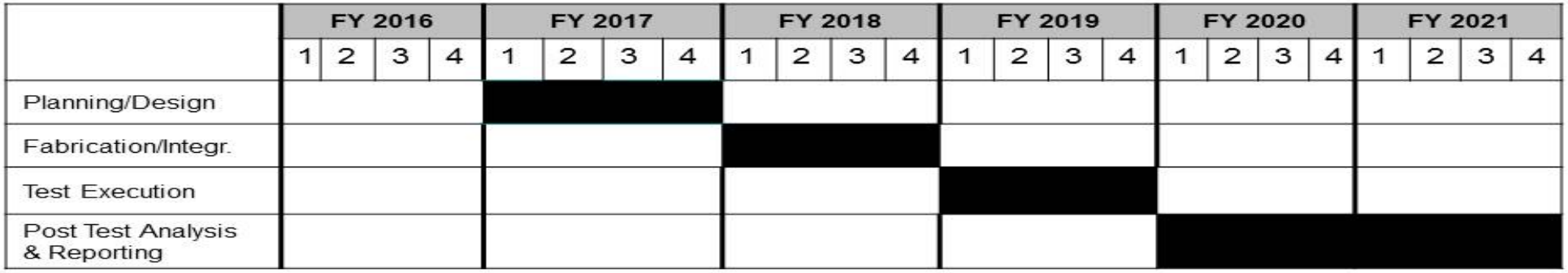

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604165D8Z / *Prompt Global Strike Capability Development*	**Project (Number/Name)** 166 / *Alternate Re-Entry System/Warhead Engineering*

P166 Alternate Re-Entry System/Warhead Engineering

	FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Trade Studies, Ground Testing and Systems Engineering																								

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604165D8Z / *Prompt Global Strike Capability Development*	**Project (Number/Name)** 166 / *Alternate Re-Entry System/Warhead Engineering*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Navy Flight Experiment 1	1	2017	4	2017
Navy Flight Experiment 2	4	2017	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604165D8Z / *Prompt Global Strike Capability Development*	Project (Number/Name) 167 / *Test Range Development*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
167: *Test Range Development*	62.446	2.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Program Element (PE) was established to develop and demonstrate technologies and applications that advance conventional prompt global strike (CPGS) warfighting capabilities. The program uses a national team with participation from the Services, Agencies, national research laboratories, and further involvement of industry. Program emphasis is on demonstrating component and subsystem technology maturity with risk reduction initiatives highlighted by flight tests. The program funds the design, development, and experimentation of boosters, payload delivery vehicles (PDVs), non-nuclear warheads, thermal protection systems, guidance systems, test range modernization, and mission planning and enabling capabilities. To support these development activities, the program procures modeling and simulation capabilities, ground testing, command and control interfaces, test range support, and launch system infrastructure. Additionally, expert resources address strategic policy and treaty issues. Program timing will be driven by the outcome of flight and ground test events as well as DoD budgets. In FY 2018, as in previous years, funding for the individual Service initiatives will be contingent upon their abilities to execute and achieve satisfactory progress towards project goals as determined by the CPGS portfolio manager.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Test Range Development ***Description:*** This sub-project will complete design, assembly and delivery of power/telemetry subsystems; assemble and integrate components to check command/control and verify range safety functions.	2.000	-	-
Accomplishments/Planned Programs Subtotals	2.000	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604165D8Z / *Prompt Global Strike Capability Development*	**Project (Number/Name)** 167 / *Test Range Development*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test Range Development	Allot	Army Space and Missile Defense Center/Navy Strategic Systems Program : Huntsville AL/Washington DC	62.446	2.000		-		-		-		-	Continuing	Continuing	N/A
		Subtotal	62.446	2.000		-		-		-		-	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	62.446	2.000		0.000		-		-		-	Continuing	Continuing	N/A

Remarks

NA

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604165D8Z / *Prompt Global Strike Capability Development*	**Project (Number/Name)** 167 / *Test Range Development*

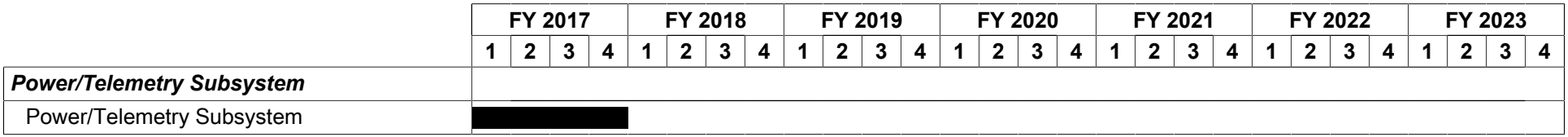

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604165D8Z / *Prompt Global Strike Capability Development*	**Project (Number/Name)** 167 / *Test Range Development*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Power/Telemetry Subsystem				
Power/Telemetry Subsystem	1	2017	4	2017

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604165D8Z / *Prompt Global Strike Capability Development*	Project (Number/Name) 168 / *OSD CPGS Studies*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
168: *OSD CPGS Studies*	74.388	3.290	3.309	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Program Element (PE) was established to develop and demonstrate technologies and applications that advance conventional prompt global strike (CPGS) warfighting capabilities. The program uses a national team with participation from the Services, Agencies, national research laboratories, and further involvement of industry. Program emphasis is on demonstrating component and subsystem technology maturity with risk reduction initiatives highlighted by flight tests. The program funds the design, development, and experimentation of boosters, payload delivery vehicles (PDVs), non-nuclear warheads, thermal protection systems, guidance systems, test range modernization, and mission planning and enabling capabilities. To support these development activities, the program procures modeling and simulation capabilities, ground testing, command and control interfaces, test range support, and launch system infrastructure. Additionally, expert resources address strategic policy and treaty issues. Program timing will be driven by the outcome of flight and ground test events as well as DoD budgets. In FY 2018, as in previous years, funding for the individual Service initiatives will be contingent upon their abilities to execute and achieve satisfactory progress towards project goals as determined by the CPGS portfolio manager.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: OSD CPGS Studies	3.290	3.309	-
Description: This sub-project supports emergent CPGS study efforts. In addition, it supports the application of the Prompt Global Strike Analysis of Alternatives (AoA) results and any AoA updates; requirements development; CPGS basing alternatives; analysis and defining of mission enabling technologies; and measures to avoid conventional missile launch ambiguity with nuclear weapon systems. Finally, it supports administrative activities associated with the management and execution of this Program Element.			
FY 2018 Plans: - Continue cost assessment studies for future system development - Continue lethality and warhead fuzing studies - Continue thermal and aerodynamic modeling and simulation - Continue senior steering group panel review and strategic messaging activities - Conduct command, control, and operational overlay exercises in parallel with CPGS flight tests - Continue program management reviews, ground test status and planning summits, and administrative support of ground test integrated product teams			
FY 2018 to FY 2019 Increase/Decrease Statement: All of FY2019 funding will be allotted to P166, Alternate Re-Entry System/Warhead Engineering.			
Accomplishments/Planned Programs Subtotals	3.290	3.309	-

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604165D8Z / *Prompt Global Strike Capability Development*	**Project (Number/Name)** 168 / *OSD CPGS Studies*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604165D8Z / *Prompt Global Strike Capability Development*	**Project (Number/Name)** 168 / *OSD CPGS Studies*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
OSD CPGS Studies	Allot	Army Space and Missile Defense Center/Navy Strategic Systems Program : Huntsville AL/Washington DC	74.388	3.290		3.309		-		-		-	Continuing	Continuing	-
		Subtotal	74.388	3.290		3.309		-		-		-	Continuing	Continuing	N/A

Remarks

NA

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	74.388	3.290		3.309		-		-		-	Continuing	Continuing	N/A

Remarks

NA

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604165D8Z / *Prompt Global Strike Capability Development*	**Project (Number/Name)** 168 / *OSD CPGS Studies*

	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
	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
Emergent CPS Studies																												
Emergent CPS Studies	[redacted]																											

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604165D8Z / *Prompt Global Strike Capability Development*	**Project (Number/Name)** 168 / *OSD CPGS Studies*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Emergent CPS Studies				
Emergent CPS Studies	1	2017	4	2018

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604771D8Z / *Joint Tactical Information Distribution System (JTIDS)*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	85.379	15.691	15.358	19.503	-	19.503	26.514	16.003	14.527	14.793	Continuing	Continuing
771: *Link-16 Tactical Data Link (TDL) Transformation*	81.454	11.196	12.358	9.503	-	9.503	13.940	11.287	11.527	11.793	Continuing	Continuing
105: *Cyber Capability & Platform Resilience*	3.925	4.495	3.000	10.000	-	10.000	12.574	4.716	3.000	3.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

Mission Description and Budget Item Justification: The JTIDS program supports collaborative efforts to achieve strategy-driven capability development spanning the suite of Department enablers to include Communications and Networks, Cyber, Command and Control (C2), Non-Intel Space and Business Systems. These efforts include conducting mission informed capability-based analysis; portfolio assessments to include analyzing modernization trends that result in the development of roadmaps or business area strategies that support balanced investment decisions; and monitoring and assessing Major Defense Acquisition Programs(MDAPs) , Major Automated Information Systems (MAIS), and defense Business Systems in a capability portfolio context. Activities in the JTIDS project are divided into four areas: (1) mission informed capability-based analysis; (2) Interoperability & Integration; (3) roadmap development and support to business area strategies; and (4) support tools and guidance. JTIDS also enables cross-department collaboration to enable enterprise-wide approaches. This includes: (1) vertical and horizontal integration activities within the Department and with the interagency where appropriate; (2) engaging in a coordinated portfolio-based approach to planning, programming, budgeting and execution; and (3) reform efforts at the legislative, governance, management and execution levels. JTIDS is focused on capabilities-based portfolio management of the Department's key enablers, thus there are many shared equities with in ASD(A) and across OSD. To fully meet mission need the JTIDS program supports extensive collaboration with required alliances and with other OSD PSA's for Communications and Networks, C2, Non-Intel Space and Business Systems.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	16.288	15.358	13.953	-	13.953
Current President's Budget	15.691	15.358	19.503	-	19.503
Total Adjustments	-0.597	0.000	5.550	-	5.550
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.579	-			
• SBIR/STTR Transfer	-	-			
• FFRDC Reduction	-0.018	-	-	-	-
• Economic adjustment	-	-	-0.160	-	-0.160
• Other Program Adjustments	-	-	-4.290	-	-4.290

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense					Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 5: *System Development & Demonstration (SDD)*		**R-1 Program Element (Number/Name)** PE 0604771D8Z / *Joint Tactical Information Distribution System (JTIDS)*			
• Program Adjustment	-	-	10.000	-	10.000

Change Summary Explanation

FY19 Program Adjustment - Funds added to conduct cyber vulnerability assessments of critical DoD infrastructure in accordance with direction in Section 1650 of the FY 2017 NDAA.

Funds rephase from FY19 to FY20 and FY21 to aid in increasing program execution rates closer to the DoD benchmarks.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604771D8Z / *Joint Tactical Information Distribution System (JTIDS)*	Project (Number/Name) 771 / *Link-16 Tactical Data Link (TDL) Transformation*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
771: *Link-16 Tactical Data Link (TDL) Transformation*	81.454	11.196	12.358	9.503	-	9.503	13.940	11.287	11.527	11.793	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Funds will be used to provide technical and systems engineering, acquisition assistance and management oversight of critical Command, Control, Communications (C3), non-intelligence space, and cyber programs, projects and activities to maximize the return on investment in information technology resources and assist programs to be successful as the Department migrates to a structure implementing Joint Information Environment (JIE) technical standards. The Joint Tactical Information Distribution System (JTIDS) funding fulfills the Department's requirement for joint and combined network-enabled tactical data link (TDL) capabilities, netcentric/JIE communications which comply to standards for interoperability and seamless integration with joint communication systems as well as the mission functionality that uses these systems. Also, these funds underwrite assessment of design and procurement and execution correction of critical information systems from initial definition through development to successfully delivered configurations. Funds provide expertise supporting technical oversight of design, performance and cost parameters of key Defense IT and National Security Systems and supporting infrastructure including critical cyber assessments. Resources in this program fund architecture design and development, portfolio management, enterprise-wide systems engineering and operational impact analyses related to C3, non-intelligence space, and cyber activities. Typical deliverables associated with the instantiation of net-centric capabilities for these mission areas include network and vulnerability assessments, migration plans, investment strategies, architectures, roadmaps and technical guidance documentation.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Common Joint Tactical Information Initiatives	11.196	12.358	9.503
FY 2018 Plans: - Common Data Link (CDL) Principal Staff Assistant: Continue to coordinate with CDL Executive Agent (EA) to develop and maintain a technology roadmap and terminal database to improve interoperability, configuration management, and focused technology investments. Continue implementation and oversight of an enterprise transition strategy to modernize DoD ISR waveforms to converge on a DoD standard for tactical ISR communications. Assess CDL EA plans to invest in a Common Development Environment to improve development cycles leading to new capabilities for the warfighter. Update CDL technology development roadmap to reflect current trends in technology that can add enhanced capabilities to CDL systems. Continue planning and conduct of CDL SRP and IPT meetings to develop and refine the CDL investment portfolio and to identify strategic ISR communications issues the DoD will face in the future. Conduct analysis of Airborne ISR communications transport infrastructure in coordination with Joint Staff, Services and Combatant Commands in order to identify a way ahead for establishing an effective/efficient global enterprise capability. Continue efforts to reduce CDL barriers to competition begun in FY17. - Acquisition Management and Oversight: Provided technical assistance in developing and applying IT related acquisition policy, including updates to DoD Series 5000 necessitated by changes in statue, regulation and management direction. Provided			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604771D8Z / *Joint Tactical Information Distribution System (JTIDS)*	**Project (Number/Name)** 771 / *Link-16 Tactical Data Link (TDL) Transformation*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
technical assessments and programmatic recommendations across DASD functional areas to address interoperability and work early in the systems engineering process to address risk areas. - FAB-T: Support IOT&E execution. Work to assure the program has a successful ground transportable and airborne new antenna production decision. Continue to support PNVC integration and test. Provide risk assessments of system integration into the various airborne, ground fixed and ground transportable systems prior to installation. Support implementation of additional reliability testing to provide increased data for program acquisition and operational decisions. - Wideband SATCOM AoA: Conduct AoA plan assessing material solutions for WGS replenishment and for supporting other traditional commercial supplied users considering life-cycle cost, performance, suitability, operational effectiveness, and resiliency. Support implementation and execution of the AoA plan including Senior Advisory Group meetings and evaluation of the space and control segments with associated user terminals for contested and benign operating environments. - Evolved AEHF / AEHF: Provide programmatic analysis, technical reviews, and assessments of the Evolved AEHF and AEHF programs to reduce development, integration, and procurement risks. Provide risk assessments as the program continues to launch spacecraft and improve the Mission Planning Element. Work to support efforts for the Evolved AEHF and assess implementation of XDR and PTW waveforms on new satellite payload and bus. - Mid-Term Polar SATCOM (MPS) / EPS: Provide programmatic analysis, technical reviews, and assessments of the MPS and EPS programs to reduce development, integration, and procurement risks. Assess risk as the TT&C system is integrated and tested prior to operations. Work to support and assess efforts for the follow-on MPS system, whether a hosted payload or a free flyer National Leadership Command Capability (NLCC): Continue in lead role as primary action office for AT&L in his role as co-chair of the Council on Oversight of the National Leadership Command, Control, and Communications System (CONLC3S). Work directly with the Executive Secretariat (DOD CIO) to oversee all aspects of preparation and conduct of CONLC3S meetings, as well as the EMB, SSG, and subordinate working groups that prepare/tee up decisions for the CONLC3S and execute assigned actions. Continue as primary AT&L action office to respond to NLCC-related congressionally directed actions. Continue as primary AT&L action office for NLCC-related GAO and DoD IG audits. Serve as primary AT&L representative to NLCC-related studies, analyses, & policy updates. Also lead review process for any NLCC related documents. - ISPAN Increment 4: Continue to provide acquisition oversight to assure successful FDD. Support Production & Deployment execution to assure successful Full Deployment. - ISPAN Increment 5: Continue to support Technology Maturation and Risk Reduction (MRR) execution to assure successful E&MD decision. - MUOS capable terminals: Provide analysis, technical assessments and fielding reviews for implementing the MUOS capability. Work to support the certification of ground, maritime and airborne terminals, and testing required to enable operational authorizations.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604771D8Z / *Joint Tactical Information Distribution System (JTIDS)*	**Project (Number/Name)** 771 / *Link-16 Tactical Data Link (TDL) Transformation*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- Joint Tactical Networking Center (JTNC) JTRS: Provide technical and programmatic analysis to support the Defense Acquisition Executive's role as the co-chair of the JTNC Board of Directors (BoD). Facilitate and coordinate staffing and approval of the annual JTNC Management Plan. Provide Secretariat functions for the JTNC BoD. - All former JTRS(HMS, MNVR, AMF)Programs - Provide assessments of program compliance with IT related acquisition policy, in accordance with DoD Series 5000 and applicable senior management direction. Assess readiness for major acquisition program milestone reviews, to include adequate documentation of compliance with statute/regulation/policy associated with acquisition program oversight. Provide programmatic recommendations regarding cost/schedule/performance tradeoffs. - Mid-Tier Networking Vehicular Radio (MNVR) JTRS: Assess the MNVR program to include the risk of vendor selected radios (Modified Non-Developmental Item). Conduct independent technical reviews and recommend program performance improvement options to meet cost, schedule and performance objectives. Provide a technical assessment of full and open competition process for MNVR radios. - Provide assessments of DoD Business System programs with related acquisition policy, in accordance with DoD Series 5000 and applicable senior management direction. Assess readiness for major acquisition program milestone reviews, to include adequate documentation of compliance with statute/regulation/policy associated with acquisition program oversight. Provide programmatic recommendations regarding cost/schedule/ performance tradeoffs. - Ground Tactical Networks Advanced Capabilities: Mature narrowband dismounted communications capability with radio hardware prototype, robust modeling and simulation, and reusable waveform software code. Form industry engagement to promote transition into non-developmental item radios. - Integrated Electromagnetic Spectrum Operations (EMSO): Track implementation of iEMSO strategy in radio and EW device development plans. Assess and down-select technical interoperability and architectural approaches. Ensure adequate funding and testing to assess maturity of solutions. Develop science and technology roadmap to synchronize transition of key technologies to programs of record for spectrum-dependent systems. FY17 work will focus will focus on selected sensor and electronic warfare systems and continue work on communications systems. - Electronic Warfare: Maintain situational awareness of and contribute to evolving DoD and Service electronic warfare strategy, and in conjunction with Electromagnetic Spectrum Operations efforts, assist in coordinating development of new and integrated enterprise capabilities. - Tactical Data Link Modernization: Provide OSD oversight and cross-Service coordination of Tactical Data Link (TDL) modernization issues funded during FY16 Third Offset (3OS) Issue Team ($200M over FYDP, starting FY18). Identify areas where additional risk reduction activities are necessary in order to meet CAPE and DMAG guidance/schedule. Employ analytic infrastructure developed in prior years to provide Mission Integration Management, with a focus on tactical line of sight aerial communications. Track and assess Technology Readiness Level (TRL) maturity progress of Link 16 capability improvements for Multi-function Information Distribution System (MIDS JTRS) terminals (4th Gen aircraft), Communications, Navigation & Identification (CNI) terminal in F-35, and Weapons Data Link (WDL) radios for testing in late FY18 and FY19 on targeted platforms and terminals. Assess MADL waveform documentation delivered to the government and identify (with government and industry			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604771D8Z / *Joint Tactical Information Distribution System (JTIDS)*	**Project (Number/Name)** 771 / *Link-16 Tactical Data Link (TDL) Transformation*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
partners) key enabling improvements for a Government controlled technical baseline that enables future LO waveform capability. Assess TDL network design and interoperability support infrastructure gaps that are preventing fully realized TDL networks across DoD and Coalition partners. Identify any necessary bridging activities necessary to support any POM19 investments in Low Observable communications that resulted from FY17 Program Review. - Space Ops: Conduct SATOPS Modernization technical assessments; provide technical Oversight/AFSCN Modernization Implementation; conduct AFSCN Event Driven Net Centric Review/Technical Assessment. - PNT Programs Technical Assessments: Continue OIPT leadership role. Develop and implement Annual GPS Enterprise Review to verify readiness of GPS III, MGUE, and OCX programs to progress to next phase of the acquisition process. Ensure synchronization of the three programs to meet the direction of the DAE. Conduct deep dive technical analyses to understand all phases of the GPS enterprise programs and predecessor programs that are part of the GPS Enterprise. Review PNT programs for data strategies, systems engineering, risks and mitigations in support of milestone decisions. Initiate and conduct studies to expedite fielding and support of M Code capability for forces in the field. Conduct Nunn-McCurdy Reviews of program that have critically breached APB cost parameters and prepare for DAE Certification. Report results to congress after DAE Certification and ensure regular reporting is conducted IEW public law. Conduct reviews of innovative acquisition efforts intended to reduce overall satellite cost through payload and spacecraft competition. Conduct Quarterly OCX Reviews at USD/SECAF/CEO level to ensure OCX maintains progress towards fielding user required capabilities. Develop and implement contingency plans to ensure constellation command and control management and enable early M-Code availability. - PNT Portfolio Management: Continue implementation of GPSEM/PNT Assurance Investment Strategy and Roadmap, ensuring AoA recommendations are addressed. Continue to support major program milestones and internal OSD reviews such as Strategic Portfolio Reviews, DMAGs, etc. - Joint C2 Portfolio Management: Support development, integration and test activities across the Services, Agencies and Combatant Commands and deliver the FY17-21 version of the Joint C2 Sustainment and Modernization Plan. - C2 Data: Provide technical expertise for ensuring C2 data are visible, accessible, understandable, trustable and interoperable. Provide technical assessment and assistance for implementation of National Information Exchange Model (NIEM)-based information exchanges across the DoD. Update the C2 Authoritative Data Source roadmap and update C2 data architecture. - Joint C2 Architecture: Provided technical expertise for the update the Joint C2 Architecture to guide Joint C2 capability area development activities across the Services, Agencies and Combatant Commands. Refreshed the JC2 Terms of Reference to make it a viable and productive governance framework. - Conducted a successful Business Case Analysis (BCA) on the Global Command and Control System – Joint (GCCS-J) modernization program. The positive BCA Return on Investment influenced garnering critically needed modernization funding. - Friendly Force Tracking/ Combat Identification: Provide technical assessment, assistance and recommendations for achieving Mode 5 IFF IOC and FOC. Provide technical support to DoD implementation of Mode 5 including supporting spectrum certification and assignment.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604771D8Z / *Joint Tactical Information Distribution System (JTIDS)*	**Project (Number/Name)** 771 / *Link-16 Tactical Data Link (TDL) Transformation*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- Began an Analysis of Alternatives on the Coalition Information Sharing Environment. This AT&L-led independent 18-month study will analyze and recommend a preferred alternative to determine the most effective and efficient means for the Department of Defense to provide a coalition network and services in support of Mission Partner operations. – Acquisition Management: Provide technical assistance in developing related acquisition policy, including updates to DoD Series 5000 necessitated by changes in statue, regulation and management direction			
FY 2019 Plans: - Common Data Link (CDL) Principal Staff Assistant: Continue to coordinate with CDL Executive Agent (EA) to develop and maintain a technology roadmap and terminal database to improve interoperability, configuration management, and focused technology investments. Continue implementation and oversight of an enterprise transition strategy to modernize DoD ISR waveforms to converge on a DoD standard for tactical ISR communications. Update CDL technology development roadmap to reflect current trends in technology that can add enhanced capabilities to CDL systems. Continue planning and conduct of CDL SRP and IPT meetings to develop and refine the CDL investment portfolio and to identify strategic ISR communications issues the DoD will face in the future. Conduct analysis of Airborne ISR communications transport infrastructure in coordination with Joint Staff, Services and Combatant Commands in order to identify a way ahead for establishing an effective/efficient global enterprise capability. Conduct annual CDL enterprise modernization analysis and review Service PPBE submissions to assess enterprise migration to Bandwidth Efficient CDL by 2023. Continue to promote open system development solutions that expand the vendor base and allow increased competition and innovation. Expand the CDL Reference Implementation Laboratory concept of a government owned technical baseline while assessing a Common Development Environment that encourages rapid develop, testing, and fielding of new capabilities. - Acquisition Management and Oversight: Provided technical assistance in developing IT related acquisition policy, including updates to DoD Series 5000 necessitated by changes in statue, regulation and management direction. Provided technical assessments and programmatic recommendations across DASD functional areas to address interoperability gaps and work early in the systems engineering. - FAB-T: Support IOT&E execution. Work to assure the program has a successful LRIP-2 decision. Continue to support PNVC integration and test. Provide risk assessments of system integration into the various airborne, ground fixed an ground transportable systems prior to installation. Support implementation of additional reliability testing to provide increased data for program acquisition and operational decisions. - Wideband SATCOM AoA: Conduct AoA plan assessing material solutions for WGS replenishment and for supporting other traditional commercial supplied users considering life-cycle cost, performance, suitability, operational effectiveness, and resiliency. Support implementation and execution of the AoA plan including Senior Advisory Group meetings and evaluation of the space and control segments with associated user terminals for contested and benign operating environments.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604771D8Z / *Joint Tactical Information Distribution System (JTIDS)*	**Project (Number/Name)** 771 / *Link-16 Tactical Data Link (TDL) Transformation*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- Evolved AEHF / AEHF: Provide programmatic analysis, technical reviews, and assessments of the Evolved AEHF and AEHF programs to reduce development, integration, and procurement risks. Provide risk assessments as the program continues to launch spacecraft and improve the Mission Planning Element. Work to support efforts for the Evolved AEHF and assess implementation of XDR and PTW waveforms on new satellite payload and bus. - Mid-Term Polar SATCOM (MPS) / EPS: Provide programmatic analysis, technical reviews, and assessments of the MPS and EPS programs to reduce development, integration, and procurement risks. Assess risk as the TT&C system is integrated and tested prior to operations. Work to support and assess efforts for the follow-on MPS system, whether as a hosted payload or a free flyer. - MUOS capable terminals: Support FOT&E execution. Provide analysis, technical assessments and fielding reviews for implementing the MUOS capability. Work to support the certification of ground, maritime and airborne terminals, and testing required to enable operational authorizations. - Joint Tactical Networking Center (JTNC): Provide technical and programmatic analysis to support the Defense Acquisition Executive's role as the co-chair of the JTNC Board of Directors (BoD). Provide Secretariat functions for the JTNC BoD. - All former JTRS(HMS, MNVR, AMF, JTN)Programs – Upon request, provide technical expertise and recommendations to facilitate program compliance with IT related acquisition policy, in accordance with DoD Series 5000 and applicable Milestone Decision Authority direction. Provide programmatic recommendations regarding cost/schedule/performance tradeoffs and application of evolving acquisition policies, based on lessons observed in oversight of acquisition programs across the Department. - Mid-Tier Networking Vehicular Radio (MNVR): Assess the MNVR program's mitigation of risks associated with vendor selected radios (Modified Non-Developmental Item). Conduct independent technical reviews and recommend program performance improvement options to meet cost, schedule and performance objectives. Provide a technical assessment of the Army's planned implementation of MNVR radios as the mid-tier of a ground tactical architecture. Provide technical expertise and assistance with analysis of and planning for other potential mid-tier architectures and/or waveform solutions. - Provide assessments of DoD Business System programs with related acquisition policy, in accordance with DoD Series 5000 and applicable senior management direction. Assess readiness for major acquisition program milestone reviews, to include adequate documentation of compliance with statute/regulation/policy associated with acquisition program oversight. Provide programmatic recommendations regarding cost/schedule/ performance tradeoffs.			

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Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604771D8Z / *Joint Tactical Information Distribution System (JTIDS)*	**Project (Number/Name)** 771 / *Link-16 Tactical Data Link (TDL) Transformation*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- Ground Tactical Networks Advanced Capabilities: Mature narrowband dismounted communications capability with radio hardware prototype, robust modeling and simulation, and reusable waveform software code. Form industry engagement to promote transition into non-developmental item radios. - Integrated Electromagnetic Spectrum Operations (EMSO): Track implementation of iEMSO strategy in radio and EW device development plans. Assess and down-select technical interoperability and architectural approaches. Ensure adequate funding and testing to assess maturity of solutions. Develop science and technology roadmap to synchronize transition of key technologies to programs of record for spectrum-dependent systems. FY17 work will focus will focus on selected sensor and electronic warfare systems and continue work on communications systems. - Electronic Warfare: Maintain situational awareness of and contribute to evolving DoD and Service electronic warfare strategy, and in conjunction with Electromagnetic Spectrum Operations efforts, assist in coordinating development of new and integrated enterprise capabilities. - Tactical Data Link Modernization: Provide OSD oversight and cross-Service coordination of Tactical Data Link (TDL) modernization issues funded during FY16 and FY17 Program Reviews. Identify areas where additional risk reduction activities are necessary in order to meet CAPE and DMAG guidance/schedule. Track and assess testing of Link 16 capability improvements in Multi-function Information Distribution System (MIDS-J) terminals (4th Gen aircraft), Communications, Navigation & Identification (CNI) terminal in F-35, emerging 6th Gen aircraft concepts, and Weapons Data Link (WDL) radios. Assess transferability of these improvements to other omni-directional TDLs, such as TTNT. Begin establishing an improved enterprise governance model for Tactical Data Links. Continue to perform oversight and joint acquisition integration of Service implementation of Congressionally directed (FY17 NDAA) focus on a modular open system approach (MOSA), to the maximum extent practicable for TDLs, in synchronization with CDL, and other appropriate capabilities. Identify MADL evolution technology development needs for further funding to enable transition to F-35 and other platforms, and begin establishment of a Government Controlled Technical Baseline for MADL. Assess modeling and simulation infrastructure and currency with adversary threat emitters to improve investment decisions on TDL improvements. - Space Ops: Conduct SATOPS Modernization technical assessments; provide technical Oversight/AFSCN Modernization Implementation; conduct AFSCN Event Driven Net Centric Review/Technical Assessment. - PNT Programs Technical Assessments: Continue OIPT leadership role. Develop and implement Annual GPS Enterprise Review to verify readiness of GPS III, MGUE, and OCX programs to progress to next phase of the acquisition process. Ensure synchronization of the three programs to meet the direction of the DAE. Conduct deep dive technical analyses to understand all phases of the GPS enterprise programs and predecessor programs that are part of the GPS Enterprise. Review PNT programs			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604771D8Z / *Joint Tactical Information Distribution System (JTIDS)*	**Project (Number/Name)** 771 / *Link-16 Tactical Data Link (TDL) Transformation*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
for data strategies, systems engineering, risks and mitigations in support of milestone decisions. Initiate and conduct studies to expedite fielding and support of M Code capability for forces in the field. Conduct Nunn-McCurdy Reviews of program that have critically breached APB cost parameters and prepare for DAE Certification. Report results to congress after DAE Certification and ensure regular reporting is conducted IEW public law. Conduct reviews of innovative acquisition efforts intended to reduce overall satellite cost through payload and spacecraft competition. Conduct Quarterly OCX Reviews at USD/SECAF/CEO level to ensure OCX maintains progress towards fielding user required capabilities. Develop and implement contingency plans to ensure constellation command and control management and enable early M-Code availability. - PNT Portfolio Management: Continue implementation of GPSEM/PNT Assurance Investment Strategy and Roadmap, ensuring AoA recommendations are addressed. Continue to support major program milestones and internal OSD reviews such as Strategic Portfolio Reviews, DMAGs, etc. - National Leadership Command Capability (NLCC): Continue in lead role as primary action office for AT&L in his role as co-chair of the Council on Oversight of the National Leadership Command, Control, and Communications System (CONLC3S). Work directly with the Executive Secretariat (DOD CIO) to oversee all aspects of preparation and conduct of CONLC3S meetings, as well as the EMB, SSG, and subordinate working groups that prepare/tee up decisions for the CONLC3S and execute assigned actions. Continue as primary AT&L action office to respond to congressionally-directed actions. Continue as primary AT&L representative to NLCC-related studies, analysises, and policy updates. Also lead review process for any NLCC related documents. - ISPAN Increment 4: Continue to provide acquisition oversight to assure successful FDD. Support Production & Deployment execution to assure successful Full Deployment. - ISPAN Increment 5: Continue to provide acquisition oversight to support E&MD execution. - Joint C2 Portfolio Management: Support development, integration and test activities across the Services, Agencies and Combatant Commands and deliver the FY17-21 version of the Joint C2 Sustainment and Modernization Plan. - C2 Data: Provide technical expertise for ensuring C2 data are visible, accessible, understandable, trustable and interoperable. Provide technical assessment and assistance for implementation of National Information Exchange Model (NIEM)-based information exchanges across the DoD. Update the C2 Authoritative Data Source roadmap and update C2 data architecture. - Joint C2 Architecture: Provided technical expertise for the update the Joint C2 Architecture to guide Joint C2 capability area development activities across the Services, Agencies and Combatant Commands. Refreshed the JC2 Terms of Reference to make it a viable and productive governance framework. - Conducted a successful Business Case Analysis (BCA) on the Global Command and Control System – Joint (GCCS-J) modernization program. The positive BCA Return on Investment influenced garnering critically needed modernization funding.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604771D8Z / *Joint Tactical Information Distribution System (JTIDS)*	**Project (Number/Name)** 771 / *Link-16 Tactical Data Link (TDL) Transformation*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- Friendly Force Tracking/ Combat Identification: Continue to provide technical assessment, assistance and recommendations for achieving Mode 5 IFF IOC and FOC. Provide technical support to DoD improvement of the Mode 5 IFF Standards and practices. Continue to engage the FAA and NTIA in developing an IFF impact prediction model to speed the platform certification and frequency process and reduce cost. Continue to engage with the FAA, NTIA, and Joint Staff in facilitating a demonstration of Reverse IFF (RIFF) during BOLD QUEST 18.2. Continue to engage with NATO to foster unity in certifying the interoperability of IFF equipment. Also to apply the technical expertise of the U.S. in improving the Combat Identification capability as the opportunity arises. - Continue Analysis of Alternatives on the Coalition Information Sharing Environment. This AT&L-led independent 18-month study will analyze and recommend a preferred alternative to determine the most effective and efficient means for the Department of Defense to provide a coalition network and services in support of Mission Partner operations. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease in funding impacts the DASDs ability to conduct studies and analysis addressing complex command and communications issues.			
Accomplishments/Planned Programs Subtotals	11.196	12.358	9.503

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

In executing JTDL tasking, existing fixed-price and cost-plus contracts will be utilized.
- Program reviews in support of the JCIDS, acquisition and PPBE processes.

E. Performance Metrics

Enterprise-Wide Alignment: Accelerate DoD information age transformation to increase the effectiveness and efficiency of the warfighting, intelligence and business missions.
Measures:
- Timely development and issuance of policy and guidance
- Instantiation of enterprise-wide system engineering for the Joint Information Environment (JIE)

Portfolio Management: Provide for the timely and effective delivery of key Net-Centric capabilities through portfolio management of associated technology development and Major Defense Acquisition Programs (MDAPS) and Major Automated Information Systems (MAIS).
Measures:

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
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- Key milestones completed for major net-centric acquisitions
- Number of major systems successfully completing net-centric critical performance reviews

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604771D8Z / *Joint Tactical Information Distribution System (JTIDS)*	**Project (Number/Name)** 771 / *Link-16 Tactical Data Link (TDL) Transformation*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Link-16 Tactical Data Link (TDL) Transformation	C/TBD	OUSD(AT&L)/ OASD(A)/ DASD(C3CB) : Pentagon	81.454	11.196		12.358		9.503		-		9.503	-	-	-
		Subtotal	81.454	11.196		12.358		9.503		-		9.503	-	-	N/A

Remarks

NA

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	81.454	11.196		12.358		9.503		-		9.503	-	-	N/A

Remarks

Resources will be used to provide technical, systems engineering and acquisition management oversight of programs, projects and activities to maximize the Department's return on investment in information technology resources and to affect a comprehensive approach for assessing and procuring critical information systems from initial design, through development to capability delivery in support of improved weapons systems performance and military operations.

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604771D8Z / *Joint Tactical Information Distribution System (JTIDS)*	**Project (Number/Name)** 771 / *Link-16 Tactical Data Link (TDL) Transformation*

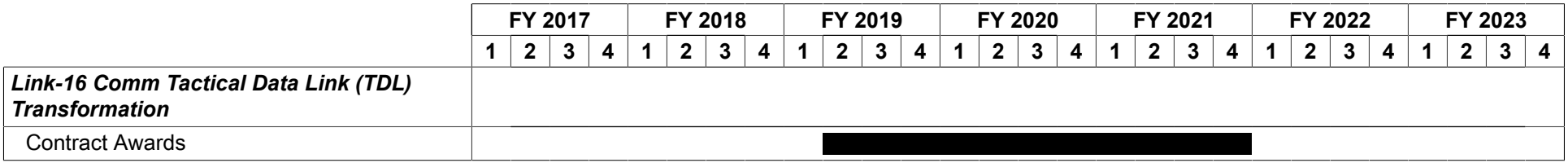

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604771D8Z / *Joint Tactical Information Distribution System (JTIDS)*	**Project (Number/Name)** 771 / *Link-16 Tactical Data Link (TDL) Transformation*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Link-16 Comm Tactical Data Link (TDL) Transformation				
Contract Awards	2	2019	4	2021

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604771D8Z / *Joint Tactical Information Distribution System (JTIDS)*	Project (Number/Name) 105 / *Cyber Capability & Platform Resilience*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
105: *Cyber Capability & Platform Resilience*	3.925	4.495	3.000	10.000	-	10.000	12.574	4.716	3.000	3.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Provides resources for developmental acquisition support and management (to include the Cyber Investment and Management Board (CIMB)) oversight of Cyber capabilities as the Department conceives, develops, and rapidly fields cyber capabilities for Cyberspace Operations and the instantiation of cyber resilient platforms and weapons systems for priority kinetic and non-kinetic missions. The CIMB was established in 2012 in response to the FY2011 NDAA Section 933, where DoD was directed to provide a “strategy for the rapid acquisition of cyber capabilities, for cyber warfare for USCC and the Cyber Service components of the military departments. USD(AT&L) is responsible for compliance with the FY2011 NDAA and Chairs the CIMB.

Funds provide technical, systems engineering, trend analysis, and oversight of programs, projects and activities developing cyber capabilities to maximize the Department's return on investment of cyberspace resources and effect a comprehensive approach for assessing, procuring, and sustaining critical cyber capabilities and cyber resilient systems and platforms from initial design, through development to capability delivery in support of weapons systems performance and military operations. Additionally, these funds will provide systems analyses, portfolio management, executive support of CIMB, enterprise wide systems engineering and operational impact analyses related to Cyber capabilities and ensuring cyber resilience within systems and platforms. Resources will also be used to provide expertise required for exercising technical direction over design, performance, cost parameters, determining and mitigating cyber risks of key systems and their dependencies. The goal of this funding is to assure capability advantage, reduce time to the field, evaluate projects and concepts, minimize cyber related performance and operational risk of developing and fielding complex systems, ensure program dependencies are documented and included in acquisition decisions and address cyber security requirements, gaps and required technical solutions.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Cyber Capability and Platform Resilience	4.495	3.000	10.000
Description: Provides resources for developmental acquisition support and management (to include the Cyber Investment and Management Board (CIMB)) oversight of Cyber capabilities as the Department conceives, develops, and rapidly fields cyber capabilities for Cyberspace Operations and the instantiation of cyber resilient platforms and weapons systems for priority kinetic and non-kinetic missions. The CIMB was established in 2012 in response to the FY2011 NDAA Section 933, where DoD was directed to provide a “strategy for the rapid acquisition of cyber capabilities, for cyber warfare for USCC and the Cyber Service components of the military departments. USD(AT&L) is responsible for compliance with the FY2011 NDAA and Chairs the CIMB. Funds provide technical, systems engineering, trend analysis, and oversight of programs, projects and activities developing cyber capabilities to maximize the Department's return on investment of cyberspace resources and effect a comprehensive approach for assessing, procuring, and sustaining critical cyber capabilities and cyber resilient systems and platforms from initial design, through development to capability delivery in support of weapons systems performance and military			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604771D8Z / *Joint Tactical Information Distribution System (JTIDS)*	**Project (Number/Name)** 105 / *Cyber Capability & Platform Resilience*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
operations. Additionally, these funds will provide systems analyses, portfolio management, executive support of CIMB, enterprise wide systems engineering and operational impact analyses related to Cyber capabilities and ensuring cyber resilience within systems and platforms. Resources will also be used to provide expertise required for exercising technical direction over design, performance, cost parameters, determining and mitigating cyber risks of key systems and their dependencies. The goal of this funding is to assure capability advantage, reduce time to the field, evaluate projects and concepts, minimize cyber related performance and operational risk of developing and fielding complex systems, ensure program dependencies are documented and included in acquisition decisions and address cyber security requirements, gaps and required technical solutions. ***FY 2018 Plans:*** Cyber Investment Management: Synchronize and coordinate cyberspace acquisition activities, conduct quantitative assessments, and ensure cyberspace investments align with Department priorities, required capabilities and evolving cyber threats. Provide support of the Cyber Investment Management Board and develop implementation guidance and associated direction that provides strategic guidance and feedback to senior leaders. Continue to plan and conduct CIMB/CCT meetings to refine the cyber investment portfolio, review execution of cyber requirements and acquisition processes, and to identify strategic cyber issues the DoD will face in the future. - Refine the Cyber investment portfolio results, ensuring return on investment and risk ultimately leading to an optimization phase focusing on process improvement is included. - Conduct investment analysis of the DoD-wide Cyber Special Access Program (SAP) portfolio to include return on investment and risk analysis. - Utilize the results of the Cyber Rapid Acquisition Process Pilots and continuing Responsive Cyber Acquisition quarterly stakeholders meetings with USCC, the Services, and Agencies to develop and implement the new foundational responsive cyber acquisition processes across DoD, ensuring DoD Acquisition Policy is updated to reflect processes. - Contribute to any follow on efforts to revise policy or guidance regarding Cyber security within the Acquisition process . - - Initiate capability development of recommendations of the Unified Platform AoA. - - Ensure Platform Resilience/Mission Assurance (PR/MA); Oversee implementation of the recommendations on Cyber vulnerabilities of Department of Defense weapon systems and tactical communications systems. - Ensure execution of the evaluation of cyber vulnerabilities of DoD critical infrastructure plan. Conduct data gathering and technical assessments to support the development of meaningful acquisition requirements for the PCTE and other programs of interest as they relate to capabilities of diverse DoD cyber range capabilities. - Oversee the PCTE acquisition program. - Oversee DoD efforts to equip the cyber mission force. Support developments of requirements documents and architectures as required in collaboration with USCYBERCOM.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604771D8Z / *Joint Tactical Information Distribution System (JTIDS)*	**Project (Number/Name)** 105 / *Cyber Capability & Platform Resilience*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- Joint Cyber C2: Continue oversight of Joint Cyber Command and Control (C2) capability development. Provide technical and subject matter expertise support the Joint Cyber C2 Analysis of Alternatives. Provide updates to the Combatant Command (CCMD) Cyberspace Operations Baseline Model. Continue oversight of implementation of the Cyber Situational Awareness EoA (phase II) recommendations. Provide a final draft of the Joint Cyber C2 and SA CONOPS to USCYBERCOM. Provide an "As Is" Joint Cyber C2 Architecture. Track the status and provide technical recommendations associated with piloting efforts associated with the recommendations from the Cyber SA Evaluations of Alternatives.			
FY 2019 Plans: Cyber Investment Management: Synchronize and coordinate cyberspace acquisition activities, conduct quantitative assessments, and ensure cyberspace investments align with Department priorities, required capabilities and evolving cyber threats. Provide support of the Cyber Investment Management Board and develop implementation guidance and associated direction that provides strategic guidance and feedback to senior leaders. Continue to plan and conduct CIMB/CCT meetings to refine the cyber investment portfolio, review execution of cyber requirements and acquisition processes, and to identify strategic cyber issues the DoD will face in the future. - Refine the Cyber investment portfolio results, ensuring return on investment and risk ultimately leading to an optimization phase focusing on process improvement is included. - Conduct investment analysis of the DoD-wide Cyber Special Access Program (SAP) portfolio to include return on investment and risk analysis. - Utilize the results of the Cyber Rapid Acquisition Process Pilots to implement the new rapid cyber acquisition processes across DoD, ensuring DoD Acquisition Policy is updated to reflect processes. - Manage Cyber security Guidebook for Program Managers. Contribute to any follow on efforts to revise policy or guidance regarding Cyber security within the Acquisition process. - Continue oversight of implementation of the Cyber Situational Awareness EoA (phase II) recommendations. - Initiate capability development of recommendations of the Unified Platform AoA. - Continue oversight of Joint Cyber Command and Control (C2) capability development. - Ensure Platform Resilience/Mission Assurance (PR/MA); Oversee implementation of the recommendations on Cyber vulnerabilities of Department of Defense weapon systems and tactical communications systems. - Ensure execution of the evaluation of cyber vulnerabilities of DoD critical infrastructure plan. Conduct data gathering and technical assessments to support the development of meaningful acquisition requirements for the PCTE and other programs of interest as they relate to capabilities of diverse DoD cyber range capabilities. - Oversee the PCTE acquisition program. - Continue to synchronize and provide oversight for DoD Cyber Ranges that support Cyber Training and Testing & Evaluations through the Cyber Range Focal Point. - Implement DoD Cyber Range strategy, working with T&E and DOT&E and JS.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604771D8Z / *Joint Tactical Information Distribution System (JTIDS)*	**Project (Number/Name)** 105 / *Cyber Capability & Platform Resilience*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- Conduct technical analysis to determine tools necessary to help collect, measure, assess DCO/OCO effectiveness and suitability in a Cyber Range Environment. - Oversee DoD efforts to equip the cyber mission force. Support developments of requirements documents and architectures as required in collaboration with USCYBERCOM. - Joint Cyber C2: Continue oversight of Joint Cyber Command and Control (C2) capability development. Upon request, support implementation of the preferred alternative identified during the Joint Cyber C2 AoA. Continue oversight of implementation of the Cyber Situational Awareness EoA (phase II) recommendations. Track the status and provide technical recommendations associated with piloting efforts associated with the recommendations. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase in funds for Cyber efforts.			
Accomplishments/Planned Programs Subtotals	4.495	3.000	10.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Existing firm fixed priced and cost plus contracts will be utilized.

E. Performance Metrics

Enterprise-Wide Cyber Investments: instantiation of cyber capabilities for resilient systems include risk assessments, vulnerability assessments, mitigation plans, prototype architectures, investment strategies, trends analyses, Evaluation/Analysis of Alternatives, integrated mission analyses, technical and policy guidance directives.

Measures:
- Timely development and issuance of policy and guidance
- Timely delivery and development of key investment strategies, trend analysis and outcomes of the Evaluation/Analysis of Alternatives.

Portfolio Management: Provide for the timely and effective delivery of portfolio management support of associated with Cyber Security and Major Defense Acquisition Programs (MDAPS) and Major Automated Information Systems (MAIS).
Measures:
- Key milestones completed for major cyber related acquisitions

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604771D8Z / *Joint Tactical Information Distribution System (JTIDS)*	Project (Number/Name) 105 / *Cyber Capability & Platform Resilience*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contract awards	C/CPFF	OUSD AT&L DASD C3CB : Pentagon/ Mark Center	3.925	4.495	Feb 2018	3.000	Feb 2019	10.000	Feb 2020	-		10.000	Continuing	Continuing	-
		Subtotal	3.925	4.495		3.000		10.000		-		10.000	Continuing	Continuing	N/A

Remarks

NA

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	3.925	4.495		3.000		10.000		-		10.000	Continuing	Continuing	N/A

Remarks

NA

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604771D8Z / *Joint Tactical Information Distribution System (JTIDS)*	**Project (Number/Name)** 105 / *Cyber Capability & Platform Resilience*

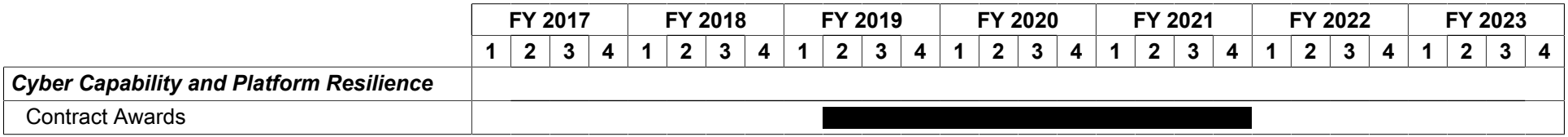

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604771D8Z / *Joint Tactical Information Distribution System (JTIDS)*	**Project (Number/Name)** 105 / *Cyber Capability & Platform Resilience*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Cyber Capability and Platform Resilience				
Contract Awards	2	2019	4	2021

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0605022D8Z / *Defense Exportability Program*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	11.382	2.853	3.162	1.489	-	1.489	3.698	3.465	2.939	2.993	Continuing	Continuing
013: *Defense Exportability Features (DEF) Program*	11.382	2.853	3.162	1.489	-	1.489	3.698	3.465	2.939	2.993	Continuing	Continuing

Note

The FY 2019 funding request was reduced by $2.486 million to account for the availability of PY execution balances. This reduction was based on FY 2017 expenditures as of September 30, 2017, and accounts for a 22% reduction in the CWP FY 2019 proposed budget.

A. Mission Description and Budget Item Justification

The Defense Exportability Features (DEF) Pilot Program is a result of a USD (AT&L) sponsored legislative proposal for authorities to better prepare warfighting systems for non-US use. This program funds activities to support identification of major defense acquisition programs for possible export, and the planning for design and incorporation of exportability features during the research and development phases of these programs. Features include, but are not limited to, technology and engineering design activities such as capability differentials, anti-tamper, system assurance, and software assurance. Activities include the development of program protection strategies for the program; the design and incorporation of exportability features into the system; implementation of exportability requirements into contracts; and other research, development, test, and evaluation activities.

Defense exportability features play a critically important role in United States Government/DoD efforts to build partnership capacity. Funds support building joint and coalition environments by enabling the export of DoD systems to a wide range of partner nations, resulting in improved security and interoperability. In addition to the operational benefits, by providing these resources up front, the United States and partner nations will save significant resources by more efficiently designing and producing exportable U.S. systems.

A number of designated systems participating in the DEF Pilot Program in FY18 will continue defining and implementing DEF 'best practices' related to designing and developing technology protection in the areas of program management, system engineering, and technology protection measures in the DoD acquisition process. Failure to consider export variant designs early in the acquisition process results in increased costs, delayed delivery, and higher risk of sensitive technology compromise due to ad-hoc sales later in production. Early development of export variants, including systems design approaches to integrate exportable anti-tamper protection and differential capability requirements to lower production costs, makes it possible to improve quality and timely deliveries to allies and friends, and may enhance US industry share of the global marketplace.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0605022D8Z / *Defense Exportability Program*

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	2.920	3.162	2.955	-	2.955
Current President's Budget	2.853	3.162	1.489	-	1.489
Total Adjustments	-0.067	0.000	-1.466	-	-1.466
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.064	-			
• FFRDC Transfer	-0.003	-	-1.466	-	-1.466

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605022D8Z / *Defense Exportability Program*	Project (Number/Name) 013 / *Defense Exportability Features (DEF) Program*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
013: *Defense Exportability Features (DEF) Program*	11.382	2.853	3.162	1.489	-	1.489	3.698	3.465	2.939	2.993	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Defense Exportability Features (DEF) Pilot Program is a result of a USD (AT&L) sponsored legislative proposal for authorities to better prepare warfighting systems for non-US use. This program funds activities to support identification of major defense acquisition programs for possible export, and the planning for design and incorporation of exportability features during the research and development phases of these programs. Features include, but are not limited to, technology and engineering design activities such as capability differentials, anti-tamper, system assurance, and software assurance. Activities include the development of program protection strategies for the program; the design and incorporation of exportability features into the system; implementation of exportability requirements into contracts; and other research, development, test, and evaluation activities.

Defense exportability features play a critically important role in United States Government/DoD efforts to build partnership capacity. Funds support building joint and coalition environments by enabling the export of DoD systems to a wide range of partner nations, resulting in improved security and interoperability. In addition to the operational benefits, by providing these resources up front, the United States and partner nations will save significant resources by more efficiently designing and producing exportable U.S. systems.

A number of designated systems participating in the DEF Pilot Program in FY18 will continue defining and implementing DEF 'best practices' related to designing and developing technology protection in the areas of program management, system engineering, and technology protection measures in the DoD acquisition process. Failure to consider export variant designs early in the acquisition process results in increased costs, delayed delivery, and higher risk of sensitive technology compromise due to ad-hoc sales later in production. Early development of export variants, including systems design approaches to integrate exportable anti-tamper protection and differential capability requirements to lower production costs, makes it possible to improve quality and timely deliveries to allies and friends, and may enhance US industry share of the global marketplace.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Defense Exportability Features (DEF) Program	2.853	3.162	1.489
FY 2018 Plans: In FY 2018, the pilot program is anticipating initiating or continuing contracts for DEF feasibility studies or DEF design activities on the following previously selected systems (plus any new DEF Pilot Program designated systems selected by OSD for FY 2018 - 2019): - Three-Dimensional Expeditionary Long-Range Radar (US Air Force)			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605022D8Z / *Defense Exportability Program*	**Project (Number/Name)** 013 / *Defense Exportability Features (DEF) Program*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- Joint Air to Ground Missile (US Army) - Air and Missile Defense Radar (US Navy) - Indirect Fires Protection Capability (US Army) - Future Vertical Lift (US Army) - Miniature Air Launched Decoy (US Air Force) - Land Mine Removal System (US Army) - Lower Tier Air Missile Defense (US Army) - Review of major defense acquisition programs for exportability as part of the major milestone review process. - Identify and select new pilot program candidates from Service Acquisition Executive nominations. - Identify Service leads and subject matter experts, to provide support to programs, prior to Milestone C, to develop plans for exportability features. - Manage, resource, and track the completion of the contractor exportability feasibility studies and design activities. - Oversee drafting of DEF Lessons Learned, Interim Progress Review briefings, and Final Reports from DEF studies conducted in FY 2018. - Draft and submit the annual report to Congress on the program. ***FY 2019 Plans:*** The focus for FY 2019 for the DEF pilot program will be to execute feasibility studies from newly selected DEF Pilot Programs that have yet to receive DEF funding, and to conduct follow-on DEF design studies on designated DEF pilot programs. As with the FY 2018 programs, FY 2018 feasibility studies will define the required actions for incorporating DEF into programs, begin DEF designs on select designated programs, and assess the potential costs of those actions. OUSD (AT&L) will continue to engage with program offices through the Military Department DEF POCs, and serve as a liaison among the program offices, the Military Departments, and other defense agencies to facilitate the feasibility studies. OUSD (AT&L)/IC will ensure the DEF feasibility studies are addressed in program Acquisition Strategies and Program Protection Plans (PPP). For Post-MS B platforms, when there is already a contract in place, OUSD (AT&L) will work with the program managers and contracting officers to implement the necessary contractual modifications to ensure that the feasibility studies were executed. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** FY 2018 to FY 2019 decrease is driven by directed reductions to account for the availability of PY execution balances.			
Accomplishments/Planned Programs Subtotals	2.853	3.162	1.489

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605022D8Z / *Defense Exportability Program*	**Project (Number/Name)** 013 / *Defense Exportability Features (DEF) Program*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605022D8Z / *Defense Exportability Program*	**Project (Number/Name)** 013 / *Defense Exportability Features (DEF) Program*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DEF	TBD	Various : Various	11.382	2.853		3.162		1.489		0.000		1.489	Continuing	Continuing	-
		Subtotal	11.382	2.853		3.162		1.489		0.000		1.489	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	11.382	2.853		3.162		1.489		0.000		1.489	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605022D8Z / *Defense Exportability Program*	**Project (Number/Name)** 013 / *Defense Exportability Features (DEF) Program*

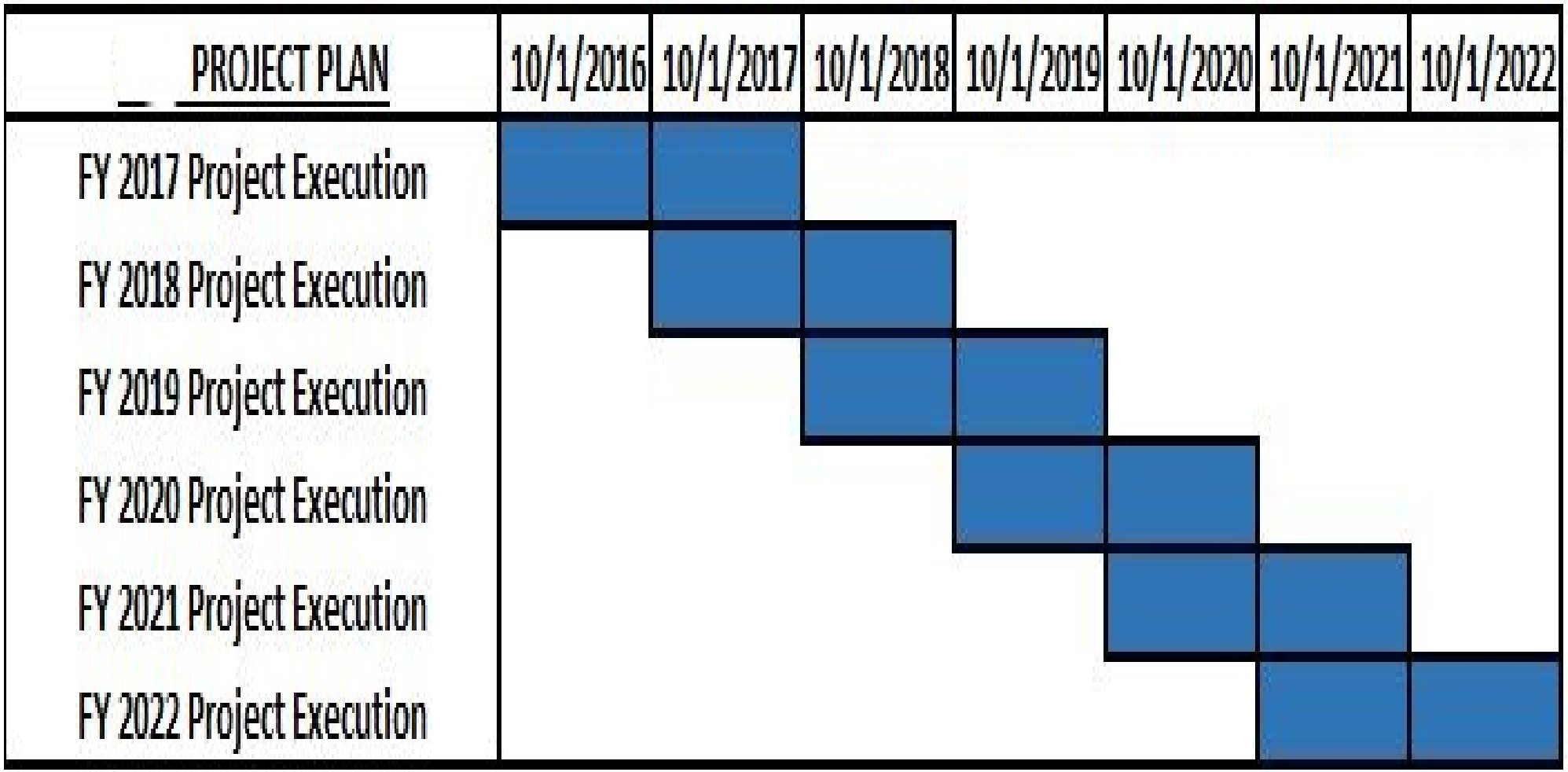

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605022D8Z / *Defense Exportability Program*	**Project (Number/Name)** 013 / *Defense Exportability Features (DEF) Program*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Defense Exportability Features (DEF)				
FY 2017	1	2017	4	2019
FY 2018	1	2018	4	2020
FY 2019	1	2019	4	2021
FY 2020	1	2020	4	2022
FY 2021	1	2021	4	2023

Note

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0605027D8Z / *OUSD(C) IT Development Initiative*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	47.124	16.131	21.353	9.590	-	9.590	8.157	8.206	8.306	8.458	-	-
927: *Next Generation Resource Management System*	38.474	8.831	8.853	8.090	-	8.090	8.157	8.206	8.306	8.458	Continuing	Continuing
929: *Financial Management Certification Tracking and Reporting Tool*	0.000	0.000	2.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
930: *Universe of Transactions*	8.650	7.300	10.500	1.500	-	1.500	0.000	0.000	0.000	0.000	Continuing	Continuing

Note

BUDGET REQUEST JUSTIFICATION: +$8.090 million is required to support Next Generation Resource Management System (NGRMS).

No additional funds are requested for Financial Management Certification Tracking and Reporting Tool (FM-CTRT).

+$1.500 million is required to support Universe of Transactions.

A. Mission Description and Budget Item Justification

As the Department of Defense strategic, operational, and tactical plans and objectives transform the war fighter with new capabilities and doctrine, the budgeting and accountability of funds used to pursue the Department objectives will become more complicated and detailed for senior leaders to make decisions with supporting rationale for the taxpayer. Incorporating information technology toward current and emerging business processes manifesting into a state-of-the art system of systems will result in increasing efficiencies, timely diagnostics, and reducing lifecycle costs to maintain, sustain and repair.

This initiative exploits emerging technology, processes, trends, capabilities, and techniques to incorporate state-of-the-art information technology enabling the ability, agility, and level of fidelity to collect, process, administrate and report resource management data and to automate business processes within a more robust analytical environment within the Office of the Under Secretary of Defense (Comptroller) OUSD(C).

NEXT GENERATION RESOURCE MANAGEMENT SYSTEM:
The Department's budget focuses on institutionalizing and financing our capabilities to fight the wars we are in today and the scenarios we are most likely to face in the years ahead, while at the same time mitigating risk and providing for contingency operations. It also includes a fundamental overhaul of the DoD's approach to procurement, acquisition, and contracting. As such, the complex details of budgeting and tracking of funds become increasingly critical to senior leader decision making and to provide accountability to the taxpayer. Incorporating information technology toward current and emerging business processes manifesting into a state-of-the art system of systems will result in increasing efficiencies, timely diagnostics, and reducing lifecycle costs to maintain, sustain and repair.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0605027D8Z / *OUSD(C) IT Development Initiative*

Today, the Office of the Under Secretary of Defense Comptroller OUSD(C) and the Cost Analysis and Program Evaluation (CAPE) use various distinct automated systems (Comptroller Information System (CIS), Program Resource Collection Process (PRCP), Supplemental Resource Collection Process (SRCP), Budget Exhibits Generator and Standard Data Collection System (SDCS)) to formulate, justify, and execute DoD budgets. These six or more systems interact with at least several computer-based systems controlled by external organizations and agencies. These systems manage very similar financial information, yet each uses its own scheme for representing information. Much of the information managed by these systems is redundant. Cross-system data representations and redundancies make it difficult to exchange and to reconcile information. The capabilities provided by Comptroller systems, in some cases, fail to deliver services needed by its users, or fail to operate in ways that complement current and emerging business practices. They fail to give executives information in a comprehensible form, making it difficult to draw conclusions. Data disparities and functional redundancy make these systems more costly to maintain than they need to be.

There is a critical need for the development of a state-of-the-art information technology system to modernize and replace multiple, antiquated legacy systems and processes used to formulate, justify, present and defend the entire Department of Defense Budget in the Office of the Under Secretary of Defense (Comptroller) (OUSD(C)) to meet Title 10 and Title 31 mission and reporting requirements. The Comptroller's plan for mitigating the deficiencies and capability gaps associated with current systems is development of the Next Generation Resource Management System.

This initiative exploits emerging technology, processes, trends, capabilities, and techniques to incorporate state-of-the-art information technology enabling the ability, agility, and level of fidelity to collect, process, administer and report resource management data and to automate business processes within a more robust analytical environment within the Office of the Under Secretary of Defense (Comptroller) OUSD(C). Funded efforts will improve the timeliness of resource management reviews and decisions for senior leaders and Congress.

FINANCIAL MANAGEMENT CERTIFICATION TRACKING AND REPORTING TOOL:

No RDT&E funds are requested.

The Defense Financial Management Certification Program (DFMCP) meets the business requirement to comply with section 1051 of the FY 2012 National Defense Authorization Act (NDAA), Public Law 112-81, authorizing the Secretary of Defense to establish a certification program for the 54,000 Financial Management (FM) workforce in order to improve audit readiness and analytic capability.

The Department of Defense has a requirement to strengthen the professional development of the DoD financial management workforce and to ensure that DoD financial managers are properly trained to meet current and future requirements to support the Warfighter. The DFMCP is the approved strategy to meet this requirement. The DFMCP needs a tracking and reporting tool for web-based course training and exams, a robust reporting capability for standard and ad hoc reports, a course search capability, sort filtering capability, and a capability to attach multiple documents once the training certification requirements are completed. The tool will self-guides users through the policies and procedures required by the program, without the burden of extensive training on how to use the system itself. The tool will enable program operations, with embedded business rules, that represent policy and procedures, and have internal controls that prevent improper actions. The tool will be intuitive, track and record activities, and enable users to perform correct actions the first time. The tool will provide a reporting tool that furnishes leadership with near real time management reports concerning FM Workforce Certification Qualifications and be adaptable to reasonable changes in DFMCP policies and procedures.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0605027D8Z *I OUSD(C) IT Development Initiative*

UNIVERSE OF TRANSACTIONS:

Funding will support financial audit. A Universe of Transaction (UoT) inclusive of all Department of Defense (DoD) Wide Appropriation General Fund (TI-97) information is needed to support reconciliation of fifteen General Fund accounting systems, reconciliation of eighteen business feeder systems to general fund accounting system, and validating UoT capabilities through the audit examinations of DCMA and DoDEA.

The DoD TI-97 UoT requires:
• All supporting TI-97 data that rolls up to the DoD financial statement (detailed accounting data reconciled to the financial statement)
• Proof of the completeness of all transactional data reported within the UoT (detailed accounting data reconciled to business events)
• Ability to extract subset populations
• Ability to secure and protect the data within the UoT

The failure to meet these requirements will result in the Department unable to successfully conduct and pass an audit.

To achieve these requirements, the Office of the Under Secretary of Defense (Comptroller) is creating a tool called the Auditable Universe of Data Intelligence Tool (AUD-IT). This tool has the potential to significantly improve DoD's capability and capacity to handle large volumes of standard and non-standard financial data. Both an application and analytical platform, the AUD-IT leverages an open-source software framework for storing data and running applications to deliver a complete UoT for TI-97.

The first phase of AUD-IT implementation is a proof of concept with the U.S. Special Operations Command (USSOCOM) systems to develop a baseline application and configuration. When the first phase has been successfully completed, the second phase will integrate into the full solution any remaining accounting and business feeder systems that execute TI-97 funds and be the solution for DATA Act. The current timeline for the proof of concept is estimated to be completed by December 2017.

AUD-IT is a joint effort between Office of the Deputy Chief Financial Officer (ODCFO), Office of the Deputy Chief Management Officer (ODCMO), Office of the Chief Information Officer (OCIO), USSOCOM, and the Defense Finance and Accounting Service (DFAS).

The FY19 funds will be used to develop and implement a SIPR environment for Cost Accounting Framework to meet Operations Security (OPSEC) and Information Security (INFOSEC) requirements

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0605027D8Z *I OUSD(C) IT Development Initiative*

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	8.831	21.353	9.590	-	9.590
Current President's Budget	16.131	21.353	9.590	-	9.590
Total Adjustments	7.300	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• FY17 Supplemental Adjustment	7.300	-	-	-	-

Change Summary Explanation

FY 2019 BUDGET REQUEST JUSTIFICATION: +$8.090 million is required to support Next Generation Resource Management System (NGRMS) and $1.500 million is required to support Universe of Transactions.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605027D8Z / *OUSD(C) IT Development Initiative*	Project (Number/Name) 927 / *Next Generation Resource Management System*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
927: *Next Generation Resource Management System*	38.474	8.831	8.853	8.090	-	8.090	8.157	8.206	8.306	8.458	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Department's budget focuses on institutionalizing and financing our capabilities to fight the wars we are in today and the scenarios we are most likely to face in the years ahead, while at the same time mitigating risk and providing for contingency operations. It also includes a fundamental overhaul of the DoD's approach to procurement, acquisition, and contracting. As such, the complex details of budgeting and tracking of funds become increasingly critical to senior leader decision making and to provide accountability to the taxpayer. Incorporating information technology toward current and emerging business processes manifesting into a state-of-the art system of systems will result in increasing efficiencies, timely diagnostics, and reducing lifecycle costs to maintain, sustain and repair.

Today, the Office of the Under Secretary of Defense Comptroller OUSD(C) and the Cost Analysis and Program Evaluation (CAPE) use various distinct automated systems (Comptroller Information System (CIS), Program Resource Collection Process (PRCP), Supplemental Resource Collection Process (SRCP), Budget Exhibits Generator and Standard Data Collection System (SDCS)) to formulate, justify, and execute DoD budgets. These six or more systems interact with at least several computer-based systems controlled by external organizations and agencies. These systems manage very similar financial information, yet each uses its own scheme for representing information. Much of the information managed by these systems is redundant. Cross-system data representations and redundancies make it difficult to exchange and to reconcile information. The capabilities provided by Comptroller systems, in some cases, fail to deliver services needed by its users, or fail to operate in ways that complement current and emerging business practices. They fail to give executives information in a comprehensible form, making it difficult to draw conclusions. Data disparities and functional redundancy make these systems more costly to maintain than they need to be.

There is a critical need for the development of a state-of-the-art information technology system to modernize and replace multiple, antiquated legacy systems and processes used to formulate, justify, present and defend the entire Department of Defense Budget in the Office of the Under Secretary of Defense (Comptroller) (OUSD(C)) to meet Title 10 and Title 31 mission and reporting requirements. The Comptroller's plan for mitigating the deficiencies and capability gaps associated with current systems is development of the Next Generation Resource Management System.

This initiative exploits emerging technology, processes, trends, capabilities, and techniques to incorporate state-of-the-art information technology enabling the ability, agility, and level of fidelity to collect, process, administer and report resource management data and to automate business processes within a more robust analytical environment within the Office of the Under Secretary of Defense (Comptroller) OUSD(C). Funded efforts will improve the timeliness of resource management reviews and decisions for senior leaders and Congress.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Next Generation Resource Management System	8.831	8.853	8.090

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605027D8Z / *OUSD(C) IT Development Initiative*	**Project (Number/Name)** 927 / *Next Generation Resource Management System*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019

Description: Plan, develop, test and evaluate the system components (i.e. unified database, expert system, cross domain security, enterprise service bus, applications, services) and supportability requirements in modernizing the budget formulation, programming execution and reporting capabilities for the Department of Defense. Activities will include, but not be limited to, the preparation of all documentation required for Clinger-Cohen Compliance and acquisition regulations, developing requests for proposals, and oversight and management of contracts and deliverables.

FY 2018 Plans:

After the NGRMS program funding was transferred from DLA to OUSD(C) in FY2017, the Comptroller staff has begun work on developing a comprehensive, integrated plan as part of acquisition planning activities that will describe the business, technical, and support strategies to manage program risks and meet program objectives. OUSD(C) has taken the first step in getting the program back on track. OUSD(C) and CAPE are working on a joint spiral development effort to improve the effectiveness and efficiency of the DoD budget formulation process by consolidating multiple budget data collection points into a prototype for programming and budget data. This would combine the collection of data performed by the existing applications Standard Data Collection System (SDCS) (Manpower, Forces, Pay Rates, DWCF), Comptroller Information System (CIS), Program Resources Collection Process (PRCP) (Procurement, Research Development Test & Development, Military Construction and Procurement) and the Comptroller Information System (CIS). This serves as an important proof-of-concept for future development of NGRMS. Certain elements of agile development and the waterfall method are applied to provide incremental, staged improvements in functionality.

The prototype will provide a single, centralized user interface for the DoD components and agencies to submit their budget requests using a common, integrated budget structure, improving efficiency and effectiveness by removing redundancy and need for data reconciliation across multiple budget systems. This initial phase will support capabilities to collect and feed the budget request data back to existing Comptroller and CAPE legacy systems (CIS, PRCP, and SDCS) to be further processed as part of the President's Budget submission process. This effort is intended to expand into the next development phase of the NGRMS.

To prove the concept, OUSD(C) and CAPE have begun to capture and process Manpower (Military End Strength and Civilian FTEs) data. The purpose of this prototype is to prove that budget submission data can be captured with a commonly defined data structure, transformed, and exchanged back to CIS, PRCP and SDCS in a seamless manner. OUSD(C) and CAPE are currently working to define a standard set of submission data elements for collection of Manpower data. The single submission prototype effort is intended to expand to include capture of all budget transaction types and will lead to NGRMS, the modernization and consolidation of multiple budget systems, implementation of next generation capabilities, and eventually, retirement of multiple legacy systems.

FY 2019 Plans:

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605027D8Z / *OUSD(C) IT Development Initiative*	**Project (Number/Name)** 927 / *Next Generation Resource Management System*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Continue work on the prototype for programming and budget data. The development of a web-based user interface to support the submission process and the to-be process flow for the centralized collection of other budget program data, and conceptual design for program collection are in the plan for FY2019. Additional systems will be brought on as soon as there is success with proof of concept. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The decrease was due to the changes in the scope of NGRMS requirements. The program was brought in house from DLA which reduced program management support.			
Accomplishments/Planned Programs Subtotals	8.831	8.853	8.090

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Develop prototype on a smaller scale to replace legacy mission system by leveraging existing resources to explore possible contract awards.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605027D8Z / *OUSD(C) IT Development Initiative*	Project (Number/Name) 927 / *Next Generation Resource Management System*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Development	C/TBD	OUSD(C) : Pentagon & Contractor Off-site Facility	38.474	8.831	Jul 2018	8.853	Jul 2018	8.090	Jul 2019	-		8.090	Continuing	Continuing	-
		Subtotal	38.474	8.831		8.853		8.090		-		8.090	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	38.474	8.831		8.853		8.090		-		8.090	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605027D8Z / *OUSD(C) IT Development Initiative*	**Project (Number/Name)** 927 / *Next Generation Resource Management System*

Exhibit R-4, RDT&E Schedule Profile: BES 2018 Office of the Secretary of Defense		Date: December 2016
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605027D8Z / *OUSD(C) IT Development Initiative*	Project (Number/Name) 927 / *Next Generation Resource Management System*

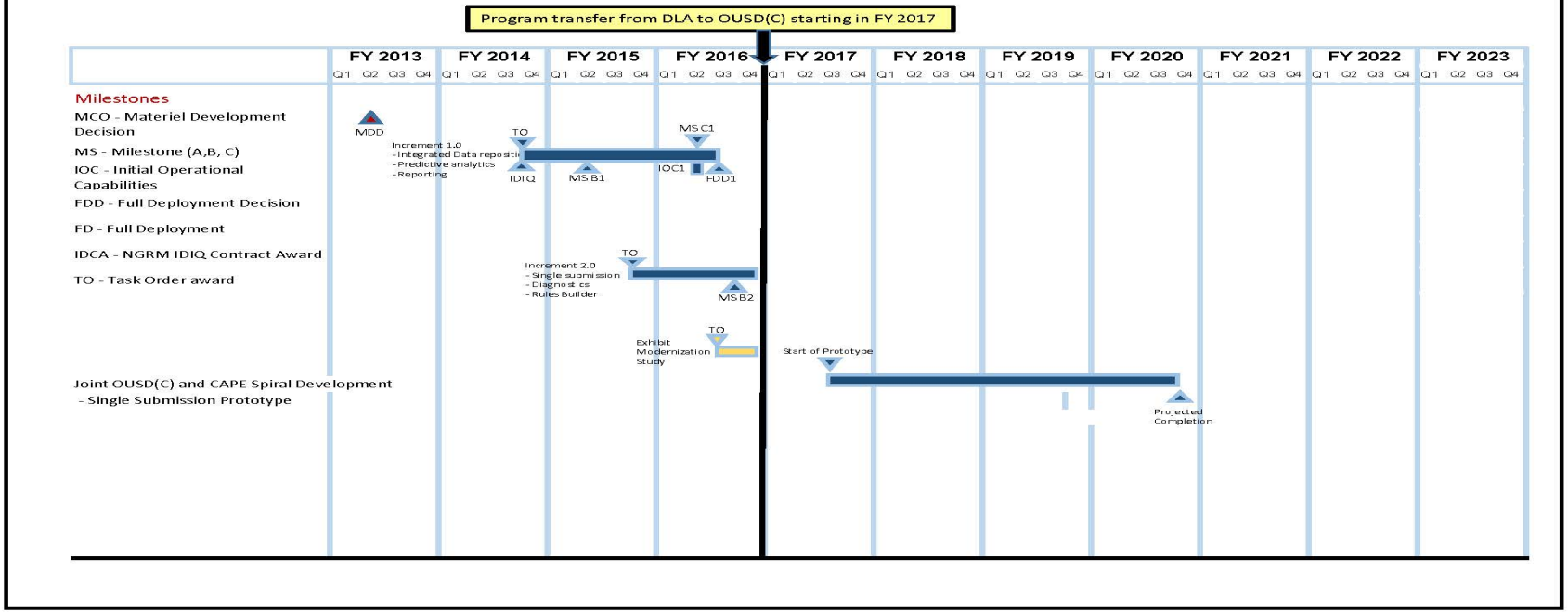

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605027D8Z / *OUSD(C) IT Development Initiative*	**Project (Number/Name)** 927 / *Next Generation Resource Management System*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
NGRMS Prototype				
Development	4	2018	3	2020

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605027D8Z / *OUSD(C) IT Development Initiative*	Project (Number/Name) 929 / *Financial Management Certification Tracking and Reporting Tool*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
929: *Financial Management Certification Tracking and Reporting Tool*	0.000	0.000	2.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Investment Review Board approved the Department of Defense Financial Management Certification Program (DFMCP) Problem Statement on July 28th, 2016. The DFMCP meets the business requirement to comply with section 1051 of the FY 2012 NDAA, Public Law 112-8 for improved audit readiness and analytic capability of the 54,000-strong Financial Management (FM) workforce.

The Department of Defense continues to use the Washington Headquarter Services Learning Management System (LMS) DFMCP system of record. LMS has performed barely adequately in implementing the certification program. A fair assessment by the program office is that despite three years of providing, improving and proliferating training, most FM LMS users and administrators cannot use the LMS proficiently. The result from the users' perspectives is that the program is flawed, that achievement of certification is unnecessarily difficult, and that instead of enabling the DFMCP, the FM LMS is an obstacle to be surmounted. The FM workforce's frustration with the FM LMS was raised by the Military Department Comptrollers and the Directors of the DFAS and DCAA as the most significant issue with the new FM Certification Program and an issue requiring immediate resolution. This culminated with an Under Secretary of Defense (Comptroller) decision to explore other alternatives to the current FM LMS. The existing FM LMS is a cumbersome and expensive system.

This effort is to plan, develop, test and implement the DoD Financial Management Certification Tracking and Reporting Tool (FM-CTRT) as a more efficient and cost effective solution.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Financial Management Certification Tracking and Reporting Tool	0.000	2.000	0.000
Description: Plan, develop, test and implement the DoD Financial Management Certification Tracking and Reporting tool (FM-CTRT). This tool implements the internal controls outlined in DODI 1300.26, Financial Management Certification Program. The tool will provide the DoD Financial Management workforce with the on-line capability to work toward and track their FM certification. Further it must promote the efficiency and effectiveness of the DoD FM workforce to meet the requirements the FY12 NDAA authorizing the Certification of the DOD FM community.			
FY 2018 Plans: Pre-contract award in Q2 through Q3.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605027D8Z / *OUSD(C) IT Development Initiative*	**Project (Number/Name)** 929 / *Financial Management Certification Tracking and Reporting Tool*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Award contract in Q4. ***FY 2019 Plans:*** Development of tool. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The contract will be awarded in FY18 and the tool will be developed in FY19. No additional RDT&E is needed in FY19.			
Accomplishments/Planned Programs Subtotals	0.000	2.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Pre-contract award in Q2 through Q3.
Award contract in Q4.

E. Performance Metrics

N/A.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605027D8Z / *OUSD(C) IT Development Initiative*	**Project (Number/Name)** 929 / *Financial Management Certification Tracking and Reporting Tool*

Remarks

No FY19 RDT&E funds are requested.

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605027D8Z / *OUSD(C) IT Development Initiative*	**Project (Number/Name)** 929 / *Financial Management Certification Tracking and Reporting Tool*

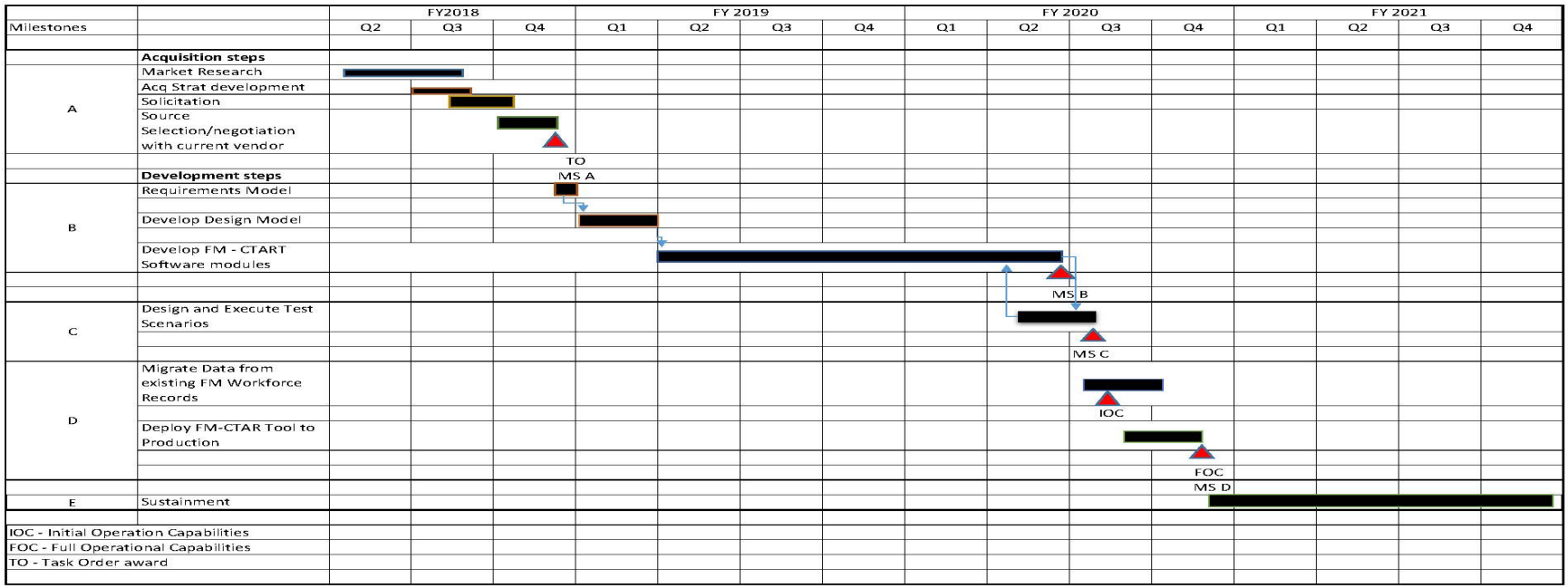

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605027D8Z / *OUSD(C) IT Development Initiative*	**Project (Number/Name)** 929 / *Financial Management Certification Tracking and Reporting Tool*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
FM-CTRT Milestone				
Acquisiiton	2	2018	4	2018
Development	4	2018	2	2020
Implementation	2	2020	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605027D8Z / *OUSD(C) IT Development Initiative*	Project (Number/Name) 930 / *Universe of Transactions*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
930: *Universe of Transactions*	8.650	7.300	10.500	1.500	-	1.500	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Without a single UoT to support the TI97 General Fund for the 4th Estate the Department will be incapable of asserting readiness for an independent audit of the consolidated financial statements. All DoD organizations are pursuing the current statutory goal of achieving the state of audit readiness (target September 30, 2017) that supports entry into a full financial statement of audit in FY 2018 (target start date March 2018) with an initial opinion rendered in mid-FY 2019. Without an automated capability to provide a transactional universe for sampling and evidentiary proof the department will not be in compliance with public law.

The requested funds will be used to buy “Big Data” software and hardware infrastructure and required contractor services to implement the technology to meet the UoT requirement.
This UFR includes subject matter expertise costs for DCFO and funds to be placed on a contract for hardware, software, and labor. This will not result in hiring additional government personnel.

The UoT will have the capability to:
• Ingest data from multiple accounting and financial feeder systems
• Normalize data from multiple sources providing a common data architecture
• Reconcile transactional details to summary financial data
• Provide auditor’s the ability to sample TI-97 detailed transactions
• Business Analytics/Reporting
• DATA Act which is a statutory requirement to be completed by May 2017
• Provide NIPR and SIPR capability for non-sensitive and sensitive data

This effort is a proof of concept focused on USSOCOM, but will apply to all TI-97 general fund entities. The scope is to bring in data from an estimated 50 systems and demonstrate existence and completeness of business and accounting transaction data, which are capabilities required for audit readiness.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Universe of Transactions Defense Wide Appropriation General Fund	7.300	10.500	1.500
Description: Plan, develop, test and evaluate the system components (i.e. unified database, cross domain security, applications, services) and supportability requirements in creating a universe of transactions for the Defense Wide General Fund Appropriation financial audit.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605027D8Z / *OUSD(C) IT Development Initiative*	**Project (Number/Name)** 930 / *Universe of Transactions*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
The funds will be used to support increments three, four, five, and six per the schedule. ***FY 2018 Plans:*** Reconcile fifteen General Fund accounting systems Reconcile eighteen business feeder systems to general fund accounting system. Validate UoT capabilities through the audit examinations of DCMA and DoDEA ***FY 2019 Plans:*** Develop and implement a SIPR environment for Cost Accounting Framework to meet Operations Security (OPSEC) and Information Security (INFOSEC) requirements ***FY 2018 to FY 2019 Increase/Decrease Statement:*** As we began planning the design of the long-term IT solution for the Cost Accounting Framework, we incorporated funding requirements into the Universe of Transaction FY18 budget to cover a NIPR solution. Since that budgeting exercise, it has become apparent that we will need funds in the FY19 budget for a SIPR environment to meet project Operations Security (OPSEC) and Information Security (INFOSEC) requirements. The FY19 funds are needed to support the additional scope of a SIPR implementation for the Cost Accounting Framework database and visualization application.			
Accomplishments/Planned Programs Subtotals	7.300	10.500	1.500

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Leveraging existing contracts to develop and implement SIPR environment.

E. Performance Metrics

97% of the Defense Agencies accounting systems reconcile to the unadjusted trial balance

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605027D8Z / *OUSD(C) IT Development Initiative*	**Project (Number/Name)** 930 / *Universe of Transactions*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Production	C/TBD	OUSD(C) : Pentagon	6.847	5.900	May 2017	7.500	Apr 2018	1.150	Mar 2019	-		1.150	Continuing	Continuing	-
Development	C/TBD	OUSD(C) : Pentagon	-	-		-		0.350	Jul 2019	-		0.350	Continuing	Continuing	-
Support	C/TBD	OUSD(C) : Pentagon	1.803	1.400	Jan 2018	3.000	Apr 2018	-		-		-	Continuing	Continuing	-
		Subtotal	8.650	7.300		10.500		1.500		-		1.500	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	8.650	7.300		10.500		1.500		-		1.500	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605027D8Z / *OUSD(C) IT Development Initiative*	**Project (Number/Name)** 930 / *Universe of Transactions*

UoT Schedule Overview

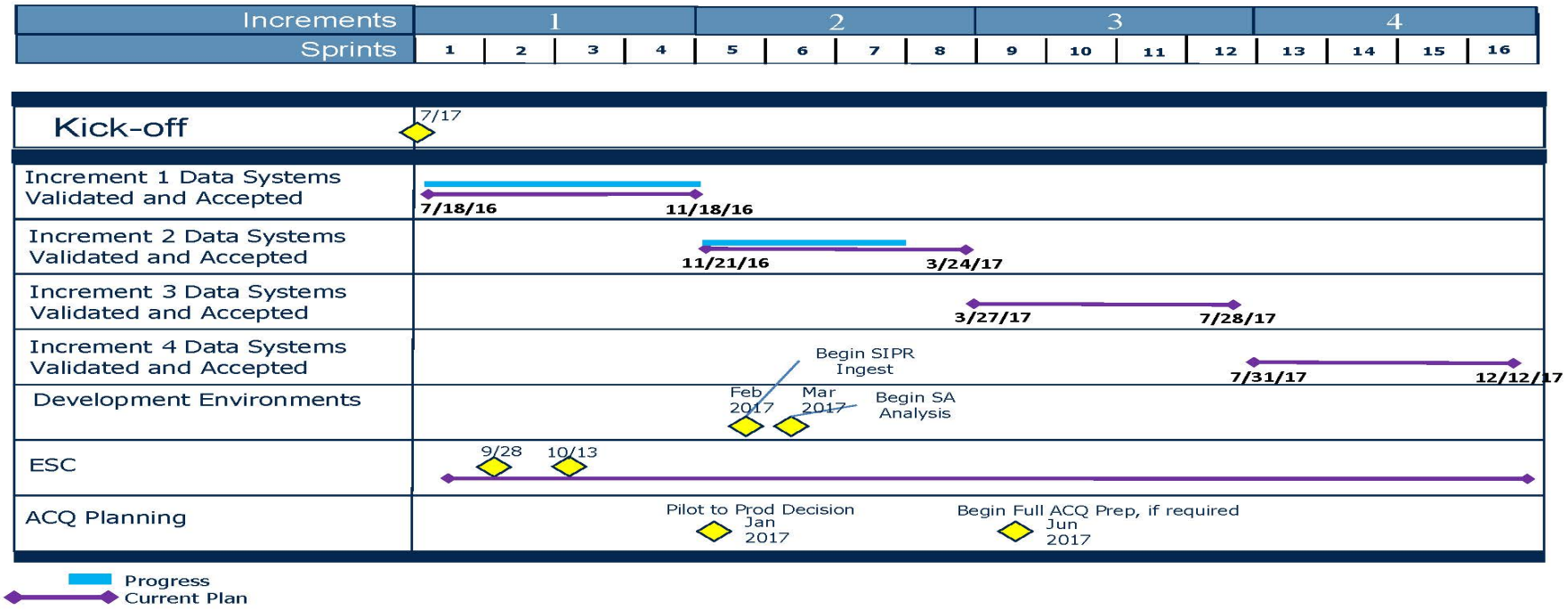

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605027D8Z / *OUSD(C) IT Development Initiative*	**Project (Number/Name)** 930 / *Universe of Transactions*

UoT Schedule Overview Cont.

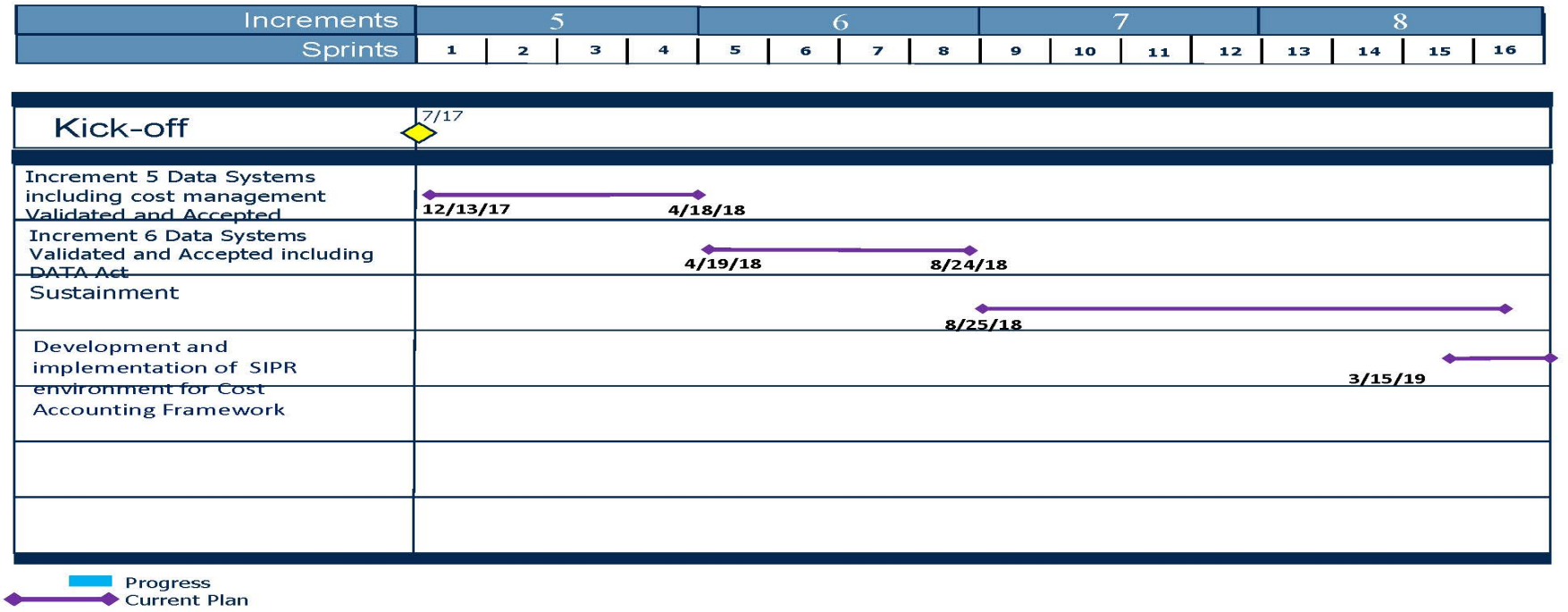

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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605027D8Z / *OUSD(C) IT Development Initiative*	**Project (Number/Name)** 930 / *Universe of Transactions*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Acquisiiton Milestone				
Pilot to Production Decision	2	2017	3	2017
Begin Full Acquisiton Prep	3	2017	4	2017
Development of SIPR Environment for Cost Accounting Framework	3	2019	3	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0605075D8Z / *DCMO Policy and Integration*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	90.240	0.000	2.810	2.105	-	2.105	1.623	1.655	1.682	1.713	Continuing	Continuing
075: *DCMO Policy and Integration*	90.240	0.000	2.810	2.105	-	2.105	1.623	1.655	1.682	1.713	Continuing	Continuing

A. Mission Description and Budget Item Justification

To produce and sustain a Business Enterprise Architecture (BEA) to guide business transformation and business system investment actions for the DoD. The requirement to produce and maintain a BEA is codified in NDAA 2012, USC Title 10, Section 2222 with amplifying guidance from OMB. The proposed program provides improved capabilities to access and use the BEA information including descriptions of business processes and associated information assets; required capabilities and associated performance requirements; and governing laws, regulations and policies (LRPs).

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	0.000	2.810	2.122	-	2.122
Current President's Budget	0.000	2.810	2.105	-	2.105
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	-	-			
• Program adjustment	-	-	-0.017	-	-0.017

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605075D8Z / *DCMO Policy and Integration*	Project (Number/Name) 075 / *DCMO Policy and Integration*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
075: *DCMO Policy and Integration*	90.240	0.000	2.810	2.105	-	2.105	1.623	1.655	1.682	1.713	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

To produce and sustain a Business Enterprise Architecture (BEA) to guide business transformation and business system investment actions for the DoD. The requirement to produce and maintain a BEA is codified in NDAA 2012, USC Title 10, Section 2222 with amplifying guidance from OMB. The proposed program provides improved capabilities to access and use the BEA information including descriptions of business processes and associated information assets; required capabilities and associated performance requirements; and governing laws, regulations and policies (LRPs).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: DCMO Policy and Integration	0.000	2.810	2.105
Description: - Defined and developed engineering and information technology development plans - Established acquisition strategy and detailed implementation schedule - Vetted project plan and implementation goals objectives and outcomes within the Defense Business Council			
FY 2018 Plans: Sustain this effort with previous year funding deliver more efficient and effective applications and information resource capabilities supporting DCMO Title 10 Section 2222 responsibilities for Defense Business Enterprise Architecture			
FY 2019 Plans: Sustain this effort and deliver more efficient and effective applications and information resource capabilities supporting DCMO Title 10 Section 2222 responsibilities for Defense Business Enterprise Architecture (BEA) compliance assessments to include: • Developing and using functional strategies to enable and achieve DoD business mission initiatives, business process outcomes and investment decisions • Documenting and managing problem statement data that defines requirements for DOTMLPF capabilities and using them to support needs assessment, reuse and investment opportunities within and across Component and functional domains • Conducting cross functional business reviews to determine interdependencies of functional strategies, processes and systems, and to support business life-cycle optimization opportunities and improved net benefits. • Comprehensive system sustainment and transition analytics.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605075D8Z / *DCMO Policy and Integration*	**Project (Number/Name)** 075 / *DCMO Policy and Integration*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Additionally, providing business intelligence and analytics (BIA) capabilities to support Financial system integration and detailed transaction reporting to meet audit readiness requirements. The BIA program includes technologies for integration with other DoD authoritative data sources, business intelligence reporting capabilities/tools, and requisite DoD data hosting center support. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease anticipates continued ongoing development progress and further capability enhancements within the approved gov't cost estimate.			
Accomplishments/Planned Programs Subtotals	0.000	2.810	2.105

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Follow the DoD Instruction 5000.75 process for Business Systems Requirements and Acquisition.

E. Performance Metrics

Section 2222 of Title 10, USC required that a single Business Mission Area (BMA) Investment Review Board (IRB) be established. As part of the stand-up of this single IRB, Principal Staff Assistant (PSA) and DoD Components are charged with specifying and delivering required business outcomes for the Department. These business outcomes are then incorporated into the architecture and data products making up the Department's Business Enterprise Architecture (BEA), under the oversight and direction of the Defense Business Council. These metrics measure the incorporation of the Component identified business outcomes and associated component organizational alignments into the BEA.

- FY 2017 Goal: 100% of BEA discoverable data artifacts transitioned to a government cloud based information environment.
- FY 2018 Goal: 30% of business outcomes and Business Capability Acquisition Cycle performance data incorporated into the BEA. This metric measures the discoverability of BEA content that supports DoD decision making.
- FY 2019 Goal: 75% of business outcomes and Business Capability Acquisition Cycle performance data incorporated into the BEA. This metric measures the discoverability of BEA content that supports DoD decision

Section 2222 of Title 10, USC further required that the defense business enterprise architecture include an information infrastructure to enable the producing of timely accurate and reliable business information. This metric measures the discoverability of BEA content that supports DoD decision making.

- FY 2017 Goal: 100% of BEA data artifacts are discoverable via web services.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605075D8Z / *DCMO Policy and Integration*	**Project (Number/Name)** 075 / *DCMO Policy and Integration*

• FY 2018 Goal: 100% of BEA discoverable data artifacts transitioned to a government cloud based information environment.
• FY 2019 Goal: 60% of defense business system investment and portfolio analytical products leverage the BEA cloud based information environment

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605075D8Z / *DCMO Policy and Integration*	**Project (Number/Name)** 075 / *DCMO Policy and Integration*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Design Enterprise Architecture Taxonomy	Option/ CPFF	DCMO : Mark Center	0.000	-		-		-		-		-	Continuing	Continuing	-
Capability to automate and generate metadata on ingest of architecture information	Option/ CPFF	DCMO : Mark Center	0.000	-		-		-		-		-	Continuing	Continuing	-
Extend user access to BEA via web services	Option/ CPFF	DCMO : Mark Center	0.000	-		2.810		2.105		0.000		2.105	Continuing	Continuing	-
Port BEA into Cloud evironment	Option/ CPFF	DCMO : Mark Center	90.240	-		-		-		-		-	Continuing	Continuing	-
		Subtotal	90.240	-		2.810		2.105		0.000		2.105	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	90.240	-		2.810		2.105		0.000		2.105	Continuing	Continuing	N/A

Remarks

NA

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605075D8Z / *DCMO Policy and Integration*	**Project (Number/Name)** 075 / *DCMO Policy and Integration*

Exhibit R-4, RDT&E Program Schedule Profile:		Date: December 2017
Appropriation/Budget Activity: 0400: Research, Development, Test & Evaluation, Defense-Wide / BA 5: System Development & Demonstration (SDD)	**Program Element Number and Name**: PE 0605075D8Z / DCMO Policy and Integration	**Project Number and Name:** DCMO Policy and Integration

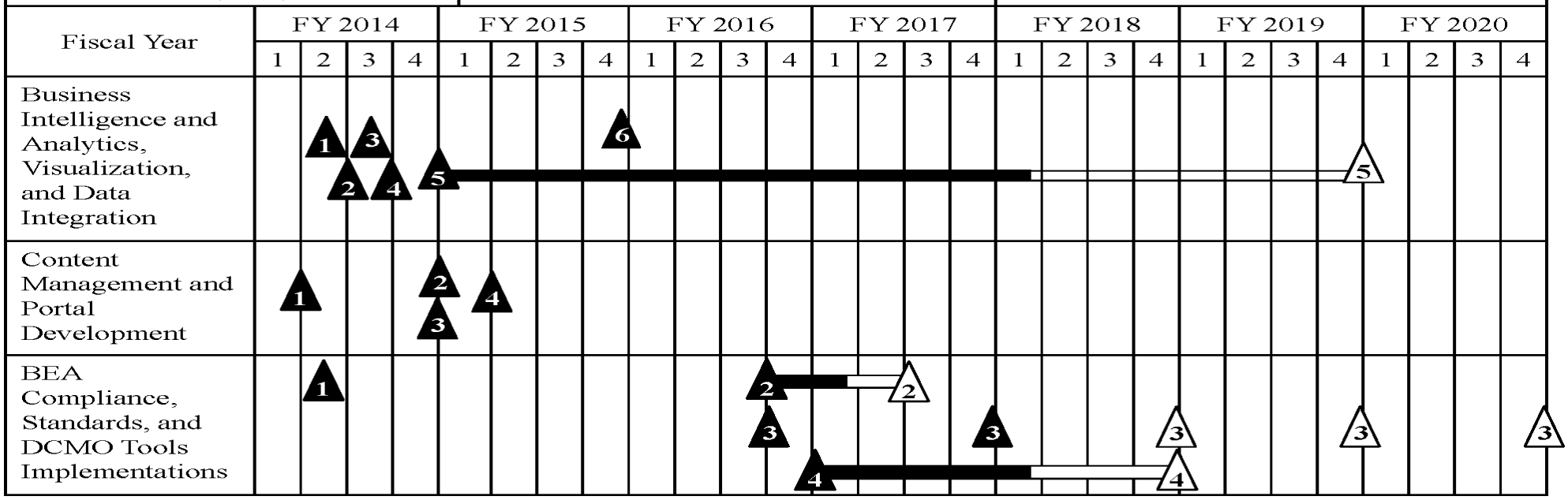

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605075D8Z / *DCMO Policy and Integration*	**Project (Number/Name)** 075 / *DCMO Policy and Integration*

Business Intelligence and Analytics, Visualization, and Data Integration	Content Management and Portal Development	BEA Compliance, Standards, and DCMO Tools Implementations
1. Data Source Integration/Ab Initio Data Processing 2. Investment Review Analytics development/deployment 3. Enterprise Transition Plan Analytics 4. Out of Cycle Review Analytics 5. Develop Business Intelligence & Analytics (BIA) visualization/analytics, including SharePoint development for continuous development of DCMO, PPM, process/system improvement 6. BIA infrastructure transition to DISA for continued system development	1. DoD Conference Reporting system 2. Lean Six Sigma Migration development/deployment 3. Human Resources Portal development/deployment 4. SharePoint development to include claims-based authentication and defense enterprise email migration	1. Design and deliver a restructured BEA technology solution 2. BMA Problem Statement Tool development/deployment 3. Support for Performance Initiatives, iterative development delivery for enhanced BEA alignment across the enterprise 4. BEA infrastructure transition to DISA for continued system development

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0605140D8Z / *Trusted Foundry*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	7.000	67.252	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
837: *Trusted Mask Trust Approach*	0.000	2.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
838: *V&V Capabilities and Standards for Trust*	3.000	18.327	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
839: *New Trust Approach*	4.000	46.925	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Note

Beginning in FY 2018, funds from this Program Element (PE) will be transferred to PEs in BA 4, 0604294D8Z and BA 5, 0605294D8Z to allow more efficient execution of developmental and prototyping activities within the body of work..

A. Mission Description and Budget Item Justification

This Program Element (PE) supports activities to ensure critical and sensitive integrated circuits are available to meet the DoD's needs. It refines strategies and management planning activities that will: (1) provide support to acquisition programs to address trusted and assured microelectronics supply needs; (2) improve capability to evaluate and validate assurance of microelectronic parts and advance standards to incentivize the commercial marketplace to recognize hardware assurance as a competitive design standard; and (3) develop and demonstrate alternative approaches to the DoD Trusted Foundry program to assure the microelectronics supply chain in order to enable broader DoD access to commercial state-of-the-art (SOTA) microelectronics technology.

This activity will be coordinated by the Office of the Under Secretary of Defense for Research and Engineering, and will include performers from the DoD Components, the Defense Microelectronics Activity (DMEA), the Joint Federated Assurance Center (JFAC), the Defense Advanced Research Programs Agency (DARPA), other DoD and Intelligence Community science and technology (S&T) organizations and laboratories, the defense industry, and the broader commercial industrial base. It will integrate the functions of the DoD Trusted Foundry Program, the Trusted Supplier accreditation program, JFAC, and related S&T activities.

This activity implements, maintains, and updates the DoD's long-term microelectronics strategy. Additionally this activity places emphasis on incentivizing and proving new microelectronics technology solutions. Recognizing that a trusted and assured supply of microelectronics is a U.S. Government (USG)-wide concern, this activity will interface with interagency partners to take into account interagency requirements, opportunities for collaboration, and strategic decisions that can be made to limit the overall cost of these requirements to the USG.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0605140D8Z / *Trusted Foundry*

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	69.000	0.000	0.000	-	0.000
Current President's Budget	67.252	0.000	0.000	-	0.000
Total Adjustments	-1.748	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.662	-			
• FFRDC Transfer	-0.076	-	-	-	-
• Other Adjustments	-0.010	-	-	-	-

Change Summary Explanation

FY 2018 funds transferred to PE 0604294D8Z in BA 4 for development and prototyping activities and PE 0605294D8Z in BA 5 for demonstration activities.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605140D8Z / *Trusted Foundry*	Project (Number/Name) 837 / *Trusted Mask Trust Approach*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
837: *Trusted Mask Trust Approach*	0.000	2.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project staffs and supports operation of a new secure (SECRET-level) photomask manufacturing capability at an existing SOTA commercial photomask manufacturing supplier to secure the masks and design IP of acquisition programs when using commercial microelectronic fabrication facilities other than the Trusted Foundry. This capability can be used in conjunction with one or more leading-edge commercial foundries. This capability will address trusted masks at technology node sizes less than 130 nanometers (nm) down to 14nm.

Beginning in FY 2018, funding for this project has been transferred to BA 5 PE 0605294D8Z, P812, to continue execution of funds in support of the mission.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Trusted Mask Trust Approach	2.000	-	-
Description: DMEA will provide management and technical support, as required, to procure secure mask data parsing services for the Department, as well as other Federal entities, by upgrading an existing SOTA commercial photomask manufacturing supplier with a Trusted photomask capability to ensure the integrity of the tape-in/mask release, mask manufacturing, and authentication process for photomasks. Starting in FY 2018, a SOTA commercial photomask manufacturing supplier will be equipped with a new secure (SECRET-level) photomask manufacturing capability (note: DMEA is still awaiting receipt of $7.200 million planned for this effort as part of a FY 2017 Defense Production Act (DPA) Title III project) and staffed to provide the required critical Trusted photomask capabilities.			
Accomplishments/Planned Programs Subtotals	2.000	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Performance for this project is monitored in the following ways:

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605140D8Z / *Trusted Foundry*	**Project (Number/Name)** 837 / *Trusted Mask Trust Approach*

- Number of photomasks created using the secure photomask manufacturing capability.
- Number of acquisition programs using the secure photomask manufacturing capability.
- Number of technology node sizes supported by the secure photomask manufacturing capability.
- Number of foundries supported by the secure photomask manufacturing capability.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605140D8Z / *Trusted Foundry*	**Project (Number/Name)** 837 / *Trusted Mask Trust Approach*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Trusted Mask Trust Approach	MIPR	Defense Microelectronics Activity (DMEA) : California	-	2.000	Mar 2017	-		-		-		-	Continuing	Continuing	-
		Subtotal	-	2.000		-		-		-		-	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	2.000		0.000		-		-		-	Continuing	Continuing	N/A

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605140D8Z / *Trusted Foundry*	**Project (Number/Name)** 837 / *Trusted Mask Trust Approach*

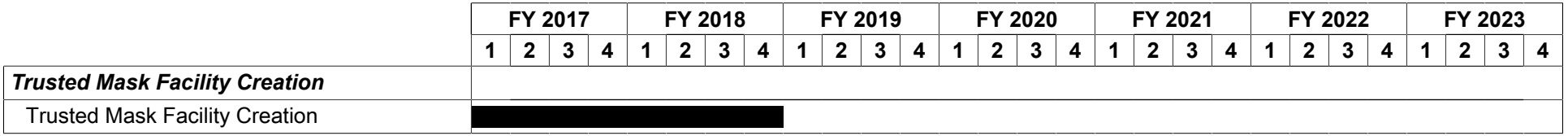

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605140D8Z / *Trusted Foundry*	**Project (Number/Name)** 837 / *Trusted Mask Trust Approach*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Trusted Mask Facility Creation				
Trusted Mask Facility Creation	1	2017	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605140D8Z / *Trusted Foundry*	Project (Number/Name) 838 / *V&V Capabilities and Standards for Trust*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
838: *V&V Capabilities and Standards for Trust*	3.000	18.327	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project improves microelectronics test and verification methodologies in support of verifying trust of untrusted parts and develops standards/practices to foster commercial development of secure and trusted parts. Verification and test technologies are required to provide direct program support for microelectronics trust verification when DoD Trusted Foundry Program options are not available. Core technical laboratories have recently been chartered as a Joint Federated Assurance Center (JFAC) to provide this support. Out-year demands will require an increase in capacity, which will take the form of additional personnel and/or equipment to permit scaling of assessment capabilities. Challenges have been identified, to include the ability to analyze leading-edge technologies, throughput/time required for analysis, ability to analyze third-party IP contained in microelectronic components, and analysis of non-application-specific integrated circuit (ASIC) components that are increasingly being used for agility, e.g., Field-Programmable Gate Arrays (FPGAs). This project addresses these gaps in current technical capabilities in a collaborative nature amongst the core technical laboratories, driven by projected and realized out-year demand. Three capability areas core to microelectronics analysis and verification will be improved:

- Physical verification, i.e., destructive analysis of integrated circuits and printed circuit boards
- Functional analysis, i.e., non-destructive screening/verification of select, critical parts
- Design verification, i.e., verification/assurance of designs, IP, netlists, bitstreams, firmware, etc.

These improvements will address two primary attributes: (1) technical capability including laboratory equipment, analysis tools, such as imaging software, and highly skilled tradecraft, and (2) the capacity to perform assessments.

This project also develops standards and practices in support of assured designs and supply chains and formal relationships with industry to foster commercial development of secure, trusted, and assured parts and for acquisition of government access to proprietary designs, software, development, and quality assurance processes and test procedures to develop practices that minimize security flaws in designs and facilitate verification. Two capability areas that are core to improved commercial designs will be improved, i.e., assured designs and supply chains.

Beginning in FY 2018, funding for this project has been transferred to BA 4 PE 0604294D8Z, P645, to accurately reflect execution of funds in support of the mission.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Verification and Validation (V&V) Capabilities and Standards for Trust	18.327	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605140D8Z / *Trusted Foundry*	**Project (Number/Name)** 838 / *V&V Capabilities and Standards for Trust*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Description: Starting in FY 2017, this program funded a dedicated technical government subject matter expert (SME) at several JFAC laboratories and provided support for identified JFAC acquisition program pilots and non-program-related assessments, e.g., suspicious parts acquired by law enforcement or that failed in the field. In addition, utilizing the 2015 JFAC hardware assurance capability survey, developed a plan of action based on incremental technical improvement and capacity across participating JFAC laboratories in the following areas: • Equipment re-capitalization and new equipment • Data and imaging processing • Enhanced automation • Technology and IP licensing • Training and SME development • Maintenance support • Feasibility studies • Reimbursable (test fixtures, boards, parts, and supplies) • Direct program support in related areas beyond the acquisition programs' technical capability or capacity to address. The JFAC will: (1) improve its microelectronics test and verification methodologies in support of verifying trust and assurance of parts and (2) develop standards/practices to foster commercial development of secure, trusted and assured parts. Cost sharing of direct program support prioritized for FY 2017 focused on addressing technical gaps and assurance-related findings. This project also supported the following efforts that continue in FY 2018 under BA 4 PE 0604294D8Z, P645: • Improvements to the core JFAC's (1) technical capability, i.e., laboratory equipment, IP, analysis tools, such as imaging software (SW), and highly skilled tradecraft, and (2) the capacity to perform assessments. Out-year demands will continue to require an increase in capacity, which will take the form of additional personnel and/or equipment to permit scaling of assessment capabilities. • Enhancement of automation needed to increase the throughput of information produced by individual JFAC laboratory tools as well as to facilitate information sharing across the families of tools used for analysis and testing. • Development of common SME training and protocols based on the existing tool base, to include both commercial and government-developed tools. • Funding of an additional SME per core laboratory in support of the microelectronics trust verification and other JFAC-related work.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605140D8Z / *Trusted Foundry*	**Project (Number/Name)** 838 / *V&V Capabilities and Standards for Trust*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
• Investment in the above technical areas based on priority and monitor and report increased technical capability from the baseline 2016 level. Standards and Practices. Initiate the: • Development of standards and best practices, and relationships with industry, to foster commercial development of secure and trusted parts. • Establishment of formal relationships with FPGA vendors and other key commercial suppliers to improve device and IP security. • Acquisition of government access to proprietary designs, software, development, and quality assurance processes and test procedures to develop design practices that minimize security flaws and facilitate verification. • Establishment of government and industry working groups to develop test procedures to validate the trust of designs. • Documentation and promulgation of security-enhancing design practices across government, industry, and academia. • Development of industry-wide standards and practices to establish a common understanding of what constitutes verified and trusted hardware/software/firmware at both the component and systems level. • Development of a common lexicon for secure hardware/software/firmware in collaboration with the Committee for National Security Systems, National Institute of Standards and Technology, and the broader United States Government, industry, and academia. • Definition of supply chain controls for assured chain of custody for critical and other microelectronics devices and IP. • Development of security training and educate government and industry system security engineers and material managers on supply chain and life-cycle management best practices using agreed-upon language, standards, and practices. • Alignment of DoD Instruction 5200.44 (Protection of Mission Critical Functions to Achieve Trusted Systems and Networks (TSN)), related policies, and NIST 800-161 (Supply Chain Risk Management Practices for Federal Information Systems and Organizations) with industry standards identifying and addressing gaps in definition and criteria and establishing accepted levels of supplier and part trustworthiness.			
Accomplishments/Planned Programs Subtotals	18.327	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Performance for this project is monitored in the following ways:

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605140D8Z / *Trusted Foundry*	**Project (Number/Name)** 838 / *V&V Capabilities and Standards for Trust*

• Increases in throughput in current JFAC laboratories, and stands-up of additional capability/capacity as required, so that at least two laboratories will have capability in physical verification, functional analysis, and design verification to increase the DoD's overall microelectronics trust verification and test capacity for analysis of state-of the practice parts.
• Increased Probability of Detection of malicious insertion and/or counterfeit parts.
• Cost to evaluate components.
• Time to evaluate components.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605140D8Z / *Trusted Foundry*	**Project (Number/Name)** 838 / *V&V Capabilities and Standards for Trust*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
V&V Capabilities and Standards for Trust	MIPR	Various (DARPA, Air Force, Army, Navy, NSA) : Various	3.000	18.327	Mar 2017	-		-		-		-	Continuing	Continuing	-
		Subtotal	3.000	18.327		-		-		-		-	Continuing	Continuing	N/A

	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	3.000	18.327		0.000		-		-		-	Continuing	Continuing	N/A

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605140D8Z / *Trusted Foundry*	**Project (Number/Name)** 838 / *V&V Capabilities and Standards for Trust*

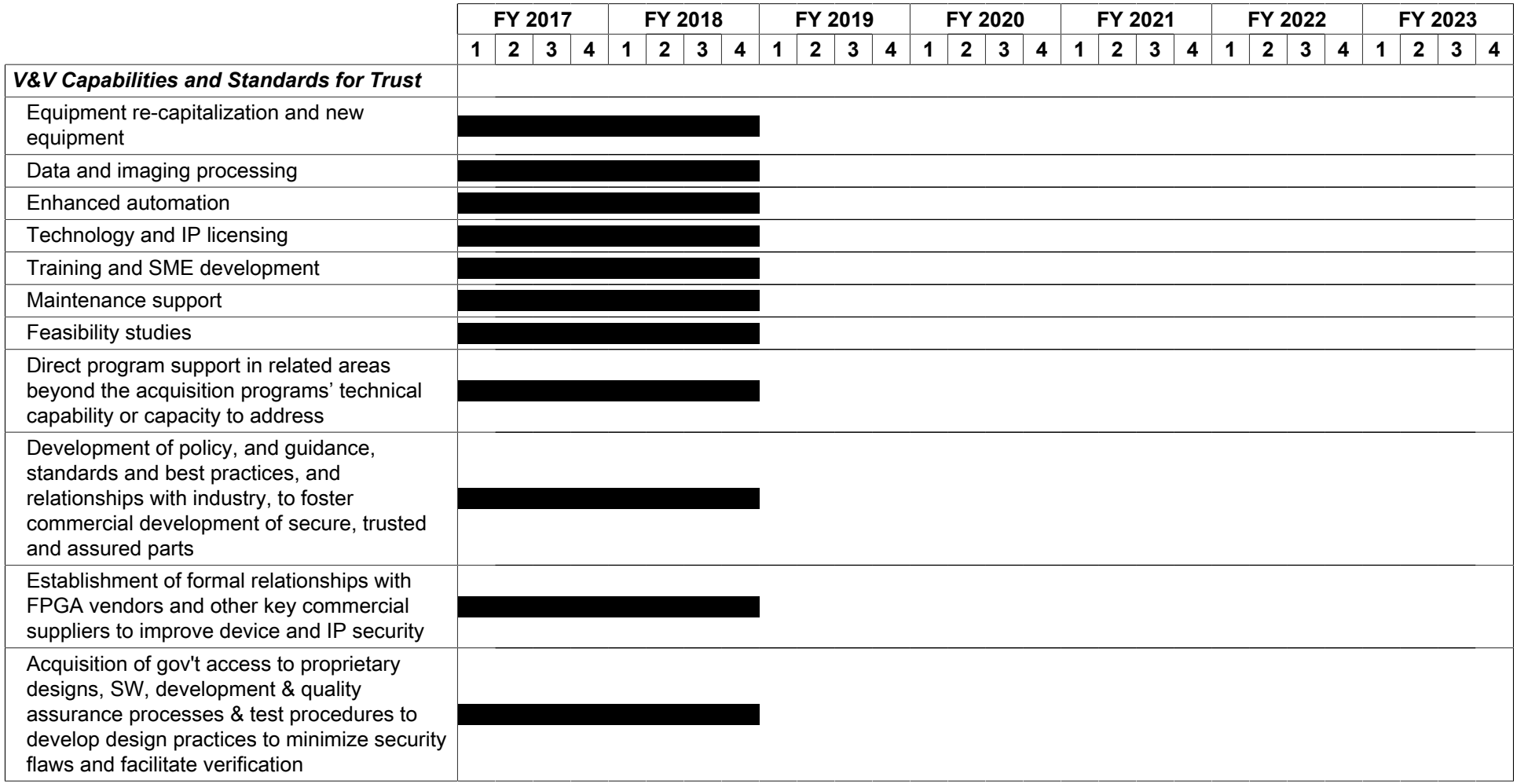

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605140D8Z / *Trusted Foundry*	**Project (Number/Name)** 838 / *V&V Capabilities and Standards for Trust*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
V&V Capabilities and Standards for Trust				
Equipment re-capitalization and new equipment	1	2017	4	2018
Data and imaging processing	1	2017	4	2018
Enhanced automation	1	2017	4	2018
Technology and IP licensing	1	2017	4	2018
Training and SME development	1	2017	4	2018
Maintenance support	1	2017	4	2018
Feasibility studies	1	2017	4	2018
Direct program support in related areas beyond the acquisition programs' technical capability or capacity to address	1	2017	4	2018
Development of policy, and guidance, standards and best practices, and relationships with industry, to foster commercial development of secure, trusted and assured parts	1	2017	4	2018
Establishment of formal relationships with FPGA vendors and other key commercial suppliers to improve device and IP security	1	2017	4	2018
Acquisition of gov't access to proprietary designs, SW, development & quality assurance processes & test procedures to develop design practices to minimize security flaws and facilitate verification	1	2017	4	2018

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605140D8Z / *Trusted Foundry*	Project (Number/Name) 839 / *New Trust Approach*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
839: *New Trust Approach*	4.000	46.925	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project funds a program of research to develop and demonstrate the next generation, technology-driven approach to microelectronics trust and assurance, to include SOTA microelectronics, to ensure continued access to SOTA microelectronic technologies, while maintaining the required level of assurance in all environments. DoD's ability to access commercial technology for its custom secure, trusted and assured needs is diminishing as SOTA suppliers become fewer and more focused on serving the global commercial market. DoD's technology needs are broad, and relying on a single source supplier is not feasible. Alternative, advanced manufacturing methods, technologies, and design tools are needed to produce secure, trusted and assured SOTA parts from commercial sources and to preserve access to these advanced nodes while protecting DoD and Defense Industrial Base (DIB) IP from exploitation. It is also intended to dramatically improve the capabilities of the JFAC with regard to verification and validation in support of microelectronics assurance.

This program of research will demonstrate innovative design, manufacturing, imaging, tagging, and control and assessment approaches for protecting DoD's microelectronics supply chain and IP, including alternatives for trusted, strategic radiation-hardened electronics in advanced technology nodes for next-generation strategic systems, obfuscation and disaggregation technologies, and other assurance mitigations. It will demonstrate advanced imaging technologies and forensics, Design for Assurance techniques, active hardware assurance controls, electronic component markers, and a data and analysis capability to enable auditing and independent verification and validation of commercial designs. It also demonstrates and implements concepts for the cost-effective production of custom microelectronics in low volumes and protection of sensitive IP from exploitation.

Assurance technologies that can be applied in a broad range of trusted and commercial environments can mitigate the risks associated with sole-source suppliers, and increase the USG's ability to leverage commercial capabilities. The suite of demonstrated technologies, e.g., alternative manufacturing methods and design tools, will enable DoD to obfuscate the purpose of sensitive devices, verify their origin and function, and protect sensitive IP from exploitation even while using the global supply chain for most hardware. In cases where the risk involved precludes that level of commercial collaboration, low-volume manufacturing technologies demonstrated under this project would permit DoD to more cheaply produce low volumes of sensitive microelectronics in trusted environments. The project will also support demonstration of a repository of third-party IP and EDA tools to expedite circuit design and transition promising technologies to use.

Beginning in FY 2018, funding for this project has been transferred to BA 4 PE 0604294D8Z, P646, and BA 5 PE 0605294D8Z, P809.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: New Trust Approach	46.925	-	-
Description: This project started in FY 2017 with efforts that include demonstration of acquisition program pilots and technology demonstrations, and these efforts will continue under BA 4 PE 0604294D8Z, P646, and BA 5 PE 0605294D8Z, P809. These activities will mature and evaluate trust technologies and techniques through efforts that may include the conduct of studies, Broad			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605140D8Z / *Trusted Foundry*	**Project (Number/Name)** 839 / *New Trust Approach*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Agency Announcements (BAAs) and other efforts to coordinate research programs across USG research and development (R&D) organizations, academia and industry. This project will engage early on with potential stakeholders to identify potential transition issues and aid in transition through joint collaboration between research teams and stakeholders with a focus on evaluations of prototypes, test articles and beta versions of tools, IP, techniques, methods, etc. and their use in operationally-realistic scenarios.			
Accomplishments/Planned Programs Subtotals	46.925	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Performance for this project is monitored in the following ways:

• Effectiveness of developed technologies, as measured by:

- The speed and reliability of new validation and verification techniques in identifying known microelectronics issues (e.g. tampering) in laboratory and non-laboratory situations;
- Successful testing of advanced, alternative manufacturing techniques such as disaggregated manufacturing; and
- Resilience of microelectronics protected by new trust approach technologies in red teaming exercises.

• Adoption of next-generation trust technologies, as measured by:

- The number of DoD and other Government programs employing these trust technologies, design approaches, or best practices, possibly as facilitated by the provision of use models;
- The volume and criticality of components employing these technologies, design approaches, or best practices; and
- Promulgation in DoD guidance and program protection plans.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605140D8Z / *Trusted Foundry*	Project (Number/Name) 839 / *New Trust Approach*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
New Trust Approach	MIPR	Various (DARPA, Air Force, Army, Navy, NSA) : Various	4.000	46.925	Mar 2017	-		-		-		-	Continuing	Continuing	-
		Subtotal	4.000	46.925		-		-		-		-	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	4.000	46.925		0.000		-		-		-	Continuing	Continuing	N/A

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605140D8Z / *Trusted Foundry*	**Project (Number/Name)** 839 / *New Trust Approach*

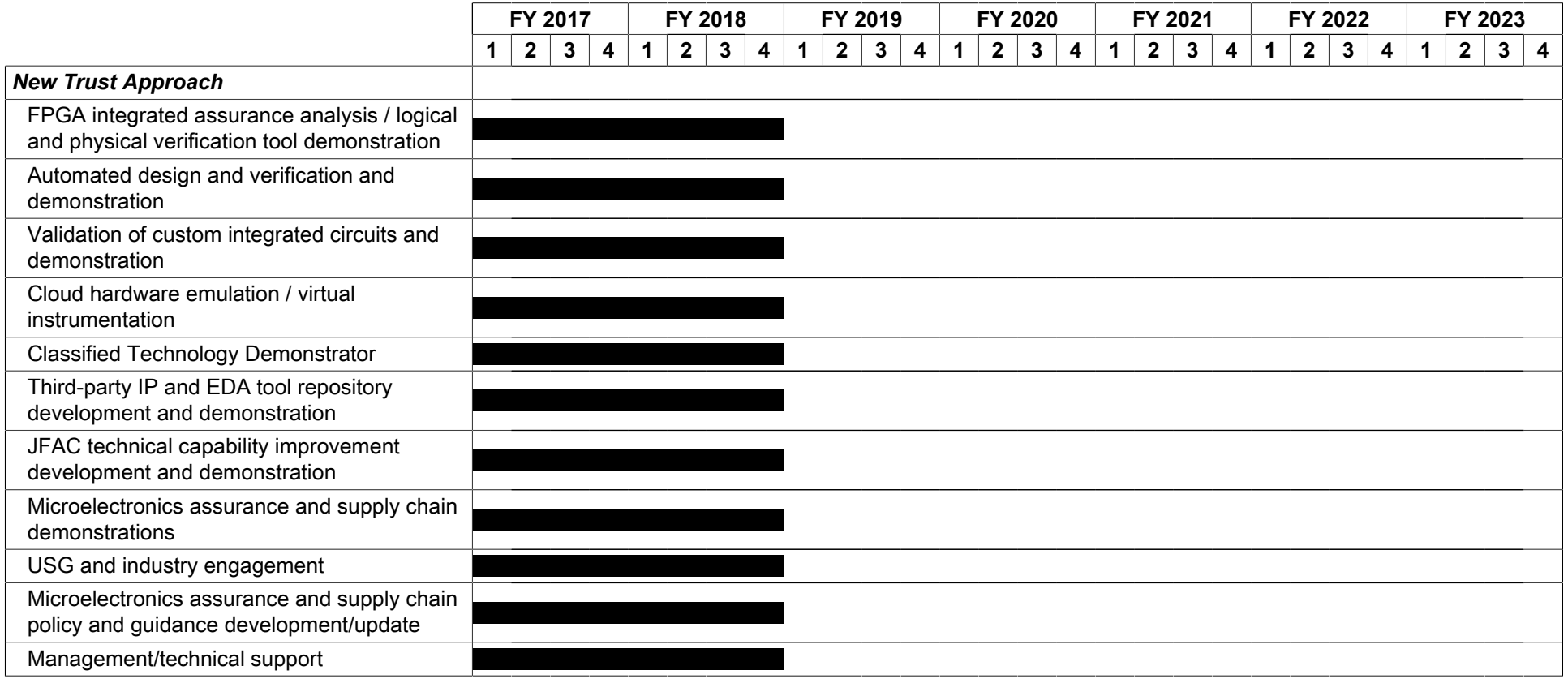

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605140D8Z / *Trusted Foundry*	**Project (Number/Name)** 839 / *New Trust Approach*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
New Trust Approach				
FPGA integrated assurance analysis / logical and physical verification tool demonstration	1	2017	4	2018
Automated design and verification and demonstration	1	2017	4	2018
Validation of custom integrated circuits and demonstration	1	2017	4	2018
Cloud hardware emulation / virtual instrumentation	1	2017	4	2018
Classified Technology Demonstrator	1	2017	4	2018
Third-party IP and EDA tool repository development and demonstration	1	2017	4	2018
JFAC technical capability improvement development and demonstration	1	2017	4	2018
Microelectronics assurance and supply chain demonstrations	1	2017	4	2018
USG and industry engagement	1	2017	4	2018
Microelectronics assurance and supply chain policy and guidance development/update	1	2017	4	2018
Management/technical support	1	2017	4	2018

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0605210D8Z / *Defense-Wide Electronic Procurement Capabilities*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	59.188	8.310	11.870	6.374	-	6.374	12.087	11.493	10.100	10.286	Continuing	Continuing
021: *Defense-Wide Electronic Procurement Capabilities-Contingency*	59.188	8.310	11.870	6.374	-	6.374	12.087	11.493	10.100	10.286	Continuing	Continuing

Note

The FY2019 funding request was reduced by $3.880 million to account for the availability of prior year execution balances.

A. Mission Description and Budget Item Justification

Defense-wide Electronic Procurement Capabilities is designed to provide an avenue for the development of increased e-business capabilities critical to meet the enterprise-wide needs of the procurement community. The requirement for increased e-business capabilities may result from statute, regulation or internal control requirements. This program provides opportunities for the introduction of innovative, time-saving, and cost-saving technologies into procurement processes across the Department. This RDT&E PE provides resources to conduct software development and testing on new or modified e-business applications to ensure mature system development, integration and demonstration of production representative systems and capabilities.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	9.881	11.870	10.338	-	10.338
Current President's Budget	8.310	11.870	6.374	-	6.374
Total Adjustments	-1.571	0.000	-3.964	-	-3.964
• Congressional General Reductions	-1.200	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.360	-			
• FFRDC	-0.010	-	-	-	-
• Other Program Adjustments-Economic Adjustment	-0.001	-	-0.084	-	-0.084
• Other Adjustments	-	-	-3.880	-	-3.880

Change Summary Explanation

Other economic adjustments totaled $.084M.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0605210D8Z *I Defense-Wide Electronic Procurement Capabilities*

Funds rephased from FY19 to FY20 and FY21 to aid in increasing program execution rates closer to the DoD benchmarks.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605210D8Z / *Defense-Wide Electronic Procurement Capabilities*	Project (Number/Name) 021 / *Defense-Wide Electronic Procurement Capabilities- Contingency*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
021: *Defense-Wide Electronic Procurement Capabilities- Contingency*	59.188	8.310	11.870	6.374	-	6.374	12.087	11.493	10.100	10.286	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Defense-wide Electronic Procurement Capabilities is designed to provide an avenue for the development of increased e-business capabilities critical to meet the enterprise-wide needs of the procurement community. The requirement for increased ebusiness capabilities may result from statute, regulation or internal control requirements. This program provides opportunities for the introduction of innovative, time-saving, and cost-saving technologies into procurement processes across the Department. This RDT&E PE provides resources to conduct software development and testing on new or modified e-business applications to ensure mature system development, integration and demonstration of production representative systems and capabilities.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Defense-Wide Electronic Procurement Capabilities- Contingency	8.310	11.870	6.374
FY 2018 Plans: To achieve efficiencies and support audit readiness funding will support the following procurement capabilities development: 1) an end to end paperless reconciliation process for Government Furnished Property (GFP) 2) continue implementation of a fraud and misuse data mining detection capability for purchase cards in DoD, 3) strengthening existing vendor identification systems in DoD to combat counterfeiting and cyber intrusion, 4) implementing contingency contracting end to end business tools for the warfighter, 5) developing enterprise mapping capabilities to streamline procure to pay exchanges in partnership with the Comptroller (with an emphasis on contract closeout)			
FY 2019 Plans: Critical to achieve enterprise procurement efficiencies and enterprise services specifically: 1) re-engineering of existing fraud and misuse data mining detection capability for purchase cards in DoD, 2) strengthen existing vendor identification systems in DoD to combat counterfeiting and cyber intrusion, 3) establish a single portal for solicitation access and proposal receipt from industry, 4) improve enterprise contract closeout tools, 5) continue implementation of contingency contracting end to end business tools for the warfighter. To strengthen internal controls for financial audit: 1) establish an end to end paperless reconciliation process for Government Furnished Property (GFP) in the hands of contractors, and 2)develop enterprise services to streamline procure to pay exchanges in partnership with the Comptroller.			
FY 2018 to FY 2019 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605210D8Z / *Defense-Wide Electronic Procurement Capabilities*	**Project (Number/Name)** 021 / *Defense-Wide Electronic Procurement Capabilities- Contingency*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
The FY2019 funding request was reduced by $3.880 million to account for the availability of prior year execution balances, other economic adjustments totaled $.084M			
Accomplishments/Planned Programs Subtotals	8.310	11.870	6.374

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

NA

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605210D8Z / *Defense-Wide Electronic Procurement Capabilities*	Project (Number/Name) 021 / *Defense-Wide Electronic Procurement Capabilities- Contingency*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contract Business Systems Development	Various	DLA, JTIC, WPAFB : FORT BELVOIR, SCOTT AFB	57.052	7.899		10.964		5.548		-		5.548	-	-	-
		Subtotal	57.052	7.899		10.964		5.548		-		5.548	-	-	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Interoperability Testing	Various	DLA, JTIC, WPAFB : FORT BELVOIR, SCOTT AFB	2.136	0.411		0.906		0.826		-		0.826	-	-	-
		Subtotal	2.136	0.411		0.906		0.826		-		0.826	-	-	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	59.188	8.310		11.870		6.374		-		6.374	-	-	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605210D8Z / *Defense-Wide Electronic Procurement Capabilities*	**Project (Number/Name)** 021 / *Defense-Wide Electronic Procurement Capabilities- Contingency*

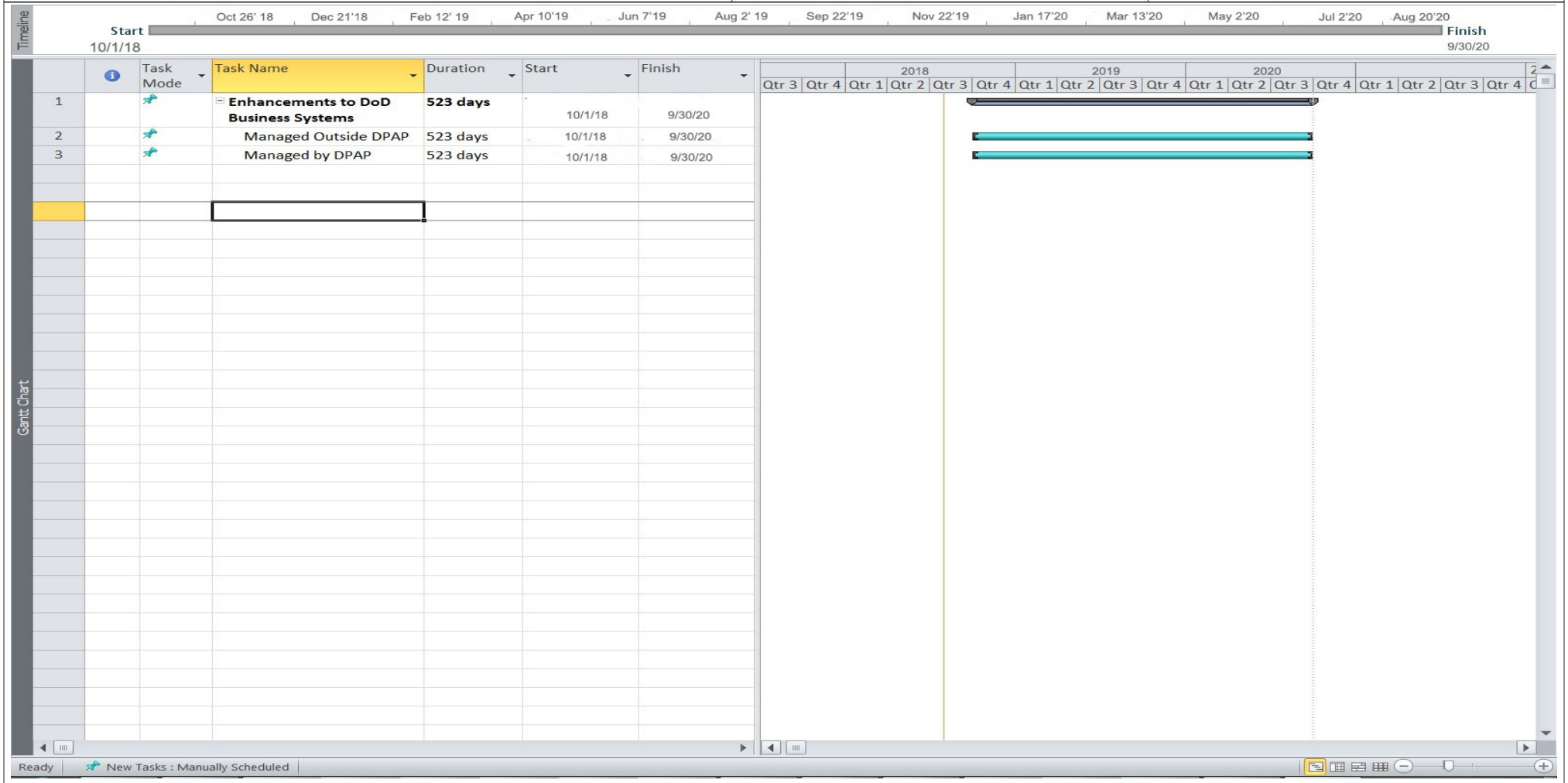

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605210D8Z / *Defense-Wide Electronic Procurement Capabilities*	**Project (Number/Name)** 021 / *Defense-Wide Electronic Procurement Capabilities- Contingency*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
N/A				
Enhancements Managed outside of DPAP	1	2018	4	2020
Not Applicable				
Enhancements Managed by DPAP	1	2018	4	2020

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0605294D8Z / *Trusted and Assured Microelectronics*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	61.084	56.178	-	56.178	57.194	67.153	67.107	67.518	Continuing	Continuing
812: *Trusted Mask Trust Approach*	0.000	0.000	2.000	2.000	-	2.000	2.000	2.000	2.000	2.000	Continuing	Continuing
809: *New Trust Approach Demonstration*	0.000	0.000	59.084	54.178	-	54.178	55.194	65.153	65.107	65.518	Continuing	Continuing

A. Mission Description and Budget Item Justification

This Program Element (PE) supports activities to ensure critical and sensitive integrated circuits are available to meet the DoD's needs. It refines strategies and management planning activities that will: (1) provide support to acquisition programs to address trusted and assured microelectronics supply needs; (2) improve capability to evaluate and validate assurance of microelectronic parts and advance standards to incentivize the commercial marketplace to recognize hardware assurance as a competitive design standard; and (3) develop and demonstrate alternative approaches to the DoD Trusted Foundry program to assure the microelectronics supply chain in order to enable broader DoD access to commercial state-of-the-art (SOTA) microelectronics technology.

This activity will be coordinated by the Office of the Under Secretary of Defense for Research and Engineering, and will include performers from the DoD Components, the Defense Microelectronics Activity (DMEA), the Joint Federated Assurance Center (JFAC), the Defense Advanced Research Programs Agency (DARPA), other DoD and Intelligence Community science and technology (S&T) organizations and laboratories, the defense industry, and the broader commercial industrial base. It will integrate the functions of the DoD Trusted Foundry Program, the Trusted Supplier accreditation program, JFAC, and related S&T activities.

This activity implements, maintains, and updates the DoD's long-term microelectronics strategy. Additionally this activity places emphasis on incentivizing and proving new microelectronics technology solutions. Recognizing that a trusted and assured supply of microelectronics is a U.S. Government (USG)-wide concern, this activity will interface with interagency partners to take into account interagency requirements, opportunities for collaboration, and strategic decisions that can be made to limit the overall cost of these requirements to the USG.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0605294D8Z *I Trusted and Assured Microelectronics*

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	0.000	61.084	15.481	-	15.481
Current President's Budget	0.000	61.084	56.178	-	56.178
Total Adjustments	0.000	0.000	40.697	-	40.697
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Program Adjustments	-	-	-0.006	-	-0.006
• Increase for priority requirements	-	-	41.080	-	41.080
• Economic Assumption	-	-	-0.377	-	-0.377

Change Summary Explanation

An additional $41.080 million was added to support the following: secure design environments; electronic data automation (EDA) tools; third-party IP and USG IP development; persistent expertise; SOTA commercial off-the-shelf (COTS) programmable integrated circuit co-development; and assessment of supply security and protection.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605294D8Z / *Trusted and Assured Microelectronics*	Project (Number/Name) 812 / *Trusted Mask Trust Approach*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
812: *Trusted Mask Trust Approach*	0.000	0.000	2.000	2.000	-	2.000	2.000	2.000	2.000	2.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project staffs and supports operation of a new secure (SECRET-level) photomask manufacturing capability at an existing SOTA commercial photomask manufacturing supplier to secure the masks and design IP of acquisition programs when using commercial microelectronic fabrication facilities other than the Trusted Foundry. This capability can be used in conjunction with one or more leading-edge commercial foundries. This capability will address trusted masks at technology node sizes less than 130 nanometers (nm) down to 14nm.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Trusted Mask Trust Approach	-	2.000	2.000
FY 2018 Plans: DMEA will provide management and technical support, as required, to procure secure mask data parsing services for the Department, as well as other Federal entities, by upgrading an existing SOTA commercial photomask manufacturing supplier with a Trusted photomask capability to ensure the integrity of the tape-in/mask release, mask manufacturing, and authentication process for photomasks. Starting in FY 2018, a SOTA commercial photomask manufacturing supplier will be equipped with a new secure (SECRET-level) photomask manufacturing capability (note: DMEA is still awaiting receipt of $7.200 million planned for this effort as part of a FY 2017 Defense Production Act (DPA) Title III project) and staffed to provide the required critical Trusted photomask capabilities.			
FY 2019 Plans: Equipping and staffing of the new secure (SECRET-level) photomask manufacturing capability at the SOTA commercial photomask manufacturing supplier will be completed, pending receipt of the DPA Title III funding as planned. DMEA will also continue to provide management and technical support, as required, to procure secure mask data parsing services for the Department, as well as other Federal entities, through operation of this Trusted photomask capability.			
FY 2018 to FY 2019 Increase/Decrease Statement: Level of effort is consistent between FY 2018 and FY 2019.			
Accomplishments/Planned Programs Subtotals	-	2.000	2.000

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605294D8Z / *Trusted and Assured Microelectronics*	**Project (Number/Name)** 812 / *Trusted Mask Trust Approach*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Performance for this project is monitored in the following ways:

- Number of photomasks created using the secure photomask manufacturing capability.
- Number of acquisition programs using the secure photomask manufacturing capability.
- Number of technology node sizes supported by the secure photomask manufacturing capability.
- Number of foundries supported by the secure photomask manufacturing capability.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605294D8Z / *Trusted and Assured Microelectronics*	**Project (Number/Name)** 812 / *Trusted Mask Trust Approach*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Trusted Mask Trust Approach	MIPR	Defense Microelectronics Activity (DMEA) : California	-	-		2.000	Mar 2018	2.000	Mar 2018	-		2.000	Continuing	Continuing	-
		Subtotal	-	-		2.000		2.000		-		2.000	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		2.000		2.000		-		2.000	Continuing	Continuing	N/A

Remarks

NA

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605294D8Z / *Trusted and Assured Microelectronics*	**Project (Number/Name)** 812 / *Trusted Mask Trust Approach*

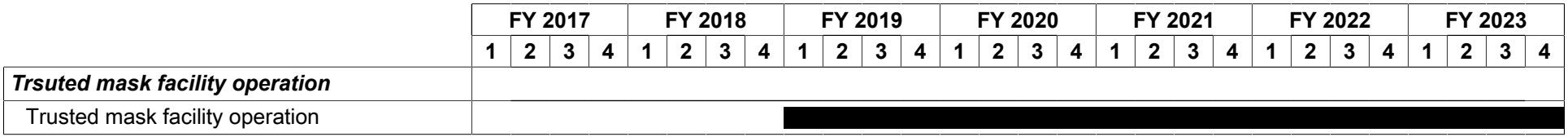

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605294D8Z / *Trusted and Assured Microelectronics*	**Project (Number/Name)** 812 / *Trusted Mask Trust Approach*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Trsuted mask facility operation				
Trusted mask facility operation	1	2019	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605294D8Z / *Trusted and Assured Microelectronics*	Project (Number/Name) 809 / *New Trust Approach Demonstration*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
809: *New Trust Approach Demonstration*	0.000	0.000	59.084	54.178	-	54.178	55.194	65.153	65.107	65.518	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project funds a program of research to develop and demonstrate the next generation, technology-driven approach to microelectronics trust and assurance, to include state-of-the-art (SOTA) microelectronics, to ensure continued access to SOTA microelectronic technologies, while maintaining the required level of assurance in all environments. DoD's ability to access commercial technology for its custom secure, trusted and assured needs is diminishing as SOTA suppliers become fewer and more focused on serving the global commercial market. DoD's technology needs are broad, and relying on a single source supplier is not feasible. Alternative, advanced manufacturing methods, technologies, and design tools are needed to produce secure, trusted and assured SOTA parts from commercial sources and to preserve access to these advanced nodes while protecting DoD and Defense Industrial Base (DIB) IP from exploitation. It is also intended to dramatically improve the capabilities of the JFAC with regard to verification and validation in support of microelectronics assurance.

This program of research will demonstrate innovative design, manufacturing, imaging, tagging, and control and assessment approaches for protecting DoD's microelectronics supply chain and IP, including alternatives for trusted, strategic radiation-hardened electronics in advanced technology nodes for next-generation strategic systems, obfuscation and disaggregation technologies, and other assurance mitigations. It will demonstrate advanced imaging technologies and forensics, Design for Assurance techniques, active hardware assurance controls, electronic component markers, and a data and analysis capability to enable auditing and independent verification and validation of commercial designs. It also demonstrates and implements concepts for the cost-effective production of custom microelectronics in low volumes and protection of sensitive IP from exploitation.

Assurance technologies that can be applied in a broad range of trusted and commercial environments can mitigate the risks associated with sole-source suppliers, and increase the ability of the U.S. Government (USG) to leverage commercial capabilities. The suite of demonstrated technologies, e.g., alternative manufacturing methods and design tools, will enable DoD to obfuscate the purpose of sensitive devices, verify their origin and function, and protect sensitive IP from exploitation even while using the global supply chain for most hardware. In cases where the risk involved precludes that level of commercial collaboration, low-volume manufacturing technologies demonstrated under this project would permit DoD to more cheaply produce low volumes of sensitive microelectronics in trusted environments. The project will also support demonstration of a repository of third-party IP and EDA tools to expedite circuit design and transition promising technologies to use.

This project received additional funding starting in FY 2019 to support microelectronics innovation efforts that both enhance national security as well as the supporting DIB and domestic commercial microelectronics suppliers.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: New Trust Approach Demonstration	-	59.084	54.178

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605294D8Z / *Trusted and Assured Microelectronics*	**Project (Number/Name)** 809 / *New Trust Approach Demonstration*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
FY 2018 Plans: Primary activities will include demonstration of acquisition program pilots and technology demonstrations, followed by transition of these capabilities to new programs in the following fiscal years. These activities will mature and evaluate trust technologies and techniques through efforts that may include the conduct of studies, Broad Agency Announcements (BAAs) and other efforts to coordinate research programs across USG research and development (R&D) organizations, academia and industry. This project will engage early on with potential stakeholders to identify potential transition issues and aid in transition through joint collaboration between research teams and stakeholders with a focus on evaluations of prototypes, test articles and beta versions of tools, IP, techniques, methods, etc. and their use in operationally-realistic scenarios. ***FY 2019 Plans:*** Primary activities will continue to include demonstration of acquisition program pilots and technology demonstrations, followed by transition of these capabilities to new programs in the following fiscal years. These activities will continue to mature and evaluate assurance technologies and techniques through efforts that may include the conduct of studies, BAAs, and other efforts to coordinate research programs across USG R&D organizations, academia and industry. This project will engage early on with potential stakeholders to identify potential transition issues and aid in transition through joint collaboration between research teams and stakeholders with a focus on evaluations of prototypes, test articles and beta versions of tools, IP, techniques, methods, etc. and their use in operationally-realistic scenarios. This project will initiate and support R&D activities in the COTS programmable integrated circuit co-development technical focus area, to include a pilot program to secure design capabilities using commercially-available cloud-based services and supply chain tools with/at commercial co-development partners. These activities with key industry partners will support secure co-design efforts of their components' security features and capabilities that are required to meet future DoD needs. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** This project received additional funding starting in FY 2019 to support microelectronics innovation efforts that both enhance national security as well as the supporting DIB and domestic commercial microelectronics suppliers.			
Accomplishments/Planned Programs Subtotals	-	59.084	54.178

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605294D8Z / *Trusted and Assured Microelectronics*	**Project (Number/Name)** 809 / *New Trust Approach Demonstration*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Performance for this project is monitored in the following ways:

• Effectiveness of developed technologies, as measured by:

- The speed and reliability of new validation and verification techniques in identifying known microelectronics issues (e.g., tampering) in laboratory and non-laboratory situations.
- Successful testing of advanced, alternative manufacturing techniques, such as disaggregated manufacturing.
- Resilience of microelectronics protected by new trust approach technologies in red teaming exercises.

• Adoption of next-generation assurance technologies, as measured by:

- The number of DoD and other USG programs employing these assurance technologies, design approaches, or best practices.
- The volume and criticality of components employing these technologies, design approaches, or best practices.
- Promulgation in DoD guidance and program protection plans.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605294D8Z / *Trusted and Assured Microelectronics*	**Project (Number/Name)** 809 / *New Trust Approach Demonstration*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
New Trust Approach Demonstration Program Support	MIPR	Various (DARPA, Air Force, Army, Navy, NSA) : Various	-	-		59.084	Mar 2018	54.178	Mar 2019	-		54.178	Continuing	Continuing	-
		Subtotal	-	-		59.084		54.178		-		54.178	Continuing	Continuing	N/A

Remarks

NA

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		59.084		54.178		-		54.178	Continuing	Continuing	N/A

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605294D8Z / *Trusted and Assured Microelectronics*	**Project (Number/Name)** 809 / *New Trust Approach Demonstration*

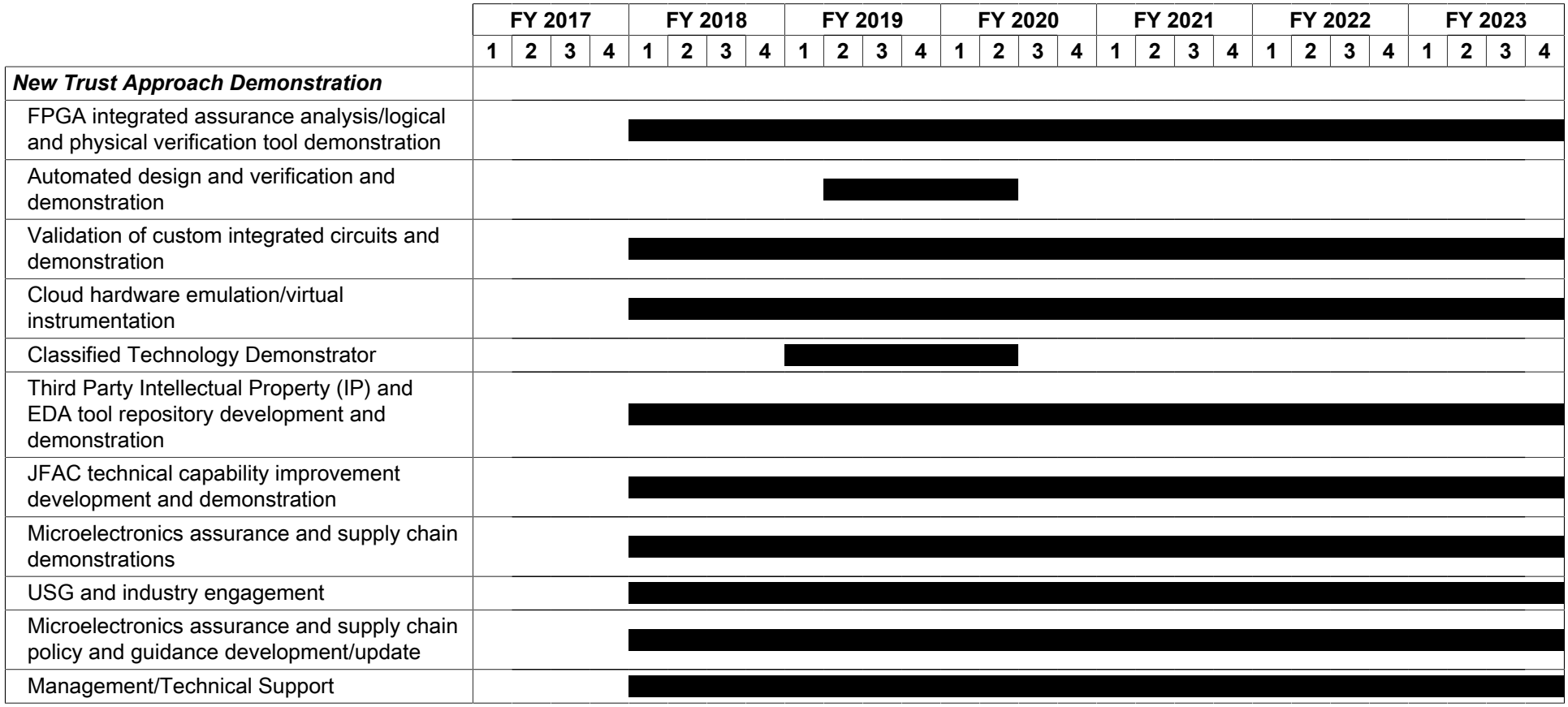

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605294D8Z / *Trusted and Assured Microelectronics*	**Project (Number/Name)** 809 / *New Trust Approach Demonstration*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
New Trust Approach Demonstration				
FPGA integrated assurance analysis/logical and physical verification tool demonstration	1	2018	4	2023
Automated design and verification and demonstration	2	2019	2	2020
Validation of custom integrated circuits and demonstration	1	2018	4	2023
Cloud hardware emulation/virtual instrumentation	1	2018	4	2023
Classified Technology Demonstrator	1	2019	2	2020
Third Party Intellectual Property (IP) and EDA tool repository development and demonstration	1	2018	4	2023
JFAC technical capability improvement development and demonstration	1	2018	4	2023
Microelectronics assurance and supply chain demonstrations	1	2018	4	2023
USG and industry engagement	1	2018	4	2023
Microelectronics assurance and supply chain policy and guidance development/update	1	2018	4	2023
Management/Technical Support	1	2018	4	2023

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0305304D8Z / *DoD Enterprise Energy Information Management (EEIM)*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	14.485	2.700	3.669	2.435	-	2.435	4.573	4.349	3.823	3.885	Continuing	Continuing
304: *Enterprise Energy Information Management*	5.108	0.550	0.500	0.000	-	0.000	0.881	0.587	0.000	0.000	Continuing	Continuing
305: *Real Property Accountability*	8.437	1.404	2.192	1.385	-	1.385	2.367	2.437	2.498	2.560	Continuing	Continuing
306: *DoD Siting Clearinghouse*	0.940	0.746	0.977	0.250	-	0.250	0.350	0.350	0.350	0.350	Continuing	Continuing
307: *Cyber Security*	-	0.000	0.000	0.800	-	0.800	0.975	0.975	0.975	0.975	Continuing	Continuing

Note

The FY2019 funding request was reduced by $1.494 million to account for the availability of prior year execution balances.

A. Mission Description and Budget Item Justification

PE 0305304D8Z was established in FY2013 and plays a pivotal role in the Department's ability to achieve audit readiness, enhance the Department's goal of energy efficiency, gain a full accountability of Real Property assets, as well as improve data quality and integration across the full spectrum of EI&E business functions. The PE helped conduct a full Business Process Re-engineering of the processes used to collect energy information, and publishing an EEIM data standard and a additional effort to build out data stores and portal requirements for Energy Conservation Investment Program (ECIP) management. Funding is also used to support ASD EI&E Senior Real Property Officer accountability requirements by supporting management and oversight of reconciliation efforts and auditability by determining requirements for the department's Real Property inventory records and asset management processes, business rules and associated data standards. A major component of this capability is an enterprise EI&E Data Analytics & Integration Support (DAIS) platform coupled with a independent verification & validation capability. With access to real time data through services WSDLS, reports generated through business intelligence provide immediate indicators driving improved and quicker decisions.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0305304D8Z / *DoD Enterprise Energy Information Management (EEIM)*

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	2.703	3.669	3.584	-	3.584
Current President's Budget	2.700	3.669	2.435	-	2.435
Total Adjustments	-0.003	0.000	-1.149	-	-1.149
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• FFRDC Transfer	-0.003	-	-	-	-
• Economic Adjustment	-	-	-0.005	-	-0.005
• O&M to RDT&E Realignment	-	-	0.350	-	0.350
• Other Program Adjustments	-	-	-1.494	-	-1.494

Change Summary Explanation

INV-001 budget decision rephased funds in FY19 to FY20-21. $350K from Siting Clearinghouse O&M funds reprogrammed to EEIM RDT&E program line to fund Siting Clearinghouse RDT&E requirements. EA-008 economic adjustment decision changed funding due to inflation expectations.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0305304D8Z / *DoD Enterprise Energy Information Management (EEIM)*	Project (Number/Name) 304 / *Enterprise Energy Information Management*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
304: *Enterprise Energy Information Management*	5.108	0.550	0.500	0.000	-	0.000	0.881	0.587	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

A key part of DoD's strategy to meet its energy goals is to develop an energy information management environment that will enable the Services and OSD to track energy production and usage across the real property portfolio. Information on energy usage is critical for day-to-day management and accountability, troubleshooting building systems, and planning for capital investments. Integration with accurate Real property asset, Utilization, Military Construction, Environmental, and installation Geospatial data is equally key to ensuring these decisions for planning and reporting are possible. It also supports development of The geospatial portal for visualizing energy layers with other EI&E data on installation or area maps for improved spatial analysis. This portal is the DOD aggregated repository for DoD Common Installation Picture layers. Additionally, the map viewer is customized and easier for OSD senior staff to manipulate and includes an online catalog of maps, documents and data; and a secure, robust data exchange module. This development supports a range of Joint Staff and OSD customers.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Enterprise Energy Information Management	0.550	0.500	0.000
Description: Supports development of an enterprise energy data store and associated standard that will be integrated with other existing and future data stores and visualization capability for a fully integrated and spatially analytical perspective of EI&E mission area information. ***FY 2018 Plans:*** Support Business Process Re-Engineering effort to update Enterprise Energy Information Model and related Business Enterprise Architecture. Include updates in energy data store integrated into EI&E Data Analytics & Integration Support warehouse. Complete initial development of automated data discovery catalog in Defense Installation Spatial Data Infrastructure (DISDI) Portal. This is including data tagging and curation of the current DISDI Portal database and contents. Begin customization of the data catalog based on initial user feedback and complete initial development of data exchange module to connect DISDI Portal to the DoD Components live databases for IGI&S. ***FY 2019 Plans:*** Support Business Process Re-Engineering effort to update several EI&E business processes. These include updating the Enterprise Energy Information Model and related Business Enterprise Architecture, complete as is and to be process models for Armed Forces Pest Management Board enterprise business models, and Consolidated Safety Center Data model. This will also			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0305304D8Z / *DoD Enterprise Energy Information Management (EEIM)*	**Project (Number/Name)** 304 / *Enterprise Energy Information Management*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
include updates in energy data store integrated into EI&E Data Analytics & Integration Support warehouse. Additional Data quality for DAIS is paramount to continue decision making for DoD Reform efforts. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Allocation to the BEA and modeling activities decreased due to decrease in PE funding driven by DCMO enforced SRRB efficiency drill. Program adjustments by comptroller for FY19 reduced this PE beyond ability to provide services in this P Code in FY19 and beyond. Zeroed out until leadership can work out a plan forward for reform support requirements for Real property data provided by systems funded with this P code..			
Accomplishments/Planned Programs Subtotals	0.550	0.500	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

EI&E BSI solicits for contracted support through WHS contracting office based on a PWS built on functional requirements and a funding profile based on government estimates derived from those requirements.

E. Performance Metrics

Performance is measured against cost, deliverable quality and scheduled based on the deliverable schedule and performance measures built into the contract and monitored by the COR and WHS contracting office.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0305304D8Z / *DoD Enterprise Energy Information Management (EEIM)*	**Project (Number/Name)** 304 / *Enterprise Energy Information Management*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
EI&E Data Analytics & Integration Platform	Option/ FFP	Favor Tech Consulting LLC : Richmond VA	4.008	0.362	Sep 2015	0.390	Sep 2015	-		-		-	Continuing	Continuing	-
DISI Portal	MIPR	USACE : CRREL	1.100	0.188	Jul 2016	0.110	Jul 2016	-		-		-	Continuing	Continuing	-
		Subtotal	5.108	0.550		0.500		-		-		-	Continuing	Continuing	N/A

Remarks

Insufficient funding in FY19-FY22 due to reprogramming adjustment by comptroller. The data from this system supports DoD Reform Initiatives. If DoD determines system is to be maintained and contract re-awarded in FY19 it will be done with funding from P Code 305 until reprogramming can fix the issue.

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	5.108	0.550		0.500		-		-		-	Continuing	Continuing	N/A

Remarks

NA

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0305304D8Z / *DoD Enterprise Energy Information Management (EEIM)*	**Project (Number/Name)** 304 / *Enterprise Energy Information Management*

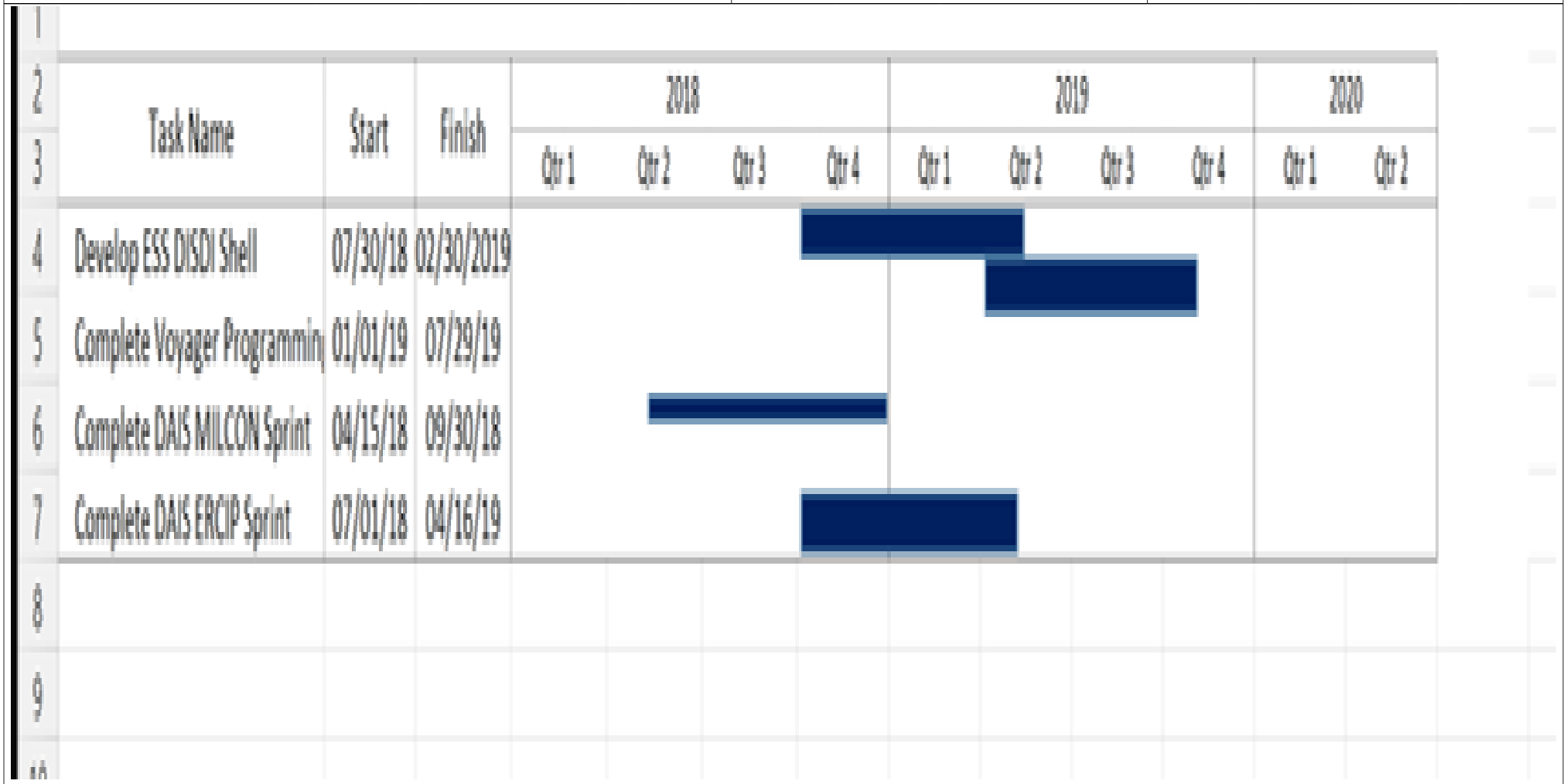

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0305304D8Z / *DoD Enterprise Energy Information Management (EEIM)*	**Project (Number/Name)** 304 / *Enterprise Energy Information Management*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
DISDI POrtal Development				
Develop ESS DISDI Shell	4	2018	2	2019
Complete Voyager Programming	2	2019	4	2019
DAIS Development				
Complete DAIS MILCON Sprint	2	2018	4	2018
Complete DAIS ERCIP Sprint	4	2018	2	2019

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0305304D8Z / *DoD Enterprise Energy Information Management (EEIM)*	Project (Number/Name) 305 / *Real Property Accountability*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
305: *Real Property Accountability*	8.437	1.404	2.192	1.385	-	1.385	2.367	2.437	2.498	2.560	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Real Property Inventory fulfills requirements of Executive Order for DoD to achieve and maintain real property accountability. This is critical both from audit readiness and program management perspectives. This funding provides the department independent verification and validation needed to reconcile errors to gain the data quality and interoperability needed for decisionable data and processes throughout the lifecycle of real property assets. Oversight and configuration management of business rules and standards are used to determine requirements for the departments Real Property inventory records and proper end to end process steps throughout the lifecycle of an asset from purchase to disposal. This includes development and procurement of the enterprise data warehouse for integrating existing and future EI&E systems and database needs. The Real Property Unique Identifier (RPUID) process has also been included in this EI&E enterprise system.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Real Property Accountability	1.404	2.192	1.385
Description: The ASD EI&E is the Senior Real Property Officer for the DoD. In this role they are responsible for the accountability and utilization of all DoD Real Property Assets. This funding provides the department a enterprise data warehouse coupled with a independent verification & validation capability. The DoD Real Property Accountability efforts are mandated by Executive Order and Public Law for improved reporting and utilization of federal real property and verifiable decisionable data is needed for future BRAC deliberations.			
FY 2018 Plans: Continue reconciliation and auditability efforts by determining requirements for the department's Real Property inventory records and asset accountability and management processes, business rules and associated data. Continue DAIS implementation with WSDL maturity and improved data quality and integration in preparation for BRAC and other upcoming analysis and decisions.			
FY 2019 Plans: Continue reconciliation and auditability efforts by determining requirements for the department's Real Property inventory records and asset accountability and management processes, business rules and associated data. Continue DAIS implementation with WSDL maturity and improved data quality and integration in preparation for BRAC and other upcoming analysis and decisions.			
FY 2018 to FY 2019 Increase/Decrease Statement: Decrease due to Comptroller's budget decision INV-001 which rephrases funding from FY19 to 20-21.			
Accomplishments/Planned Programs Subtotals	1.404	2.192	1.385

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0305304D8Z / *DoD Enterprise Energy Information Management (EEIM)*	**Project (Number/Name)** 305 / *Real Property Accountability*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

EI&E BSI solicits for contracted support through WHS contracting office based on a PWS built on functional requirements and a funding profile based on government estimates derived from those requirements

E. Performance Metrics

Performance is measured against cost, deliverable quality and scheduled based on the deliverable schedule and performance measures built into the contract and monitored by the COR and WHS contracting office.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0305304D8Z / *DoD Enterprise Energy Information Management (EEIM)*	**Project (Number/Name)** 305 / *Real Property Accountability*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
EI&E Data Analytics & Integration Platform	Option/ FFP	Favor Tech Consulting LLC : Richmond VA	0.450	0.338	Sep 2015	0.450	Sep 2015	0.500	Apr 2018	-		0.500	Continuing	Continuing	-
		Subtotal	0.450	0.338		0.450		0.500		-		0.500	Continuing	Continuing	N/A

Remarks
NA

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
BSI Support Contract	C/FFP	IEA Corp : Ashburn VA	7.362	0.948	Sep 2015	1.502	Sep 2015	0.885	Apr 2018	-		0.885	Continuing	Continuing	-
DISDI IGI&S Portal	MIPR	USACE : CRREL	0.625	0.118		0.240		0.000		-		0.000	Continuing	Continuing	-
		Subtotal	7.987	1.066		1.742		0.885		-		0.885	Continuing	Continuing	N/A

Remarks
NA

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	8.437	1.404		2.192		1.385		-		1.385	Continuing	Continuing	N/A

Remarks
NA

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0305304D8Z / *DoD Enterprise Energy Information Management (EEIM)*	**Project (Number/Name)** 305 / *Real Property Accountability*

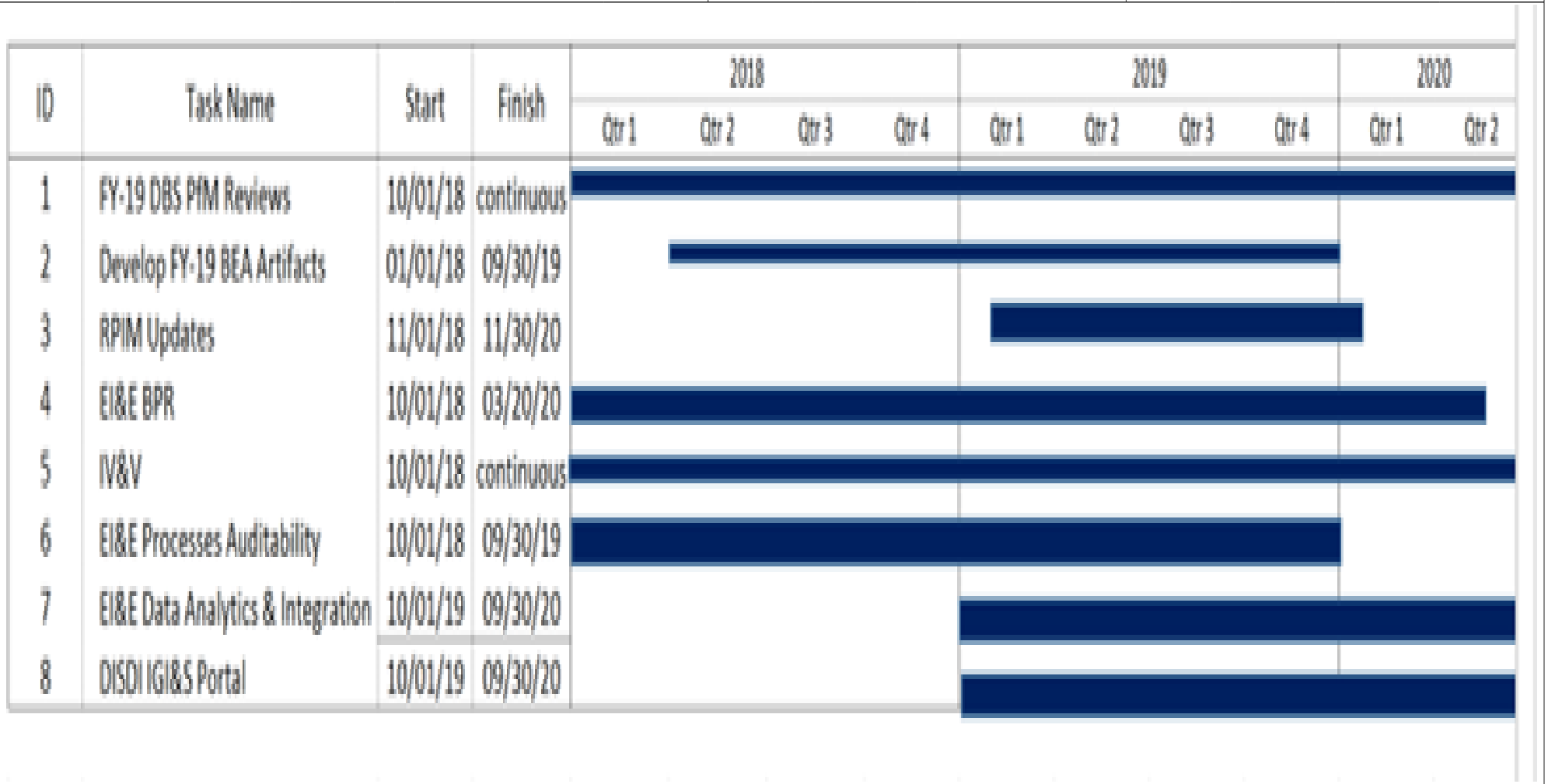

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0305304D8Z / *DoD Enterprise Energy Information Management (EEIM)*	**Project (Number/Name)** 305 / *Real Property Accountability*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
PfM				
FY18-19 DBS SYstem Reviews	1	2018	4	2020
Develop BEA Artifacts	2	2018	4	2019
Real Property Asset Management				
RPIM Updates	1	2018	1	2020
EI&E BPR	4	2018	2	2020
IV&V	1	2018	4	2020
EI&E Process & SYstem Auditability	4	2018	4	2019
EI&E Data Analytics & Integration	1	2019	4	2020
DISDI IGI&S Portal	1	2019	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0305304D8Z / *DoD Enterprise Energy Information Management (EEIM)*	Project (Number/Name) 306 / *DoD Siting Clearinghouse*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
306: *DoD Siting Clearinghouse*	0.940	0.746	0.977	0.250	-	0.250	0.350	0.350	0.350	0.350	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

For FY16-18 FM inadvertently programmed Cyber money belonging in Pcode 307 into 306 for obligation in EBAS. ARA changed the R2 to reflect as well. Clearing House RDT&E will begin again in FY19 so the programming change is corrected with these R2s.

A. Mission Description and Budget Item Justification

The DoD Siting Clearinghouse is charged with the identification of technical mitigation measures necessary to overcome degradation of radar from the proliferation of industrial wind turbine development. This R&D is necessary to work with FFRDCs to study potential technical improvements to radar.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: DoD Siting Clearinghouse	0.746	0.977	0.250
Description: The DoD Siting Clearinghouse is charged with the identification of technical mitigation measures necessary to overcome degradation of radar from the proliferation of industrial wind turbine development. This R&D is necessary to work with FFRDCs to study potential technical improvements to radar. ***FY 2018 Plans:*** EI&E Facility Related Controls Cyber Risk assessment funding will continue out of this P Code in FY18. No Clearinghouse funding in FY18. The current state of cyber security of energy-related (and other real property-related) control systems (such as the electronic/computer controls on heating, ventilation & air conditioning equipment) is deficient, and the adjusted EEIM baseline supports a multi-year real property-related control systems cyber security initiative to address these issues. Continue to support multiyear real property-related controls systems cyber security risk assessments and development of guidelines and training manuals for future in house procedures. Also supports joint initiative with DOE this year. ***FY 2019 Plans:*** Continue to support radar studies as planned through the Wind Turbine Interference Mitigation Forum. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Note: P-Code 306 formerly had Cyber Security which is now shown in P-307 (thus no decrease). New requirement for RDT&E funding, not previously programmed for Siting Clearinghouse.			
Accomplishments/Planned Programs Subtotals	0.746	0.977	0.250

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0305304D8Z / *DoD Enterprise Energy Information Management (EEIM)*	**Project (Number/Name)** 306 / *DoD Siting Clearinghouse*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

There is not an existing contract for this, as FY19 is the first year for Clearinghouse R&D Funding. The Clearinghouse will work this through existing efforts with FFRDCs.

E. Performance Metrics

The DoD Siting Clearinghouse monitors study progress through bi-weekly WTRI teleconferences supported by written bi-weekly project updates.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0305304D8Z / *DoD Enterprise Energy Information Management (EEIM)*	**Project (Number/Name)** 306 / *DoD Siting Clearinghouse*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Coordinate Tech Studis of to overcome Impacts to Radar	FFRDC	TBD : TBD	-	-		-		0.250		-		0.250	Continuing	Continuing	-
PRMA	FFRDC	MIT Labs : MIT Mas	0.940	0.746		0.977		-		-		-	Continuing	Continuing	-
		Subtotal	0.940	0.746		0.977		0.250		-		0.250	Continuing	Continuing	N/A

Remarks

NA

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.940	0.746		0.977		0.250		-		0.250	Continuing	Continuing	N/A

Remarks

NA

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0305304D8Z / *DoD Enterprise Energy Information Management (EEIM)*	**Project (Number/Name)** 306 / *DoD Siting Clearinghouse*

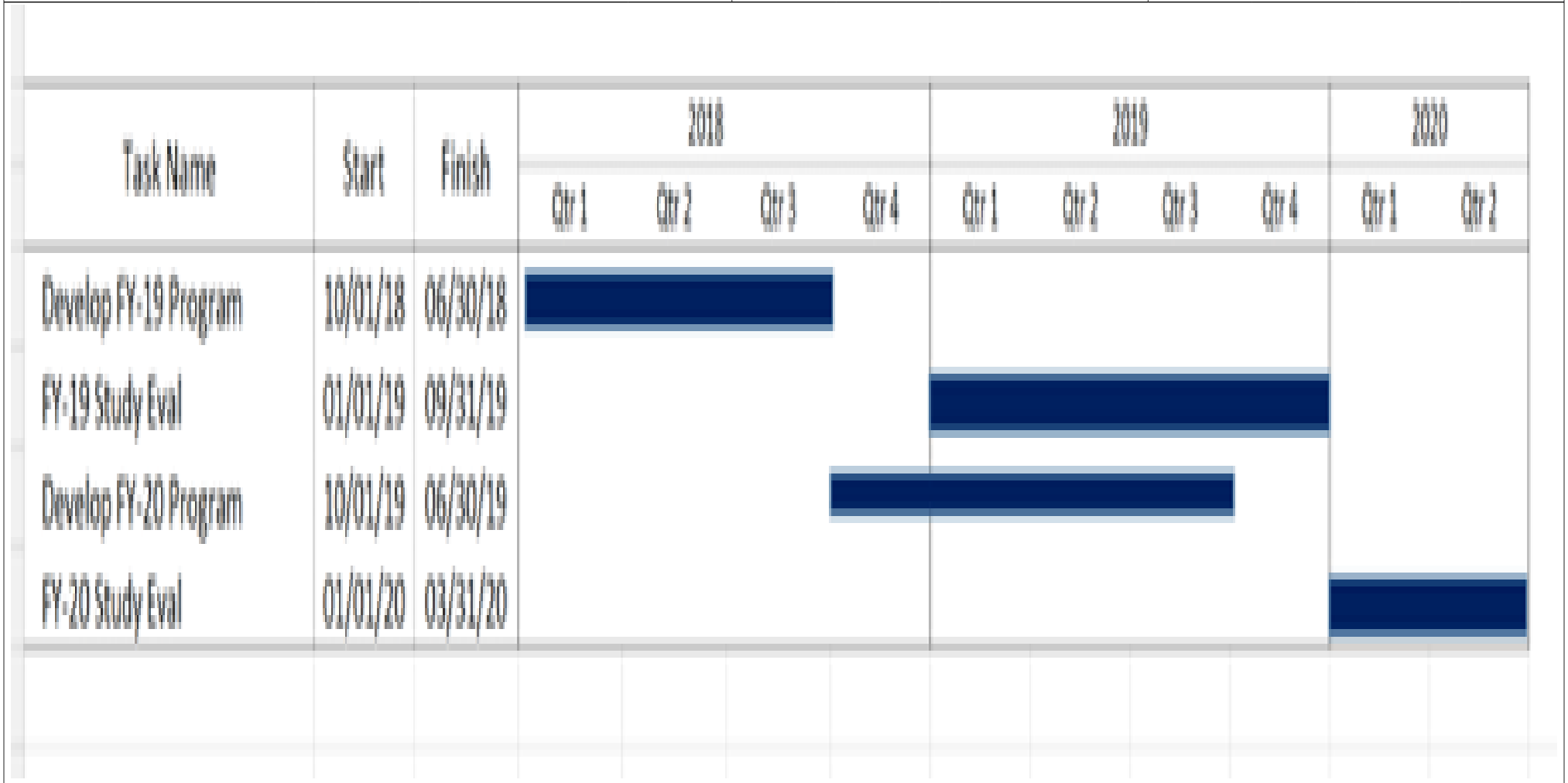

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0305304D8Z / *DoD Enterprise Energy Information Management (EEIM)*	**Project (Number/Name)** 306 / *DoD Siting Clearinghouse*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
DoD SIting Clearinghouse				
Develop FY19 Program	1	2018	3	2018
FY19 Study Eval	1	2019	4	2019
Develop FY20 Program	1	2019	3	2019
FY Study Eval	1	2020	2	2020

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0305304D8Z / *DoD Enterprise Energy Information Management (EEIM)*	Project (Number/Name) 307 / *Cyber Security*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
307: *Cyber Security*	-	0.000	0.000	0.800	-	0.800	0.975	0.975	0.975	0.975	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The current state of cyber security of energy-related (and other real property-related) control systems (such as the electronic/computer controls on heating, ventilation & air conditioning equipment) is deficient, and the adjusted EEIM baseline supports a multi-year real property-related control systems cyber security initiative to address these issues.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Cyber Security	0.000	0.000	0.800

Description: The current state of cyber security of energy-related (and other real property-related) control systems (such as the electronic/computer controls on heating, ventilation & air conditioning equipment) is deficient. This effort supports a multi-year real property-related control systems cyber security initiative to address these issues. So far it has generated an updated DoD CIO RMF Knowledge Service Portal with controls systems cyber security implementation guidance for practitioners (templates, key references, step-by-step instructions, look-up tables, etc.)
Controls systems cyber security Tactics, Techniques and Procedures (TTPS) has transitioned from Joint Base Architecture for Secure Industrial Control Systems (J-BASICS). The department has begun to implement Platform Resilience Mission Assurance (PRMA) assessments across 10 installations.
This effort has also generated policy direction to Services and Agencies including a draft Department of Defense Instruction, a draft Department of Defense Manual and Security Handling Guide for data representing energy systems.

FY 2018 Plans:
Continue to support multiyear real property-related controls systems cyber security risk assessments and development of guidelines and training manuals for future in house procedures. Also supports joint initiative with DOE this year.

FY 2019 Plans:
Continue to support multiyear real property-related controls systems cyber security risk assessments and development of guidelines and training manuals for future in house procedures. finalize DoD actions supporting the joint initiative with DOE this year.

FY 2018 to FY 2019 Increase/Decrease Statement:
Note: Cyber Security funding moved from P-Code 306 to P-Code 307. Decrease due to budget decision INV-001 which rephrases 19 funds to FY20-21. Fund at highest level possible since it is CYBERCOM funding provided for specific Cyber Security risks assessments and mitigation actions for facility related controls systems managed in the EI&E business line.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0305304D8Z / *DoD Enterprise Energy Information Management (EEIM)*	**Project (Number/Name)** 307 / *Cyber Security*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Decrease in budget will significantly impact ability of program to meet its stated goal. At current levels of funding, up to half of installations scheduled and coordinated to be evaluated under the PRMA program will be canceled. There will not be enough data collected to complete FY18 and beyond goals for the establishment of department and enterprise wide cybersecurity solutions and methodologies.			
Accomplishments/Planned Programs Subtotals	0.000	0.000	0.800

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

NA

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0305304D8Z / *DoD Enterprise Energy Information Management (EEIM)*	**Project (Number/Name)** 307 / *Cyber Security*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
PRMA	FFRDC	TBD : TBD	-	-		-		0.800	Nov 2018	-		0.800	Continuing	Continuing	-
		Subtotal	-	-		-		0.800		-		0.800	Continuing	Continuing	N/A

Remarks

NA

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		0.000		0.800		-		0.800	Continuing	Continuing	N/A

Remarks

NA

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0305304D8Z / *DoD Enterprise Energy Information Management (EEIM)*	**Project (Number/Name)** 307 / *Cyber Security*

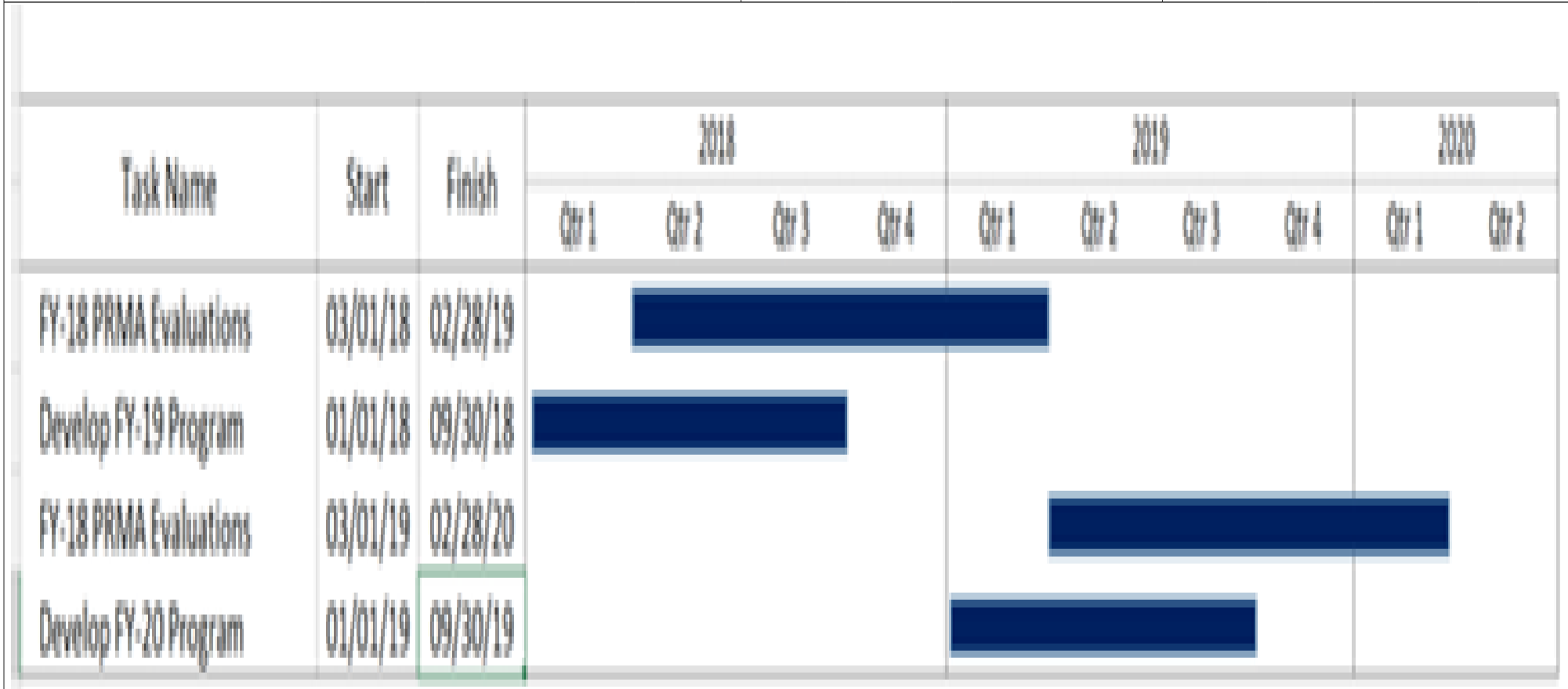

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0305304D8Z / *DoD Enterprise Energy Information Management (EEIM)*	**Project (Number/Name)** 307 / *Cyber Security*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
DoD Facility Related Controls Cyber Security Risk Assessment				
FY18 PRMA Evaluations	2	2018	2	2019
Develop FY19 Program	2	2018	4	2018
FY19 PRMA Evaluations	2	2019	2	2020
Develop FY20 Program	2	2019	4	2019

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0305310D8Z / *CWMD Systems: System Development & Demonstration*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	8.230	17.048	-	17.048	17.887	18.784	19.714	20.688	Continuing	Continuing
813: *System Development & Demonstration*	0.000	0.000	8.230	17.048	-	17.048	17.887	18.784	19.714	20.688	Continuing	Continuing

Note

Increase from FY2018 to FY2019 the result of reallocation across the portfolio in the POM-19 to better support full RDT&E cycle and technology transitions.

A. Mission Description and Budget Item Justification

The Countering Weapons of Mass Destruction (CWMD) Systems program provides funding for research, development, integration, and deployment of CWMD capabilities. Funding is allocated to a portfolio of projects and activities in response to Combatant Command needs and research initiatives.

The CWMD Systems program is organized to develop, enhance, mature and transition technologies across the RDT&E continuum, from Advanced Technology Development through Operational Systems Development, as well as limited sustainment in unique cases. A focus area is investment in CWMD-related technologies that require additional development to transition them to mature capabilities, in response to validated, prioritized requirements. This effort fills a seam in which capability gaps are not being addressed adequately or sufficiently to meet warfighter needs. The CWMD Systems program closes gaps identified by specialized military units and leverages prior S&T investments to continue development and fielding of operational systems to those units.

The program's legacy focus on CWMD situational awareness capabilities remains a significant component of the investment portfolio. The Joint Requirements Oversight Council approved the Information Systems Initial Capabilities Document for CWMD Situational Awareness in 2015, which identifies the need for a family of systems to mitigate capability gaps identified by the Combatant Commands. U.S. Special Operations Command, which assumed CWMD mission responsibilities in January 2017 per the Unified Command Plan, is providing focus and direction for development of CWMD situational awareness capabilities. In June 2017, Deputy Commander USSOCOM requested support for development of a DoD CWMD "User Defined Operational Picture" (UDOP) that can access and share relevant WMD intelligence and operational information with DoD mission partners (Combatant Commands, U.S. Government agencies, and key allies). The CWMD Systems program funds initiatives to close CWMD situational awareness gaps by leveraging mature technologies and modifying existing systems. Existing DoD information systems, networks, and applications are utilized and/or modified using CWMD Systems funding. Development of new applications reuses software to the extent possible. The CWMD Systems program also funds technology-enabled analytical cells at the Defense Threat Reduction Agency and the Defense Intelligence Agency, which support Combatant Commands. These cells curate, synthesize, and contextualize CWMD information for end-users. This hybrid approach facilitates cross-organizational information sharing and collaboration, necessary for addressing the transregional character of WMD proliferation.

The CWMD Systems program utilizes four Research, Development, Test & Evaluation (RDT&E) program elements (BA-3 / PE#0303310D8Z, BA-5 / PE#0305310D8Z, BA-6 / PE#0306310D8Z, and BA-7 / PE#0607310D8Z), as well as an Operations and Maintenance (O&M) "CWMD Sustainment" line (PE#0901388D8Z ORC-2531).

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0305310D8Z / *CWMD Systems: System Development & Demonstration*

This Program Element (PE) funds engineering and manufacturing development of CWMD systems, components, technologies, and/or applications, including system development and demonstration, and initial operational test and evaluation. The purpose is to develop, build, and test systems, verify that all operational and derived requirements have been met, and support product development decisions.

This appropriation funds travel to support the requirements of this program, and work (including manpower) performed by a government agency or by private individuals or organizations under a contractual or grant arrangement with the government who conduct research, development and test and evaluation efforts.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	0.000	8.230	17.164	-	17.164
Current President's Budget	0.000	8.230	17.048	-	17.048
Total Adjustments	0.000	0.000	-0.116	-	-0.116
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Economic adjustments	-	-	-0.116	-	-0.116

Change Summary Explanation

Increase from FY2018 to FY2019 the result of reallocation across the portfolio in the POM-19 to better support full RDT&E cycle and technology transitions.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense											Date: February 2018	
Appropriation/Budget Activity 0400 / 5					R-1 Program Element (Number/Name) PE 0305310D8Z / *CWMD Systems: System Development & Demonstration*				Project (Number/Name) 813 / *System Development & Demonstration*			
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
813: *System Development & Demonstration*	0.000	0.000	8.230	17.048	-	17.048	17.887	18.784	19.714	20.688	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Countering Weapons of Mass Destruction (CWMD) Systems program provides funding for research, development, integration, and deployment of CWMD capabilities. Funding is allocated to a portfolio of projects and activities in response to Combatant Command needs and research initiatives.

The CWMD Systems program is organized to develop, enhance, mature and transition technologies across the RDT&E continuum, from Advanced Technology Development through Operational Systems Development, as well as limited sustainment in unique cases. A focus area is investment in CWMD-related technologies that require additional development to transition them to mature capabilities, in response to validated, prioritized requirements. This effort fills a seam in which capability gaps are not being addressed adequately or sufficiently to meet warfighter needs. The CWMD Systems program closes gaps identified by specialized military units and leverages prior S&T investments to continue development and fielding of operational systems to those units.

The program's legacy focus on CWMD situational awareness capabilities remains a significant component of the investment portfolio. The Joint Requirements Oversight Council approved the Information Systems Initial Capabilities Document for CWMD Situational Awareness in 2015, which identifies the need for a family of systems to mitigate capability gaps identified by the Combatant Commands. U.S. Special Operations Command, which assumed CWMD mission responsibilities in January 2017 per the Unified Command Plan, is providing focus and direction for development of CWMD situational awareness capabilities. In June 2017, Deputy Commander USSOCOM requested support for development of a DoD CWMD "User Defined Operational Picture" (UDOP) that can access and share relevant WMD intelligence and operational information with DoD mission partners (Combatant Commands, U.S. Government agencies, and key allies). The CWMD Systems program funds initiatives to close CWMD situational awareness gaps by leveraging mature technologies and modifying existing systems. Existing DoD information systems, networks, and applications are utilized and/or modified using CWMD Systems funding. Development of new applications reuses software to the extent possible. The CWMD Systems program also funds technology-enabled analytical cells at the Defense Threat Reduction Agency and the Defense Intelligence Agency, which support Combatant Commands. These cells curate, synthesize, and contextualize CWMD information for end-users. This hybrid approach facilitates cross-organizational information sharing and collaboration, necessary for addressing the transregional character of WMD proliferation.

The CWMD Systems program utilizes four Research, Development, Test & Evaluation (RDT&E) program elements (BA-3 / PE#0303310D8Z, BA-5 / PE#0305310D8Z, BA-6 / PE#0306310D8Z, and BA-7 / PE#0607310D8Z), as well as an Operations and Maintenance (O&M) "CWMD Sustainment" line (PE#0901388D8Z ORC-2531).

This project funds engineering and manufacturing development of CWMD systems, components, technologies, and/or applications, including system development and demonstration, and initial operational test and evaluation. The purpose is to develop, build, and test systems, verify that all operational and derived requirements have been met, and support product development decisions.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0305310D8Z / *CWMD Systems: System Development & Demonstration*	**Project (Number/Name)** 813 / *System Development & Demonstration*

This appropriation funds travel to support the requirements of this program, and work (including manpower) performed by a government agency or by private individuals or organizations under a contractual or grant arrangement with the government who conduct research, development and test and evaluation efforts.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: P*813 / System Development & Demonstration	0.000	8.230	17.048
Description: • Perform engineering and manufacturing development of CWMD systems, components, technologies, and/or applications • Perform system development and demonstration and initial operational test and evaluation • Provide support to program management office on product development decisions ***FY 2018 Plans:*** • Perform engineering and manufacturing development of CWMD systems and components in support of capability needs of specialized military units • Perform system development and demonstration and initial operational test and evaluation of CWMD systems and components • Provide support to program management office on product development decisions ***FY 2019 Plans:*** • Perform engineering and manufacturing development of CWMD systems and components in support of capability needs of specialized military units • Perform system development and demonstration and initial operational test and evaluation of CWMD systems and components • Provide support to program management office on product development decisions ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase the result of reallocation across the portfolio in the POM-19 to better support full RDT&E cycle and technology transitions.			
Accomplishments/Planned Programs Subtotals	0.000	8.230	17.048

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Utilize or reuse information technologies to field initial capabilities to end-users. As technologies mature and user needs are refined, systems or applications may transition to acquisition program(s) or be sustained separately. Integration of or interoperability among systems is also an acquisition pathway.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0305310D8Z / *CWMD Systems: System Development & Demonstration*	**Project (Number/Name)** 813 / *System Development & Demonstration*

E. Performance Metrics

Success in this area is measured by compliance with various statutes and DoD directives that govern the conduct of the affairs within the Office of the Assistant Secretary of Defense for Nuclear, Chemical and Biological Defense Programs (OASD/NCB). Maintain cost, schedule, and performance reporting, review, and adjudication. Maintain requirements traceability matrix.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0305310D8Z / *CWMD Systems: System Development & Demonstration*	**Project (Number/Name)** 813 / *System Development & Demonstration*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering & manufacturing development of information systems & components	C/T&M	TBD : TBD	0.000	0.000		4.115	Jan 2018	8.524	Jan 2020	0.000		8.524	Continuing	Continuing	-
Systems development & demonstration, and initial operational test & evaluation	C/T&M	TBD : TBD	0.000	0.000		3.292	Jan 2018	6.819	Jan 2020	-		6.819	Continuing	Continuing	-
Program management support	C/T&M	TBD : TBD	0.000	0.000		0.823	Jan 2018	1.705	Jan 2020	-		1.705	Continuing	Continuing	-
		Subtotal	0.000	0.000		8.230		17.048		0.000		17.048	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		8.230		17.048		0.000		17.048	Continuing	Continuing	N/A

Remarks

NA

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0305310D8Z / *CWMD Systems: System Development & Demonstration*	**Project (Number/Name)** 813 / *System Development & Demonstration*

CWMD Systems: System Development and Demonstration (SDD)
BA 5 / PE 0305310D8Z

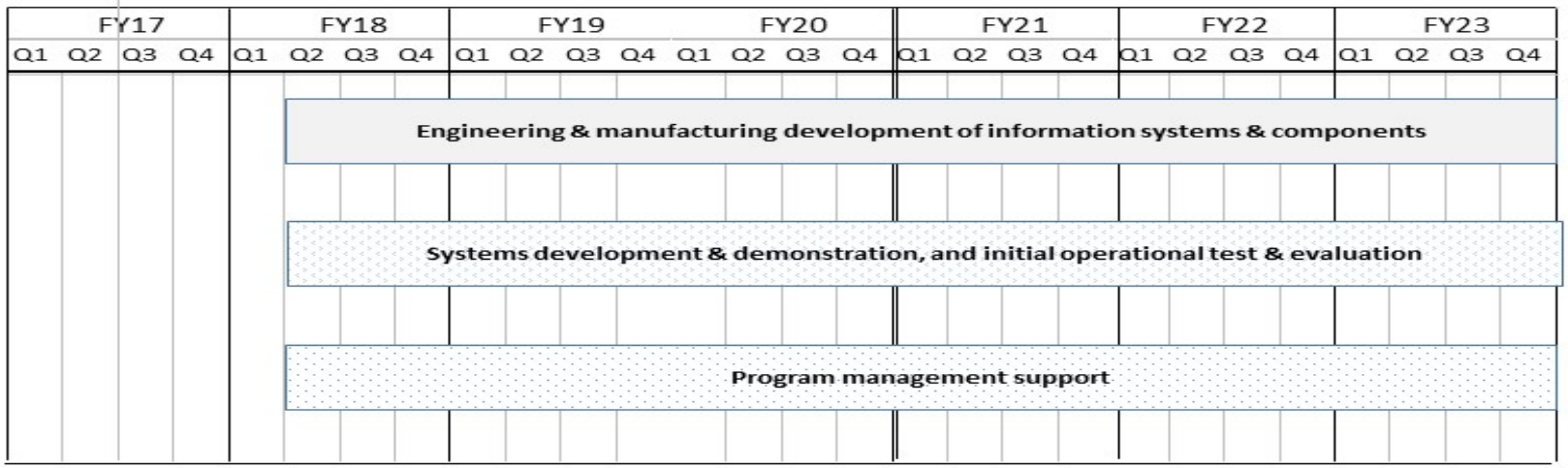

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0305310D8Z / *CWMD Systems: System Development & Demonstration*	**Project (Number/Name)** 813 / *System Development & Demonstration*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Engineering & Manufacturing Development				
Develop information systems & components	2	2018	4	2023
Operational Test & Evaluation				
Perform initial operational T&E	2	2018	4	2023
Program Management Support				
Provide PM support for development and T&E	2	2018	4	2023

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0604774D8Z / *Defense Readiness Reporting System (DRRS)*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	29.942	4.672	6.941	6.661	-	6.661	6.724	6.793	6.858	6.925	Continuing	Continuing
774: *Defense Readiness Reporting System (DRRS)*	29.942	4.672	6.941	6.661	-	6.661	6.724	6.793	6.858	6.925	Continuing	Continuing

A. Mission Description and Budget Item Justification

This funding supports the Defense Readiness Reporting System, (DRRS,) the comprehensive readiness reporting system for the Department of Defense mandated under Title 10 U.S. Code. The system measures in an objective, accurate, and timely manner the capability of the armed forces to carry out the National Security Strategy prescribed by the President, as well as the defense planning guidance provided by the Secretary of Defense and the National Military Strategy prescribed by the Chairman of the Joint Chiefs of Staff. DRRS hosts information and applications used to support the Geographic and Functional Combatant Commanders, the Services, Combat Support Agencies, the Joint Staff and the Office of the Secretary of Defense.

The transformation of readiness reporting into a new, more comprehensive system under DRRS, presents a number of significant challenges. Included in these challenges is the expansion in scope of the entities who can, and do report readiness, as well as what they report. Shifting from solely resource centric readiness reporting to a mission/capabilities based reporting system oriented towards the National Military Strategy (NMS) makes substantially more complex demands on readiness reporting, but portrays a far more relevant and holistic picture of readiness. DRRS allows the Department to assess readiness globally based on our integrated ability to project and sustain a mix of constructed forces in simultaneous engagements. Additionally, the challenges associated with sourcing and evaluating the readiness of our forces engaged in on-going real operations mean that force managers need applications that will query the entire Department for suitable, available organizations to meet current needs. The need for these applications and the underlying data are a top priority for the DRRS project.

The realization of DRRS requires integrating a host of key technologies in order to achieve an information system that supports distributed, collaborative, and dynamic readiness reporting in addition to continuous tool-based assessment. The holistic perspective of the application necessitates its need to operate in multiple domains. Additionally, the highly complex data structures and visualization tools needed to support the Global Force Management - Data Initiative and critical down-stream consumers of readiness information, must now be implemented within DRRS.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0604774D8Z / *Defense Readiness Reporting System (DRRS)*

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	4.678	6.941	6.661	-	6.661
Current President's Budget	4.672	6.941	6.661	-	6.661
Total Adjustments	-0.006	0.000	0.000	-	0.000
• Congressional General Reductions	-0.006	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

Change Summary Explanation

Service Requirement Review Board - As part of the Department of Defense reform agenda, the incremental reduction accounts for consolidation and reduction of service contracts.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0604774D8Z / *Defense Readiness Reporting System (DRRS)*	Project (Number/Name) 774 / *Defense Readiness Reporting System (DRRS)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
774: *Defense Readiness Reporting System (DRRS)*	29.942	4.672	6.941	6.661	-	6.661	6.724	6.793	6.858	6.925	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This funding supports Defense Planning Guidance (DPG) directing the Department of Defense (DoD) components to develop guidelines and procedures for a comprehensive readiness reporting system that evaluates readiness on the basis of the actual missions and capabilities assigned to the forces. The Defense Readiness Reporting System (DRRS) establishes a capabilities-based, adaptive, near real-time readiness information system for the DoD. This system is being designed to measure the readiness of military forces and supporting infrastructure to meet missions and goals assigned by the Secretary of Defense. DRRS hosts information and applications used to support the Geographic and Functional Combatant Commanders, the Services, Combat Support Agencies, the Joint Staff and the Office of the Secretary of Defense.

DRRS expands the scope of readiness reporting within the Department to create a more comprehensive assessment of the total force and its capability to perform the tasks and missions required of it to support the National Military Strategy. DRRS allows the Department to assess readiness globally based on our integrated ability to project and sustain a mix of constructed forces in simultaneous engagements. The program is the keystone for the readiness enterprise and architected to embrace the implementation of the Global Force Management - Data Imitative (GFM-DI), allowing for the Department's efforts in the realm of Adaptive Planning and Execution to be fully supported.

The realization of DRRS requires integrating a host of key technologies in order to achieve an information system that supports distributed, collaborative, and dynamic readiness reporting in addition to continuous tool-based assessment. The primary technical goal is the creation of a highly reliable and securely integrated readiness data environment to leverage and extend current readiness information systems. This system is based on intelligent agents, dynamic databases, semantic middleware, and publish/subscribe concepts; providing a logically uniform view into the multiple databases and information sources that feed DRRS. Through this type of advanced information environment, the DRRS dramatically expands the range of readiness information available to manage the force. This environment supports a suite of analysis tools that allow users to explore the consequences of readiness deficiencies in terms of the ability to generate forces and assess transportation feasibility as it pertains to specific scenarios. These tools and tool suites harness the power of the information environment to make possible the kind of quick-turnaround, excursion-driven readiness assessment that is at the heart of DRRS.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: 774 Defense Readiness Reporting System	4.672	6.941	6.661
Description: DRRS is the primary means by which Defense components (Combatant Commands, Services, Agencies and their subordinate elements and units) report their readiness. The system measures readiness of the Department's components to execute the full range of missions assigned by the Secretary of Defense.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0604774D8Z / *Defense Readiness Reporting System (DRRS)*	**Project (Number/Name)** 774 / *Defense Readiness Reporting System (DRRS)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
The Defense Readiness Reporting System (DRRS) establishes a capabilities-based, adaptive, near real-time readiness information system for DoD. DRRS measures the readiness of military forces and supporting infrastructure to meet missions and goals assigned by the Secretary of Defense. The realization of DRRS required integrating a host of key technologies to achieve an information system that supports distributed, collaborative, and dynamic readiness reporting in addition to continuous tool-based assessment. The primary technical goal was the creation of a highly reliable and securely integrated readiness data environment to leverage and extend current readiness information systems. DRRS contains readiness metrics and supporting data for forces and support organizations. ***FY 2018 Plans:*** • Optimize system implementation within the Defense Enterprise Computation Center environment to include development of functionality need to replace Enterprise Messaging • Continue full integration of GFM DI within DRRS • Continue replacement of vulnerable & legacy software components • Implement functionality to support the needs of the Adaptive Planning and Execution initiatives. ***FY 2019 Plans:*** • Continue replacement of vulnerable & legacy software components • Optimize program architecture to make use of hosting technology advancements • Incorporate functionality enhancements required by evolving readiness reporting needs • GFM DI "next steps" development • Air Force Input Tool Enhancements ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The program's increased costs stem from a greater level or required developmental activities during FY 2019. These activities include the replacement out date core components such as SQL Server and Windows Server, with current, more secure versions, as well as hosting costs associated with the program's architectural changes.			
Accomplishments/Planned Programs Subtotals	4.672	6.941	6.661

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0604774D8Z / *Defense Readiness Reporting System (DRRS)*	**Project (Number/Name)** 774 / *Defense Readiness Reporting System (DRRS)*

E. Performance Metrics

- Readiness Transformation - Accurate and timely Mission Readiness Assessment and Reporting
- Capability Readiness Reporting and Assessment - Operational commonality of mission based capability readiness reporting and assessment
- DRRS Operational Performance - Single integrated Readiness system capability for the Department
- Achieving Reliable Data Architecture and Interoperability - Seamless integration with the departments readiness architecture and compatible with emerging adaptive planning systems
- Transition to one readiness reporting system for DoD.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0604875D8Z / *Joint Systems Architecture Development*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	16.154	2.948	4.851	4.088	0.000	4.088	5.878	5.763	5.419	5.518	Continuing	Continuing
P875: *Portfolio Systems Acquisition (PSA)*	15.956	2.852	3.451	2.688	0.000	2.688	4.478	4.363	4.019	4.118	Continuing	Continuing
P220: *Electronic Warfare Executive Committee*	0.198	0.096	1.400	1.400	0.000	1.400	1.400	1.400	1.400	1.400	Continuing	Continuing

Note

The FY2019 funding request was reduced by $1.083 million to account for the availability of prior year execution balances.

A. Mission Description and Budget Item Justification

Department and acquisition reform initiatives call for top down, national security strategy-driven capabilities-based planning. Department of Defense (DoD) Instruction 5000.02 and Chairman of the Joint Chiefs of Staff Instruction 3170.01 promulgate capabilities-based requirements and acquisition processes. The JSAD program enables collaborative efforts to achieve these goals with a focus on Major Defense Acquisition Programs (MDAPs). These efforts include warfighting capability-based analyses; assessments of joint capability areas and joint integrating concepts; development of system-related data; integrated roadmaps to support acquisition investment decisions; and assessments of MDAPs in a capability area context. Activities in the JSAD project are divided into three areas: (1) capability-based analysis; (2) roadmaps; and (3) support tools and guidance. Capability-based analysis provides analysis of the different technology, functionality, and integration impacts of systems on warfighting capability. Acquisition roadmaps guide systems development and associated investment plans. JSAD support tools and guidance initiatives develop systems data, and tools, exploit modeling and simulation and architecture efforts to improve DoD's overall assessment capability. These efforts guide the development and improve the testing and fielding of integrated systems of systems in order to achieve Joint mission capabilities. The Department has also undergone an institutional reorientation or shift in emphasis from organization-specific to enterprise-wide approaches. This means: (1) horizontal integration within the Department and unity of effort through greater interagency collaboration; (2) engaging in a coordinated and portfolio-based approach to planning, programming, budgeting and execution; and (3) significant reforms at the governance, management and execution levels. To accomplish this direction, there needs to be a focused goal and concerted emphasis on shifting from systems acquisition to capabilities-based portfolio management (or portfolio systems acquisition). This program enables collaborative efforts to implement the QDR direction outlined above in order to achieve portfolio systems acquisition goals. The program is broken up into two focus areas (Portfolio Management and Reform Initiatives).

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0604875D8Z *I Joint Systems Architecture Development*

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	4.499	4.851	5.206	0.000	5.206
Current President's Budget	2.948	4.851	4.088	0.000	4.088
Total Adjustments	-1.551	0.000	-1.118	0.000	-1.118
• Congressional General Reductions	-1.400	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• FFRDC Reduction	-0.003	-	-	-	-
• Leadership Adjustment	-0.148	-	-0.035	-	-0.035
• Other Adjustments	-	-	-1.083	-	-1.083

Change Summary Explanation

Nominal increase in program will result in an increased focus on increased level of effort for land warfare and munitions and electronic warfare studies.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0604875D8Z / *Joint Systems Architecture Development*	Project (Number/Name) P875 / *Portfolio Systems Acquisition (PSA)*	

COST ($ in Millions)	Prior Years (+)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
P875: *Portfolio Systems Acquisition (PSA)*	15.956	2.852	3.451	2.688	0.000	2.688	4.478	4.363	4.019	4.118	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

(+) The sum of all Prior Years is $0.004 million less than the represented total due to several projects ending

A. Mission Description and Budget Item Justification

The Departments 2005 Quadrennial Defense Review (QDR) laid out the need for an institutional reorientation or shift in emphasis from organization-specific to enterprise-wide approaches. This meant: (1) horizontal integration within the Department and unity of effort through greater interagency collaboration; (2) engaging in a coordinated and portfolio-based approach to planning, programming, budgeting and execution; and (3) significant reforms at the governance, management and execution levels. The Department's 2010 QDR report further addressed reforming how we buy, noting that the conventional acquisition process is too long and too cumbersome to fit the needs of the many systems that require continuous changes and upgrades - a challenge that will become only more pressing over time. Better Buying Power (BBP) is the implementation of best practices to strengthen the Defense Department's buying power, improve industry productivity, and provide an affordable, value-added military capability to the Warfighter. Launched in 2010, BBP encompasses a set of fundamental acquisition principles to achieve greater efficiencies through affordability, cost control, elimination of unproductive processes and bureaucracy, and promotion of competition. BBP initiatives also incentivize productivity and innovation in industry and Government, and improve tradecraft in the acquisition of services. The Department will improve how it matches requirements with mature technologies, maintains disciplined systems engineering approaches. To accomplish this direction, there needed to be a focused goal and concerted emphasis on shifting from acquisition of individual systems to portfolio management (or portfolio systems acquisition). This program enables collaborative efforts to implement the QDR direction outlined above and advance BBP initiatives to achieve portfolio systems acquisition goals and to develop and implement acquisition reform initiatives.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Portfolio Systems Acquisition (PSA)	2.852	3.451	2.688	0.000	2.688
Description: The program is broken up into two focus areas (Portfolio Management and Reform Initiatives) and consolidates work previously performed under various other Program Elements.					
FY 2018 Plans: -Continue and expand support Mission Area Portfolio Assessments and warfare areas to identify portfolio and program synergies, reduce duplication, and identify opportunities for cost savings. -Conduct additional analyses and support implementation of updated Better Buying Power (BBP) initiatives. -Provide technical expertise in support of warfare area portfolios.					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0604875D8Z / *Joint Systems Architecture Development*	**Project (Number/Name)** P875 / *Portfolio Systems Acquisition (PSA)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
-Assess progress of program management initiatives and continue support to a variety of certification and qualification standards activities. -Continue "reliability by design", capability, capacity, and lethality analyses and support to programs. -Update roadmaps and where appropriate generate new roadmaps to guide investments in critical areas (e.g., future vertical lift, unmanned systems, ground vehicles, weapons/munitions and Integrated Air and Missile Defense (IAMD)). -Continue analytical support for the IAMD portfolio. -Provide analytical support for the munitions process, from requirements generation to demilitarization. ***FY 2019 Base Plans:*** -Continue and expand support Mission Area Portfolio Assessments and warfare areas to identify portfolio and program synergies, reduce duplication, and identify opportunities for cost savings. -Conduct additional analyses and support implementation of updated Better Buying Power (BBP) initiatives. -Provide technical expertise in support of warfare area portfolios. -Assess progress of program management initiatives and continue support to a variety of certification and qualification standards activities. -Continue "reliability by design", capability, capacity, and lethality analyses and support to programs. -Update roadmaps and where appropriate generate new roadmaps to guide investments in critical areas (e.g., future vertical lift, unmanned systems, ground vehicles, weapons/munitions and Integrated Air and Missile Defense (IAMD)). -Continue analytical support for the IAMD portfolio. -Continue analytical support for the munitions process, from requirements generation to demilitarization. ***FY 2019 OCO Plans:*** -N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** FY2019 increase will result in greater focus on land warfare studies.					
Accomplishments/Planned Programs Subtotals	2.852	3.451	2.688	0.000	2.688

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0604875D8Z / *Joint Systems Architecture Development*	**Project (Number/Name)** P875 / *Portfolio Systems Acquisition (PSA)*

D. Acquisition Strategy

Not Applicable

E. Performance Metrics

Not Applicable

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0604875D8Z / *Joint Systems Architecture Development*	Project (Number/Name) P220 / *Electronic Warfare Executive Committee*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
P220: *Electronic Warfare Executive Committee*	0.198	0.096	1.400	1.400	0.000	1.400	1.400	1.400	1.400	1.400	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Electronic Warfare (EW) Executive Committee (EXCOM) - co-chaired by the Under Secretary of Defense for Acquisition, Technology and Logistics and the Vice Chairman of the Joint Chiefs of Staff - is tasked to provide senior oversight, coordination, budget/capability harmonization, and advice on EW matters to the Secretary of Defense, Deputy Secretary of Defense, and the Deputy's Management Action Group. This program develops, maintains, and implements the overarching DoD EW Strategy and Implementation Plan to achieve Electromagnetic Spectrum (EMS) superiority. This program provides technical analyses, technology assessments, capability and capability gap identification, intelligence and threat evaluations to inform DoD EW requirements, acquisition programs, and investment decisions. This program also advances EW needs in modeling, simulation, test, exercises, experimentation, and training.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Electronic Warfare Executive Committee	0.096	1.400	1.400	0.000	1.400
Description: Funds are to conduct analytic assessments, threat-projective red-teaming, and physics-based modeling of electronic warfare capabilities to support the Deputy Secretary of Defense-directed Electronic Warfare (EW) Executive Committee (EXCOM). ***FY 2018 Plans:*** - Perform analytic underpinning for EW Strategy implementation, for synchronization of Services' EW investments, and for advancing DoD EW capabilities, training, exercises, modeling and simulation. ***FY 2019 Base Plans:*** - Develop plans and conduct Doctrine, Organization, Training, Material, Leadership and Education, Personnel, Facilities and Policy (DOTMLPF-P initiatives to implement the Department's EW strategy. - Continue to perform the necessary analytic underpinning to develop and field advanced EW capabilities, including EW manning, training, exercises, modeling and simulation. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:***					

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0604875D8Z / *Joint Systems Architecture Development*	**Project (Number/Name)** P220 / *Electronic Warfare Executive Committee*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
N/A					
Accomplishments/Planned Programs Subtotals	0.096	1.400	1.400	0.000	1.400

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Not Applicable

E. Performance Metrics

Not Applicable

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0604940D8Z / *Central Test and Evaluation Investment Program (CTEIP)*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	952.702	212.389	211.325	258.796	-	258.796	261.529	291.831	296.176	295.630	Continuing	Continuing
940: *Central Test and Evaluation Investment Program (CTEIP)*	952.702	212.389	211.325	258.796	-	258.796	261.529	291.831	296.176	295.630	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Since its inception in FY 1990, this program element (PE) has been used to fund the development of critically needed, high-priority Test and Evaluation (T&E) capabilities for joint/multi-Service requirements. The Central Test and Evaluation Investment Program (CTEIP) uses a corporate investment approach to combine Service, Defense, and other Government agencies T&E needs, maximize opportunities for joint efforts, and avoid unwarranted duplication of test capabilities. CTEIP focuses investments on projects that will have high productivity returns on investment. Projects under the CTEIP PE support two basic tasks: investments to improve the test capabilities base (Joint Improvement and Modernization (JIM) projects) and development of near-term solutions to test capability shortfalls in support of ongoing operational test programs (Resource Enhancement Project (REP)).

The JIM funds critically needed T&E investments in the major functional areas of air combat; armament and munitions; Command, Control, Communications, Computers, and Intelligence (C4I) networks; common range instrumentation; electronic combat; cyber warfare; land combat; sea combat; space combat; target systems; and test environments. Examples of project subject matter include highly accurate time-space-position information, electronic warfare test capability developments to address critical testing shortfalls against advanced threats, infrastructure developments needed for testing hypersonic weapon systems, network enhanced telemetry, information assurance and cyber testing and analysis capabilities, end-to-end testing of infrared countermeasures systems, net-centric weapons, and unmanned systems. CTEIP continues to serve as the focal point for fostering common architectures throughout the test and training communities to enhance the sharing of resources and linkages between test and training ranges.

CTEIP has provided special focus to institutionalize the use of modeling and simulation (M&S) as a practical test tool, to link ranges to enhance inter-range and inter-Service cooperation and resource sharing, and to ensure development and acquisition of common instrumentation necessary for a more efficient test infrastructure.

Analyses of alternative solutions are conducted for each investment project to validate T&E requirements, to define integrated support systems, and to determine overall cost effectiveness of the proposed test investments. The use of Department of Defense (DoD)-wide criteria for requirement validation, prioritization, and risk assessment ensures an effective test resource investment program.

The REP funds development of near-term solutions for critical ongoing operational tests supporting decisions on major, high-priority defense acquisition programs. These unanticipated operational test (OT) capability requirements arise from several sources such as a new threat system identified during OT planning, acquisition of foreign military assets that are critical in determining weapon system operational effectiveness, short timelines between system design maturity and scheduled OT, and emerging technologies and test requirements resulting from operational concept changes mandated by Congress or Director, Operational Test & Evaluation (DOT&E),

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0604940D8Z / *Central Test and Evaluation Investment Program (CTEIP)*

or system-of-systems testing. Funding these activities under the CTEIP provides the opportunity to coordinate and integrate these near-term test requirements with the total DoD test and evaluation investment planning, and ensures their availability and legacy for other programs that may have similar testing requirements.

This Budget Activity 6 PE includes special studies, analyses, and strategic planning related to test capabilities and infrastructure, and supports the development and application of proven technologies to provide major test and evaluation capabilities required to meet DoD component weapon system test requirements.

The FY2019 CTEIP budget is described in detail below. As part of the DoD reform agenda, the CTEIP budget was reduced for consolidation and reduction of service contracts. The FY2019 includes increased investments in high-priority hypersonic ground and open air range test capability developments and increased investments for critically needed upgrades to DoD Threat Models and Simulations.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	219.199	211.325	248.116	-	248.116
Current President's Budget	212.389	211.325	258.796	-	258.796
Total Adjustments	-6.810	0.000	10.680	-	10.680
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-6.537	-			
• Program Adjustment	-	-	12.381	-	12.381
• FFRDC Reduction	-0.241	-	-	-	-
• Inflation Adjustment	-	-	-1.701	-	-1.701
• Other Reduction	-0.032	-	-	-	-

Change Summary Explanation

FY2019 – Increased investments for high-priority hypersonic ground and open air range test capability developments and increased investments for critically needed upgrades to DoD Threat Models and Simulations.

C. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Central Test and Evaluation Investment Program	212.389	211.325	258.796
Description: Jim Projects:			

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0604940D8Z / *Central Test and Evaluation Investment Program (CTEIP)*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- Awarded the contract for system development and completed preliminary design for the Advanced Range Tracking and Imaging System project to provide an integrated next generation suite of optical tracking mounts needed to increase performance, reduce costs, and effectively deliver secure reliable optical throughput. - Continued procurement and initiated sustainment for the Common Range Integrated Instrumentation System project to develop a common range instrumentation system to address next generation range data requirements. - Completed the B-2 Defense Management System project to upgrade test capabilities at the Benefield Anechoic Facility (BAF) to support B-2 testing in a modern radio frequency (RF) signal threat environment. - Completed Block 1 Initial Operational Capability for the Multi-Level Secure Joint/Coalition Network Environment (MLS-JCNE) project to develop a standardized, DoD multi-level secure and cross-domain data management T&E network environment. Continued system development for Block 2 to develop a standardized, multi-level secure voice, text chat, file transfer, and multi-level work station for cross-domain data management in a T&E network environment. - Completed Block 1 (Initial Operational Capability) and Block 2 (Full Operational Capability) for the Synthetic Battlefield Emitter Systems and project to provide a controlled, high-density open air environment for testing C4ISR systems. - Completed development and fielded the Vertical Electromagnetic Pulse (EMP) System at both NAS Patuxent River, MD, and White Sand Missile Range, NM; and a High Power Microwave (HPM) Test Sources project to provide vertical high-altitude EMP and HPM external electromagnetic environments for testing in accordance with Military Standards. - Completed system design for Increment 1 and Initial Operational Capability for the Network Centric Weapon (NCW) T&E Environment project to provide an enhanced capability to test and evaluate an NCW in a distributed end-to-end simulation environment. Continued system design and development for Increment 2. - Completed system design and an Early Operational Capability Demonstration of the Cyber Test Analysis and Simulation Environment project and continued development to enhance current Information Assurance / Cyber testing and analysis capabilities and modeling and simulations tools for testing against increasingly robust Cyber threats. - Completed system development and initiated production for the Radar Signal Emulators to provide open-loop, transmit-only systems that will accurately emit waveforms of threat radar systems operating in the C and S radio frequency (RF) bands. Delivered 8 of 16 Radar Signal Emulators at the Nellis AFB Test and Training Range, NV and initiated site acceptance testing. Continued production of the remaining 9 Radar Signal Emulators. - Completed integration of three threat command posts at the Electronic Combat Range, China Lake, CA and continued system development for remaining deliverables for the Integrated Air Defense System (IADS) Enhancements project that will add comprehensive threat-representative IADS capabilities based on the development and integration of several high-priority, threat-representative Command Post (CP) models to open-air test ranges, test laboratories and modeling and simulation (M&S) facilities. - Completed source selection and contract award and initiated preliminary design for the Commercial Derivative Aircraft Based Instrumentation Telemetry System project to provide expanded capability and capacity telemetry support for aircraft and missile defense testing in inter-range and broad ocean area test scenarios.			

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
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C. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- Completed requirements development and initiated concept development and preliminary design for 7 projects improving hypersonic ground test capabilities to address critical shortfalls in developmental and operational testing of cruise missile and boost glide vehicles. * The Hypersonic Test Capability Improvement Clean Air/Variable Mach Capability to provide clean air, variable Mach test capability for hypersonic system prototypes from Mach 4 to Mach 7.5. * The Tunnel 9 High Mach Number project that develops a Mach 18 test capability at the AEDC White Oak, MD. * The High Altitude LIDAR Atmospheric Sensing System that provides DOD launch and flight test ranges with improved ability to measure atmospheric conditions to reduce flight test evaluation uncertainty and improve launch and recovery operations. * Holloman AFB High Speed Test Track Weather Effects System that provides a full scale rain erosion capability in order to validate vehicle structural design and qualify hypersonic weapon systems for flight in an open air facility. * AEDC G-Range Weather Effects that provides a small scale dust, rain, and snow erosion capability in order to validate vehicle structural design and qualify hypersonic weapon systems for flight. * M&S for Weather Effects on Hypersonic Systems that provides a database of realistic and relevant weather conditions as a basis for ground test requirements, and that develops advanced material response models validated with improved ground test data to predict weather erosion in flight. * Transient Thermal Analysis Software Transition tool set provides dramatically improved capabilities for predicting aerothermal and ablation response to high speed, high temperature flow in ground and flight test environments. - Completed requirements development and planning, and contract award and initiated preliminary design for the Advanced Weapons Effects Test Capability project to develop a capability to more accurately measure fragment characteristics of explosive weapons and more accurately estimate collateral damage distances. - Completed concept development and preliminary design, and initiated system development for the Mid-Pressure Arc Heater project to expand the H2 Hypersonic Test Facility at Arnold Engineering Development Complex, TN to provide higher enthalpy at the mid-pressure altitudes to enable ground materials testing of components of hypersonic systems. - Completed requirements development for the Pulsed Neutron Environment project to provide a Low Enriched Uranium (LEU) facility and transitioned this project to the Fast Burst Reactor Upgrade project that will begin during FY2018. - Completed critical design and continued system development for the Advanced Dynamic Transmitter Array (ADTRA) project to develop a complex, dynamic radio frequency (RF) threat environment that will accurately represent signal characteristics, increase signal densities while reducing test system set up and calibration times at the Benefield Anechoic Facility (BAF). - Completed critical design and continued system development of the Closed Loop PESA Simulator project to develop a closed-loop radar system that will closely replicate the performance of a widely fielded Western Pacific (WESTPAC) long-range surface-to-air missile (SAM) system. - Completed preliminary design and initiated system development for the Radar Cross Section Range Relevance Project to upgrade radar cross section measurement capabilities to measure and evaluate advanced low observable technologies at the Atlantic Test Range, Patuxent River NAS, MD and the National RCS Test Facility, Holloman AFB, NM.			

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C. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- Completed preliminary design and initiated system development for the Swarm Autonomy and Scoring project to upgrade existing High Speed Maneuverable Surface Targets (HSMST) with semi-autonomous control and UAS overhead scoring capabilities for testing against representative surface swarming threats. Deferred concept development and preliminary design of the Real Time Casualty Assessment capability pending completion of a feasibility assessment. - Continued system development of the Integrated Network Enhanced Telemetry (iNET)Project Block I capability to develop a network-enhanced aeronautical telemetry capability for T&E ranges and facilities. - Continued system development for the Next Generation Electronic Warfare Environment Generator (NEWEG) Build B project to provide electronic warfare simulation capabilities for testing future Electronic Attack and Electronic Support Measures systems. - Continued Integrated Technical Evaluation and Analysis of Multiple Sources (ITEAMS) activities to provide detailed analysis and validation of threat system designs and operational techniques. - Continued system development for Full Operational Capability for the Joint Distributed Infrared Countermeasures (IRCM) Ground Test System project to provide end-to-end ground testing of IRCM systems. - Continued the Joint Strike Fighter Knowledge Management (KM) project to establish a next-generation KM capability that utilizes the latest in virtualization technologies, methodologies, and best practices for efficient and effective use of T&E data. Initiated development of small form factor instrumentation prototypes for data collection and data analytics systems to support F-35 Initial Operational Test and Evaluation. - Initiated risk reduction activities under the Enhanced Solutions Process for potential FY18 multi-Service T&E developments, as recommended by Service Test and Evaluation Executives. - Monitored early maturation under the Test and Evaluation/Science and Technology Program for a prototype capability to develop a Dense Plasma Focus (DPF) system to meet short pulse fusion neutron test requirements necessary for both weapons certification and testing new circuit designs for nuclear weapons effects testing that will transition to CTEIP development in FY2018. - Continued threat system simulator, modeling and simulation development efforts to improve integration; reduce potential duplication and ensure that accurate, cost-effective representations of threat systems are available to support testing. Resource Enhancement Project: - Completed the Advanced Mine Simulation System (AMISS) Upgrade, which provides the existing AMISS asset with five new mine-triggering emulations, as well as sensor and improved compartmentalization enhancements. - Completed the C2 and Urban Background Environment Simulator (CUBES) to incorporate modern urban communication background signals and selected closed-loop communications for Installed System Test Facility communications jamming purposes. - Completed the Digital Integrated Air Defense System (DIADS) Sensor Reactivity Upgrade (SRU) to upgrade DIADS radars with enhanced ECM response features in support of F-35 and F-22 operational testing.			

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C. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- Completed development of Torpedo Operational Testing Using Modeling and Simulation (TOTUMS) to enhance torpedo OT&E by upgrading an HITL simulator and environment simulator for high-fidelity, OT-ready realism. - Completed Tactical Datalink (TDL) and Full Motion Video (FMV) Accuracy Assessment Tool (T-FAAT) to interface commercial off-the-shelf tool suites to create a net-enabled weapon situational awareness during live testing. - Continued development of Airborne Early Warning Interoperability Simulator (AEIS) to develop the hardware and software necessary to generate a properly spaced, dense target and ECM environment for injection-mode Installed Systems Test Facility testing of the E-2D Hawkeye mission system. - Continued development of Boosted Zombie Target (BZT) to develop multi-stage, economical targets for PAC-3 by integrating a GFE booster onto a blue "Zombie" maneuvering target. - Continued development of Joint Standard Instrumentation Suite (JSIS) Phase 1 to measure and collect signature, TSPI, and related data from key flight trajectory segments of threat missile and hostile fire munitions (e.g., small arms and RPG) firings to support evaluation of the missile/hostile fire warning systems such as the Advance Threat Warning (ATW) system. - Continued development of the Medium Range Target Engagement Radar (MR-TER) Radar System Emulator (RSE) to develop and integrate TER waveform replication capability into C-Band RSEs. - Continued development of Cognitive Electronic Warfare (Cognitive EW) Flight Test to evaluate an advanced EW system against emerging threat representations. - Continued development of Submarine Launched Modular 3-inch Device (SLAM-3D), which provides a Cluster Duncan countermeasure emulator that will help resolve the Anti-Submarine Warfare COI for the Mk 54 Mod 1 Torpedo. - Continued development of General Threat Torpedo (GTT) to develop a threat torpedo surrogate with upgradable interchangeable segments as an upgrade replacement for the current threat surrogate torpedo. - Initiated development of Advanced Communication Threat Testing Suites (ACTTS) Uplink Capability to develop an electronic warfare (EW) threat representative uplink jamming system to support test and evaluation of end to end satellite system responsiveness to threat systems operating in applicable bands. - Initiated development of additional enhancements to Air Warfare Battle Shaping (AWBS) investments to improve air-to-air range infrastructure for NAWC-WD. - Initiated development of Common Operational Test Vehicle and Engagement Real-Time Test Instrumentation (COVERT-I) to reduce the data collection footprint in Abrams tanks and Bradley fighting vehicles by reducing from three unique data collectors to one modular, scalable data collector with increased storage capacity. - Initiated development of Integrated Digital Acquisition Radar Environment. - Upgraded (IDARE-U) to upgrade two NAWCWD Electronic Combat Range OEM Radars' analog output with digital upgrade for downstream digital messaging. - Initiated development of Joint Standard Instrumentation Suite (JSIS) Phase 2 to measure and collect missile attitude (6DOF) as well as signature, TSPI, and related data for a larger portion of the threat MANPADS trajectory at the required accuracies within a single firing to support evaluation of the missile/hostile fire warning systems such as the Advance Threat Warning (ATW) system.			

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
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C. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
-Initiated development of the Pulsed Doppler Emitter Capability Payload for Aerial Targets (PDEC-163) to develop kinematic threat representations and threat representative emissions to provide the DDG-1000 OT SUT with the ability to collect data necessary for COTF to accredit the DDG-1000's fire control loop weapons system response to threat targets. - Initiated development of Space Fence Evaluation of Radar Effectiveness (SFERES) to fabricate a 3-axis stabilized CubeSat which will launch two spheres to support accurate evaluation of the Space Fence radar. ***FY 2018 Plans:*** JIM Projects: - Complete system development for the Joint Distributed Infrared Countermeasures (IRCM) Ground Test System (JDIGS) project to provide an end-to-end ground test system enabling complete testing of IRCM systems. - Complete preliminary design and continue system development for Block 2 of the Multi-Level Secure Joint/Coalition Network Environment (MLS-JCNE) project to develop standardized, DoD test and evaluation multi-level secure voice, text chat, file transfer and a multi-level work station for cross-domain data management in a T&E network environment. - Continue system development for the Network Centric Weapon (NCW) T&E Environment project to provide an enhanced capability to test and evaluate NCW in a distributed end-to-end simulation environment. - Complete Initial Operational Capability (IOC) and continue system development for the Cyber Test Analysis and Simulation Environment (Cyber TASE) project to enhance current Information Assurance / Cyber testing and analysis capabilities and modeling and simulations tools for testing against increasingly robust Cyber threats. - Complete production, delivery and site acceptance testing for a 16 Radar Signal Emulator project to provide open-loop, transmit-only systems that will accurately emit waveforms of threat radar systems operating in the C and S radio frequency (RF) bands. Transition to Air Force and Navy for sustainment. - Complete prototype testing, critical design and continue system development for the Advanced Range Tracking and Imaging System (ARTIS) project to provide an integrated next generation suite of optical tracking mounts needed to increase performance, reduce costs, and effectively deliver secure reliable optical test data. - Complete requirements development and planning and initiate preliminary design for the Fast Burst Reactor project that upgrades the capability of Highly Enriched Uranium, Fast Burst Reactor at White Sands Missile Range test capability to conduct component testing in a nuclear weapons environment. - Complete engineering design unit #1 and continue preliminary design for the Commercial Derivative Aircraft Based Instrumentation Telemetry System (CBITS) project to provide expanded capability and capacity telemetry support for aircraft and missile defense testing in inter-range and broad ocean area test scenarios. - Continue initial contractor support for the delivery of the Common Range Integrated Instrumentation System (CRIIS) project that provides a common range instrumentation system for next generation high dynamic aeronautical range data requirements.			

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C. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- Continue the Joint Strike Fighter Knowledge Management (JSF-KM) project to establish a next-generation KM capability that utilizes the latest in virtualization technologies, methodologies, and best practices for efficient and effective use of T&E data. Complete development of small form factor data analytics system to support F-35 Initial Operational Test and Evaluation. - Complete Initial Operational Capability at Patuxent River NAS, MD, for the Next Generation Electronic Warfare Environment Generator (NEWEG) Build B project to provide electronic warfare simulation capabilities for testing future Electronic Attack and Electronic Support Measures systems. Continue system development and integration of simulator systems and integration for Full Operational Capability. - Complete system development for unit #1 and integration testing with the Next Generation Electronic Warfare Environment Generator (NEWEG) system for the Advanced Dynamic Transmitter Array (ADTRA) project to develop a dense, complex, dynamic radio frequency (RF) signal threat environment that will accurately represent signal characteristics, increase signal densities, while reducing test system set up and calibration times at the Benefield Anechoic Facility (BAF). Continue system development and integration for remaining ADTRA units. - Continue system development of the Closed Loop PESA Simulator project to develop a closed-loop radar system that will closely replicate the performance of a widely fielded Western Pacific (WESTPAC) long-range surface-to-air missile (SAM) system. - Continue system development of Integrated Air Defense System (IADS) Enhancements that will add comprehensive threat-representative IADS capabilities based on the development and integration of several high-priority, threat-representative Command Post (CP) models to open-air test ranges, test laboratories and modeling and simulation (M&S) facilities. - Continue Integrated Technical Evaluation and Analysis of Multiple Sources (ITEAMS) activities to provide detailed analysis and validation of threat system designs and operational techniques. - Complete critical design and continue system development for the Advanced Weapons Effects Test Capability project to develop a capability to more accurately measure fragment characteristics of explosive weapons and more accurately estimate collateral damage distances. - Complete integration of the Ka-band radar upgrade and continue risk reduction for the Atlantic Test Range ADAMS-3 at Patuxent River NAS, MD, and complete HF antenna integration, distributed signal processing upgrade and pylon refurbishment and continue system development at the National Radar Cross Section Test Facility, Holloman AFB, NM for the Radar Cross Section Range Relevance Project to upgrade radar cross section measurement capabilities to measure and evaluate advanced low observable technologies. - Complete critical design, conduct UAS Scoring flight demonstrations, seaborne target control demonstrations and continue system development for the Swarm Autonomy and Scoring project to upgrade existing High Speed Maneuverable Surface Targets (HSMST) with semi-autonomous control and improved UAS overhead scoring capabilities for testing against representative surface swarming threats. Complete the feasibility assessment for the Real Time Casualty Assessment capability. - Continue system development of the Integrated Network Enhanced Telemetry (iNET) project capability to develop a network-enhanced aeronautical telemetry capability for T&E ranges and facilities.			

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C. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- Continue system development for the Mid-Pressure Arc Heater project to expand the H2 Hypersonic Test Facility at the Arnold Engineering Development Complex, TN to provide higher enthalpy at the mid-pressure altitudes to enable ground materials testing of components of hypersonic systems. - Complete concept development and initiate design for Hypersonic Test Capability Improvement project that will test prototypes of hypersonic systems in a realistic clean air environment up to Mach 7.5 at Arnold Engineering Development Complex, TN. - Continue upgrading the Arnold Engineering Development Complex (AEDC) Hypervelocity Wind Tunnel 9 in Maryland to a Mach 18 capability to conduct testing in support of hypersonic system development and hypersonic vehicle technologies. - Continue development of G-Range Weather Erosion Facility to conduct erosion testing of hypersonic materials and vehicle technologies in weather and particulate environments (rain, ice and dust). - Continue upgrading of the Holloman AFB, NM Sled Track to conduct erosion testing of hypersonic materials and vehicle technologies. - Continue requirements development and planning to develop a Light Detecting and Ranging (LiDAR) atmospheric measurement system for enhanced ground-based atmospheric measurements to support open-air range flight testing of hypersonic vehicles. - Continue development under the M&S for Weather Effects on Hypersonic Systems project that provides a database of realistic and relevant weather conditions as a basis for ground test requirements and develops advanced material response models validated with improved ground test data to predict weather erosion in flight. - Continue development of the Transient Thermal Analysis Software Transition tool set that improves capabilities for predicting aerothermal and ablation response to high speed, high temperature flow in ground and flight test environments. - Initiate a study of open-air ranges for hypersonic testing. - Initiate six CTEIP FY2018 New Start test environment and test instrumentation capability development projects. Complete requirements development and planning and initiate concept development and preliminary design based on progress: * The Autonomous Systems Test Capability (ASTC) project that develops test capability for Service autonomous systems. * The Advanced Durability Testing (AVDT) that develops a multi-axle vehicle chassis simulator and a drive train simulator at Aberdeen, MD. * The Mission System Test Capability (MSTC) project that develops the capability to support integration and interoperability testing for advanced 4th and 5th generation aircraft data links (MADL and TTNT) in a ground test, simulation environment. * The Radar Air-to-Ground Environment (RAGE) project that develops an installed test facility, ground test capability for testing advanced aircraft radars in high density air-to-air and air-to-ground environments. * The Next Generation Turbine Engine Sea-level RAM Test Capability (NGTE) project that upgrades the turbine engine test capability to test advanced aircraft engines at Arnold Engineering Development Center, TN. * The Unmanned Systems T&E Improvements (UAS-TEI) project that develops improved test capability of the Services LVC unmanned autonomous systems test environments. - Initiate risk reduction activities under the Enhanced Solutions Process for candidate FY2020 multi-Service T&E developments, as recommended by Service Test and Evaluation Executives.			

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C. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- Continue ongoing threat system simulator, modeling and simulation development efforts, and initiate new threat simulator, modeling and simulation efforts in coordination with the Director, Operational Test and Evaluation (DOTE) Test and Evaluation Threat Resource Activity (TETRA). - Transition the Dense Plasma Focus (DPF) system to meet short pulse requirements necessary for both weapons certification and testing new circuit designs for nuclear weapons effects testing from T&E/S&T technical maturation into a CTEIP development project. Initiate requirements development and project planning. Resource Enhancement Project: - Complete development of additional enhancements to Air Warfare Battle Shaping (AWBS) investments to improve air-to-air range infrastructure for NAWC-WD. - Complete development of Boosted Zombie Target (BZT) to develop multi-stage, economical targets for PAC-3 by integrating a GFE booster onto a blue "Zombie" maneuvering target. - Complete development of Cognitive Electronic Warfare (Cognitive EW) Flight Test to evaluate an advanced EW system against emerging threat representations. - Complete development of Joint Standard Instrumentation Suite (JSIS) Phase 1.5 to improve and enhance plume signature video models of threat missile and hostile fire munitions (e.g., small arms and RPG) firings to support evaluation of the missile/hostile fire warning systems such as the Advance Threat Warning (ATW) system. - Complete development of Submarine Launched Modular 3-inch Device (SLAM-3D), which provides a Cluster Donut countermeasure emulator that will help resolve the Anti-Submarine Warfare COI for the Mk 54 Mod 1 Torpedo. - Complete development of Space Fence Evaluation of Radar Effectiveness (SFERES) to fabricate a 3-axis stabilized CubeSat which will launch two spheres to support accurate evaluation of the Space Fence radar. - Continue development of Advanced Communication Threat Testing Suites (ACTTS) Uplink Capability to develop an electronic warfare (EW) threat representative uplink jamming system to support test and evaluation of end to end satellite system responsiveness to threat systems operating in applicable bands. - Continue development of Airborne Early Warning Interoperability Simulator (AEIS) to develop the hardware and software necessary to generate a properly spaced, dense target and ECM environment for injection-mode Installed Systems Test Facility testing of the E-2D Hawkeye mission system. - Continue development of Common Operational Test Vehicle and Engagement Real-Time Test Instrumentation (COVERT-I) to reduce the data collection footprint in Abrams tanks and Bradley fighting vehicles by reducing from three unique data collectors to one modular, scalable data collector with increased storage capacity. - Continue development of General Threat Torpedo (GTT) to develop a threat torpedo surrogate with upgradable interchangeable segments as an upgrade replacement for the current threat surrogate torpedo. - Continue development of Integrated Digital Acquisition Radar Environment - Upgrade (IDARE-U) to upgrade two NAWCWD Electronic Combat Range OEM Radars' analog output with digital upgrade for downstream digital messaging.			

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C. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- Continue development of Joint Standard Instrumentation Suite (JSIS) Phase 2 to measure and collect missile attitude (6DOF) as well as signature, TSPI, and related data for a larger portion of the threat man-portable air defense systems (MANPADS) trajectory at the required accuracies within a single firing to support evaluation of the missile/hostile fire warning systems such as the Advance Threat Warning (ATW) system. - Continue development of the Medium Range Target Engagement Radar (MR-TER) Radar System Emulator (RSE) to develop and integrate TER waveform replication capability into C-Band RSEs. - Continue development of the Pulsed Doppler Emitter Capability Payload for Aerial Targets (PDEC-163) to develop kinematic threat representations and threat representative emissions to provide the DDG-1000 OT SUT with the ability to collect data necessary for COTF to accredit the DDG-1000's fire control loop weapons system response to threat targets. - Initiate development of Ultra Low-band Time Difference Of Arrival (UT) to develop the capability for a time difference of arrival (TDOA) multi-aircraft test configuration to support three aircraft under test in both the Air Combat Environment Test and Evaluation Facility (ACETEF) and the Electronic Combat Simulation and Evaluation Lab (ECSEL).			
FY 2019 Plans: JIM Projects: - Complete requirements and development and initiate concept development and preliminary design for the Autonomous Systems Test Capability (ASTC) project that develops test capability for Service autonomous systems. - Complete requirements and development and initiate concept development and preliminary design for the Advanced Durability Testing (AVDT) that develops a multi-axle vehicle chassis simulator and a drive train simulator at Aberdeen, MD. - Complete requirements and development and initiate concept development and preliminary design for the Mission System Test Capability (MSTC) project that develops the capability to support integration and interoperability testing for advanced 4th and 5th generation aircraft data links (MADL and TTNT) in a ground test, simulation environment. - Complete requirements and development and initiate concept development and preliminary design for the Next Generation Turbine Engine Sea-level RAM Test Capability (NGTE) project that upgrades the turbine engine test capability to test advanced aircraft engines at Arnold Engineering Development Center, TN - Complete requirements and development and initiate concept development and preliminary design for the Radar Air-to-Ground Environment (RAGE) project that develops an installed test facility, ground test capability for testing advanced aircraft radars in high density air-to-air and air-to-ground environments. - Complete requirements and development and initiate concept development and preliminary design for the Unmanned Systems T&E Improvements (UAS-TEI) project that develops improved test capability of the Services LVC unmanned autonomous systems test environments. - Complete Enhanced Solutions Process risk reduction activities for candidate FY2020 CTEIP New Start test environment and test instrumentation test capability development projects to support CTEIP FY2020 New Start nominations by the Service T&E Executives.			

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Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0604940D8Z / *Central Test and Evaluation Investment Program (CTEIP)*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- Complete preliminary design and initiate system development for the Fast Burst Reactor Upgrade project that upgrades the capability of the Highly Enriched Uranium, Fast Burst Reactor at White Sands Missile Range to conduct component testing in a nuclear weapons environment. - Complete requirements development and planning and initiate preliminary design for the Dense Plasma Focus (DPF) project that will meet the short pulse requirements necessary for both weapons certification and testing new circuit designs for nuclear weapons effects testing. - Complete preliminary and critical design and continue system development for the Commercial Derivative Aircraft Based Instrumentation Telemetry System project to provide expanded capability and capacity telemetry support for aircraft and missile defense testing in inter-range and broad ocean area test scenarios. - Complete development of units 2-3 and continue system development for the Advanced Dynamic Transmitter Array (ADTRA) project to develop a dense, complex, dynamic radio frequency (RF) signal threat environment that will accurately represent signal characteristics, increase signal densities, while reducing test system set up and calibration times at the Benefield Anechoic Facility (BAF). - Complete development of the upgraded Command and Control system and initiate security and Calibration Pit developments at the National RCS Test Facility, Holloman AFB, NM. Complete the continue system development for the ADAMS-3 radar facility for the Atlantic Test Range, Patuxent River NAS, MD Radar Cross Section Range Relevance Project that upgrades radar cross section measurement capabilities to measure and evaluate advanced low observable technologies. - Complete Initial Operational Capability and continue system development for the Swarm Autonomy and UAV Scoring project to upgrade existing High Speed Maneuverable Surface Targets (HSMST) with semi-autonomous control for testing against representative surface swarming threats. Initiate preliminary design for the Real Time Casualty Assessment capability. - Complete Initial Operational Capability (IOC) and continue system development of the Closed Loop PESA Simulator project to develop a closed-loop radar system that will closely replicate the performance of a widely fielded Western Pacific (WESTPAC) long-range surface-to-air missile (SAM) system. - Complete Full Operational Capability (FOC) for the Integrated Air Defense System (IADS) Enhancements that will add comprehensive threat-representative IADS capabilities based on the development and integration of several high-priority, threat-representative Command Post (CP) models to open-air test ranges, test laboratories and modeling and simulation (M&S) facilities. - Complete critical design and deliver the cross domain VOIP at the JMETC SYSCON and the Multi-level Desktop at the Man Flight Simulator Facility, NAS Patuxent River, MD as Initial Operational Capabilities. Complete critical design for the cross domain text chat and file transfer capabilities and continue system development for Block 2 of the Multi-Level Secure Joint/Coalition Network Environment (MLS-JCNE) project to develop standardized, DoD test and evaluation multi-level secure voice, text chat, file transfer and a multi-level work station for cross-domain data management in a T&E network environment. - Complete Full Operational Capability at NAS Patuxent River, MD and continue system development at the ECSEL, NAS Point Mugu, CA and BAF, Edwards AFB, CA for the Next Generation Electronic Warfare Environment Generator (NEWEG) Build B			

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0604940D8Z / *Central Test and Evaluation Investment Program (CTEIP)*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
project to provide electronic warfare simulation capabilities for testing future Electronic Attack and Electronic Support Measures systems. - Complete the upgrade of the Arnold Engineering Development Complex (AEDC) Hypervelocity Wind Tunnel 9 in Maryland to a Mach 18 capability to conduct testing in support of hypersonic system development and hypersonic vehicle technologies. - Initiate sustainment for the Radar Signal Emulator project to provide open-loop, transmit-only systems that will accurately emit waveforms of threat radar systems operating in the C and S radio frequency (RF) bands. - Continue system development for the Advanced Range Tracking and Imaging System project to provide an integrated next generation suite of optical tracking mounts needed to increase performance, reduce costs, and effectively deliver secure reliable optical throughput. - Continue system development for the Advanced Weapons Effects Test Capability project to develop a capability to more accurately measure fragment characteristics of explosive weapons and more accurately estimate collateral damage distances. - Continue production and interim contractor logistics support for the Common Range Integrated Instrumentation System project to develop a common range instrumentation system to address next generation range data requirements. - Continue system development for the Cyber Test Analysis and Simulation Environment project to enhance current Information Assurance / Cyber testing and analysis capabilities and modeling and simulations tools for testing against increasingly robust Cyber threats. - Continue system development of the Integrated Network Enhanced Telemetry (iNET) project capability to develop a network-enhanced aeronautical telemetry capability for T&E ranges and facilities. - Continue system development for the Network Centric Weapon (NCW) T&E Environment project to provide an enhanced capability to test and evaluate NCW in a distributed end-to-end simulation environment. - Continue Integrated Technical Evaluation and Analysis of Multiple Sources (ITEAMS) activities to provide detailed analysis and validation of threat system designs and operational techniques. - Continue system development for the Mid-Pressure Arc Heater project to expand the H2 Hypersonic Test Facility at the Arnold Engineering Development Complex, TN to provide higher enthalpy at the mid-pressure altitudes to enable ground materials testing of components of hypersonic systems. - Continue system development for the Hypersonic Test Capability Improvement project that will test models of hypersonic systems in a realistic clean air environment up to Mach 7.5 at Arnold Engineering Development Complex, TN. - Continue upgrading the G-Range Weather Erosion Facility at Arnold Engineering Development Complex, TN to conduct erosion testing of hypersonic materials and vehicle technologies in weather and particulate environments (rain, ice and dust). - Continue upgrading the Holloman AFB, NM Sled Track to conduct erosion testing of hypersonic materials and vehicle technologies. - Complete development of a Light Detecting and Ranging (LiDAR) atmospheric measurement system for enhanced ground-based atmospheric measurements to support open-air range flight testing of hypersonic vehicles. - Continue the study of open-air ranges for hypersonic testing.			

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0604940D8Z / *Central Test and Evaluation Investment Program (CTEIP)*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- Continue development of tools under the M&S for Weather Effects on Hypersonic Systems project to develop advanced material response models validated with improved ground test data to predict weather erosion in flight. - Complete development of the Transient Thermal Analysis Software to predict aerothermal responses to high speed, high temperature air flow. - Continue activities to improve capabilities of the hypersonics workforce with industry and academia. - Initiate requirements development and planning for projects that support hypersonic ground and open air range test capabilities identified in the Execution Plan for Hypersonic T&E Investments. - Continue ongoing threat system simulator, modeling and simulation development efforts, and initiate new threat simulator, modeling and simulation efforts in coordination with the Director, Operational Test and Evaluation (DOTE) Test and Evaluation Threat Resource Activity (TETRA). Resource Enhancement Project: - Complete development of Airborne Early Warning Interoperability Simulator (AEIS) to develop the hardware and software necessary to generate a properly spaced, dense target and ECM environment for injection-mode Installed Systems Test Facility testing of the E-2D Hawkeye mission system. - Complete development of Common Operational Test Vehicle and Engagement Real-Time Test Instrumentation (COVERT-I) to reduce the data collection footprint in Abrams tanks and Bradley fighting vehicles by reducing from three unique data collectors to one modular, scalable data collector with increased storage capacity. - Complete development of Integrated Digital Acquisition Radar Environment - Upgrade (IDARE-U) to upgrade two NAWCWD Electronic Combat Range OEM Radars' analog output with digital upgrade for downstream digital messaging. - Complete development of the Medium Range Target Engagement Radar (MR-TER) Radar System Emulator (RSE) to develop and integrate TER waveform replication capability into C-Band RSEs. - Complete development of the Pulsed Doppler Emitter Capability Payload for Aerial Targets (PDEC-163) to develop kinematic threat representations and threat representative emissions to provide the DDG-1000 OT SUT with the ability to collect data necessary for COTF to accredit the DDG-1000's fire control loop weapons system response to threat targets. - Continue development of Advanced Communication Threat Testing Suites (ACTTS) Uplink Capability to develop an electronic warfare (EW) threat representative uplink jamming system to support test and evaluation of end to end satellite system responsiveness to threat systems operating in applicable bands. - Continue development of General Threat Torpedo (GTT) to develop a threat torpedo surrogate with upgradable interchangeable segments as an upgrade replacement for the current threat surrogate torpedo. - Continue development of Joint Standard Instrumentation Suite (JSIS) Phase 2 to measure and collect missile attitude (6DOF) as well as signature, TSPI, and related data for a larger portion of the threat man-portable air defense systems (MANPADS) trajectory at the required accuracies within a single firing to support evaluation of the missile/hostile fire warning systems such as the Advance Threat Warning (ATW) system.			

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0604940D8Z / *Central Test and Evaluation Investment Program (CTEIP)*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- Continue development of Ultra Low-band Time Difference Of Arrival (UT) to develop the capability for a time difference of arrival (TDOA) multi-aircraft test configuration to support three aircraft under test in both the Air Combat Environment Test and the Evaluation Facility (ACETEF) and Electronic Combat Simulation and Evaluation Lab (ECSEL). - Initiate development of instrumented facilities to evaluate our next generation of sensors, weapons, platforms, and C4ISR systems in a realistic urban environment in response to near-term documented OT shortfalls. - Initiate development of hardware simulators to test missile warning systems of new generation electronic warfare (EW) suites in a dynamic environment in response to near-term documented OT shortfalls. - Initiate the development of non-intrusive instrumentation to address near-term OT capability shortfalls to evaluate advanced sensor system performance in harsh environments in response to near-term documented OT shortfalls. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Department Program Adjustments. Increased investments for high-priority hypersonic ground and open air range test capability developments and increased investments for critically needed upgrades to DoD Threat Models and Simulations.			
Accomplishments/Planned Programs Subtotals	212.389	211.325	258.796

D. Other Program Funding Summary ($ in Millions)

N/A

Remarks

E. Acquisition Strategy

N/A

F. Performance Metrics

A portion of CTEIP projects that were developed and delivered to the DoD test community over the past five years.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0604942D8Z / *Assessments & Evaluations*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	149.817	27.626	30.144	31.356	-	31.356	31.604	32.196	32.707	33.307	Continuing	Continuing
805: *Assessments & Evaluations*	149.817	27.626	30.144	12.845	-	12.845	12.893	13.325	13.688	14.040	Continuing	Continuing
822: *Director, Special Programs (DSP)*	-	0.000	0.000	5.000	-	5.000	5.054	5.120	5.181	5.249	Continuing	Continuing
823: *National Assessment Group (NAG)*	-	0.000	0.000	13.511	-	13.511	13.657	13.751	13.838	14.018	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress. For further information, please contact the Director of Special Programs, OUSD(AT&L)/DSP at (703) 697-1282.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	132.106	30.144	31.612	-	31.612
Current President's Budget	27.626	30.144	31.356	-	31.356
Total Adjustments	-104.480	0.000	-0.256	-	-0.256
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-104.480	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Economic Adjustment	-	-	-0.256	-	-0.256

Change Summary Explanation

FY 2017: $103.400 million requested but not approved to address emergency warfighting readiness requirements.
FY 2019, factored Economic Inflation

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0604942D8Z / *Assessments & Evaluations*	Project (Number/Name) 805 / *Assessments & Evaluations*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
805: *Assessments & Evaluations*	149.817	27.626	30.144	12.845	-	12.845	12.893	13.325	13.688	14.040	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress. For further information, please contact the Director of Special Programs, OUSD(AT&L)/DSP at (703) 697-1282.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Assessments & Evaluations	27.626	30.144	12.845
Description: Classified Program			
FY 2018 Plans: Detailed information is Classified.			
FY 2019 Plans: Detailed information is Classified.			
FY 2018 to FY 2019 Increase/Decrease Statement: Internal adjustments.			
Accomplishments/Planned Programs Subtotals	27.626	30.144	12.845

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

This is a RDT&E Management and Support effort and does not acquire any products.

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0604942D8Z / *Assessments & Evaluations*	Project (Number/Name) 822 / *Director, Special Programs (DSP)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
822: *Director, Special Programs (DSP)*	-	0.000	0.000	5.000	-	5.000	5.054	5.120	5.181	5.249	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Classified Program.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Director, Special Program	0.000	-	5.000
FY 2019 Plans: Detailed information is Classified.			
FY 2018 to FY 2019 Increase/Decrease Statement: Internal adjustments.			
Accomplishments/Planned Programs Subtotals	0.000	-	5.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0604942D8Z / *Assessments & Evaluations*	Project (Number/Name) 823 / *National Assessment Group (NAG)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
823: *National Assessment Group (NAG)*	-	0.000	0.000	13.511	-	13.511	13.657	13.751	13.838	14.018	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Classified program.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: National Assessment Group (NAG)	0.000	-	13.511
Description: Detailed information is Classified.			
FY 2019 Plans: Detailed information is Classified.			
FY 2018 to FY 2019 Increase/Decrease Statement: Internal adhustments.			
Accomplishments/Planned Programs Subtotals	0.000	-	13.511

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

NA

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605100D8Z / *Joint Mission Environment Test Capability (JMETC)*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	125.046	65.062	91.057	84.184	-	84.184	83.091	79.125	80.181	84.532	Continuing	Continuing
087: *Joint Mission Environment Test Capability Distributed Test*	85.113	35.193	22.523	16.558	-	16.558	15.157	14.819	15.279	15.950	Continuing	Continuing
088: *Joint Mission Environment Test Capability National Cyber Range (NCR) Complex*	39.933	29.869	68.534	67.626	-	67.626	67.934	64.306	64.902	68.582	Continuing	Continuing

Note

The FY2019 funding request was reduced by $1.302 million to account for the availability of prior year execution balances.

A. Mission Description and Budget Item Justification

The Joint Mission Environment Test Capability (JMETC) program was established for the purpose of implementing the Department's strategy to move to an enterprise-centric, distributed test capability that results in acquisition systems fielded with enhanced joint capabilities, reduced program costs, and improved acquisition timelines. The JMETC program implements the infrastructure capabilities defined in the Department of Defense's "Testing in a Joint Environment Roadmap" to provide acquisition program managers a robust nation-wide capability to "test like we fight." JMETC provides a persistent, distributed test and evaluation (T&E) capability that supports system development, interoperability testing, and cyber testing which otherwise would not be readily available to Service/Component acquisition programs. The JMETC program is funded within the Research, Development, Test and Evaluation (RDT&E) Management Support Budget Activity because it is intended to provide test capability in support of RDT&E programs. By linking distributed facilities, as well as providing the necessary tools, services and subject matter expertise, JMETC allows acquisition programs to efficiently evaluate their warfighting capability in a realistic joint mission environment.

In 2012, the National Cyber Range (NCR) transitioned from the Defense Advanced Research Projects Agency (DARPA) to the Test Resource Management Center (TRMC). The NCR mission is to provide secure facilities, technology, processes, and workforce to rapidly create hi-fidelity, mission representative cyberspace environments to conduct cyber test, experimentation, and training events. The NCR supports a wide-range of customers performing Developmental and Operational Testing, Cyber Mission Force Training and Certification, and support for operational contingencies. In FY 2016, the Department, as a result of a study conducted by DASD(C3&CB), recognized the magnitude of need for increased cyber test and training capacity and capability. Based on this and other inputs, the Department increased funding in the Joint Mission Environment Test Capability (JMETC) in FY 17 to build out additional cyber T&E capacity based on the National Cyber Range (NCR) architecture. This increased capacity will also be available to conduct training for the Cyber Mission Force. The TRMC worked with the Services to identify facilities where this buildout could be accomplished most efficiently. They also considered additional criteria such as accessibility by acquisition programs, availability of qualified work force, utilities and network availability, timing, and expected cost.

To date, TRMC and the Services have identified five sites that are potential candidates. We have begun detailed design in FY 17, to prepare for beginning the build-out in FY 18. Once complete, the Department will have well over four times the cyber test and training capacity offered by the current NCR.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605100D8Z / *Joint Mission Environment Test Capability (JMETC)*

The Test Resource Management Center (TRMC) is the Department's lead for the JMETC program, the National Cyber Range, and oversees both their development and test conduct. In order to meet the significant growth in requirements, TRMC will use the increased funding for FY 18 to substantially increase cyber test and training capacity by 1) refurbishing the current NCR hardware that is nearing end-of-life and increasing computing capacity to support additional customers; 2) procuring and fielding additional enterprise computational and storage resources for JMETC's Regional Service Delivery Points (RSDPs) capability; and 3) begin construction of a new high capacity cyber range similar to the NCR.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	87.080	91.057	86.077	-	86.077
Current President's Budget	65.062	91.057	84.184	-	84.184
Total Adjustments	-22.018	0.000	-1.893	-	-1.893
• Congressional General Reductions	-20.000	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.931	-			
• FFRDC Reductions	-0.074	-	-	-	-
• Inflation Adjustment	-	-	-0.591	-	-0.591
• Other Program Adjustments	-0.013	-	-1.302	-	-1.302

Change Summary Explanation

- Internal strategic efficiency reductions in management headquarters funding and staffing for better alignment and to provide support to a smaller military force.
- SRRB - Service Requirement Review Board - As part of the Department of Defense reform agenda, the incremental reduction accounts for consolidation and reduction of service contracts.
- National Cyber Range (NCR) expansion to address increases in cyber test requirements.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605100D8Z / *Joint Mission Environment Test Capability (JMETC)*	Project (Number/Name) 087 / *Joint Mission Environment Test Capability Distributed Test*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
087: *Joint Mission Environment Test Capability Distributed Test*	85.113	35.193	22.523	16.558	-	16.558	15.157	14.819	15.279	15.950	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The JMETC mission is to provide an enterprise-level, persistent capability for linking distributed facilities, enabling Department of Defense (DoD) customers to develop and test warfighting capabilities in a Joint Context. JMETC provides a test infrastructure consisting of the components necessary to conduct Joint distributed test events by cost-effectively integrating live, virtual, and constructive (LVC) test resources that are configured to support the users' needs. The JMETC program provides its customers a support team to assist with JMETC products and the conduct of distributed testing. JMETC's institutional funding builds, maintains, and operates the JMETC infrastructure and pays for persistent availability of national connectivity for testing; data communications middleware; identification and development of interface standards; common software tools and components; and a reuse repository. JMETC Program funding also provides JMETC program management, facilities, equipment, operating costs, and special studies and analysis related to distributed test capabilities and infrastructure. Key attributes of the JMETC include: persistency; interoperability; reuse; various combinations of distributed capabilities (reconfigurable infrastructure to meet customer requirements); modeling and simulation (M&S) linkage; Live-Virtual-Constructive (LVC) test resource integration; and distributed test support to satisfy both Service and Joint needs. System engineering, training, and experimentation all benefit from a corporate JMETC developed for T&E. JMETC has grown from four sites in 2007 to well over 100 functional sites by the end of FY17. JMETC will reduce the cost and time to plan and prepare for distributed joint testing by providing a readily-available, persistent connectivity with network security accreditation support, common integration software for linking sites, and accredited test tools for distributed testing. To support its customers, JMETC also provides extensive expertise in planning, preparing for, and executing the infrastructure for distributed test events. Additionally in FY 2013, the JMETC mission included developing and fielding the Regional Service Deliver Points (RSDP) to support testing and training. The RSDPs are a set of distributed computing and storage platforms designed to efficiently meet DoD capacity and capability demands for distributed and cyber test and evaluation (T&E) requirements as part of the Test Resource Management Center (TRMC). They provide services (i.e. traffic generation, simulation, instrumentation, visualization, and integrated event management), a scalable architecture to increase capacity and capabilities as needed by the user community, a flexible and adaptable infrastructure to support users requirements which are prone to frequent change, and to deliver cost and performance efficiencies (virtualization, rapid reconstitution). At a high-level architecture view, the RSDP adds enterprise compute and storage resources as well as a platform for distributed and cyber T&E tools and services at multiple classifications necessary to create high fidelity, operationally representative virtual environments, previously unavailable.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Joint Mission Environment Test Capability Distributed Test	35.193	22.523	16.558
Description: - Continued to expand the JMETC Secret Network (JSN) infrastructure to 82 functional sites with 4 more planned and the JMETC Multiple Independent Levels of Security Network (JMN) infrastructure to 51 functional sites with 6 more planned.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605100D8Z / *Joint Mission Environment Test Capability (JMETC)*	**Project (Number/Name)** 087 / *Joint Mission Environment Test Capability Distributed Test*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- Fielded an additional Regional Service Deliver Points (RSDPs), thus increasing cyber test and training capacity. Improved RSDP performance through enhanced automation as well as upgraded computational and storage components. - Supported 83 distinct customer distributed test and training events to include the following: MQ-4C Triton, Small Diameter Bomb II Live Fly Tests, F-35 Record and Playback, Aegis Integrated Air & Missile Defense (IAMD) Baseline 9C1D Training Test, Joint Unmanned Air System – Mission Environment(JUAS-ME), Joint Integrated Air & Missile Defense Office (JIAMDO) Correlation / Decorrelation Interoperability Test (C/DIT), Interoperability Development and Certification Testing (IDCT), STRATCOM Simulation Exercise (SIMEX), NAVAIR Captive Carry Testing, Distributed Integration & Interoperability Assessment Capability (DIIAC) Certification Events, Common Connectivity Device (CCD) Cooperative Engagement Capability (CEC) Multi-Site Interoperability Testing, Air Ground Integrated Layer Exploration (AGILE) Fire IX, Joint Distributed IRCM Ground-test System (JDIGS), Kodiak Cyber Operations Team (KCOT) Capabilities Test, DoD Enterprise Cyber Range Environment (DECRE) Event, Command Post Computing Environment (CPCE) Event, Cyber Range Technology Proving Grounds (CRTPG), Cyber School (CF-17) Training, Cyber Security Test Bed (CSTB), USS SECURE, Thunderstruck, Missile Defense Agency (MDA), Talon Hate Distro, Automated Cyberspace Threat Representation (ACTR) Demonstration, Massachusetts Institute of Technology/ Lincoln Laboratories (MIT/ LL) Persistent Range, Army Integrated Air and Missile Defense (AIAMD) Live Virtual Constructive (LVC) Distributed Environment, Cyber Guard 17, and Cyber Flag 17. - Provided planning support to the following users and organizations: US Army Cyber Command (ARCYBER); Program Executive Office, Intelligence, Surveillance, and Sensor Systems (PEO IEW&S); Small Diameter Bomb (SDB) II; MQ-4C Triton;P-8A Increment 3; Director, Operational Test and Evaluation(DOT&E); DIIAC, Unmanned Carrier Launched Airborne Surveillance & Strike (UCLASS); Common Aviation Command and Control System (CAC2S); Tactical Mobile (TacMobile), Army Product Manager Information Warfare (PM IW); U.S. Army Intelligence and Security Command (INSCOM); Naval Criminal Investigative Service (NCIS), 46th Test Squadron DET 2, JUPITER, Command Post of the Future (CPoF), PACOM J81, National Guard Bureau, NAVSEA Dahlgren Division, Long Range Bomber, Air Force Northern Command, Distributed Common Ground System (DCGS); Littoral Combat Ship (LCS); Integrated Personnel and Pay System (IPPS-A); CH-47; AIAMD; Ground/Air Task Oriented Radar (G/ATOR); Joint Surveillance and Target Attack Radar System (JSTARS); Combat Rescue Helicopter (CRH) , AH-64 and several others. - Continued strategic planning efforts to engage new acquisition programs that must demonstrate compliance with Net-Ready Key Performance Parameter (NR-KPP) and Cyber security requirements. - Assisted customers with the use of distributed test tools and troubleshooting of the end-to-end network infrastructures. Continue providing remote and on-site support for the planning and execution of distributed events.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605100D8Z / *Joint Mission Environment Test Capability (JMETC)*	**Project (Number/Name)** 087 / *Joint Mission Environment Test Capability Distributed Test*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- Continued to develop and refine the RSDP capabilities to provide users with enhanced large scale, high-fidelity virtualized representations of cyber contested environments and do so as rapidly as possible to minimize event timelines and associated costs. ***FY 2018 Plans:*** - Increase cyber test and training capacity. Acquire additional storage capacity for existing RSDPs and implement a central library for reusable Red, Blue and Gray environments. Initiate development of a NSA approved Type-1 encryption capability to secure data at rest in a Multiple Independent Levels of Security (MILS) architecture. Complete full automated sanitization capability to allow for unconstrained cyber activities to be conducted on the RSDPs. - Continue to provide distributed interoperability and cyber test and training support for major customer events such as the F-35 Joint Strike Fighter, Small Diameter Bomb II tests, MQ-4C Triton testing, JIAMDO project testing, MDA cybersecurity tests, Joint Interoperability Test Command JITS, Air Force AGILE Fire, NAVAIR Integrated Warfare Capability (IWC) test events, NAVSEA DIIAC, Marine Corps Virtual Rapid Prototyping Laboratory (VRPL) experiments, PM IW Development and Operations (DevOps), Air Force AFSIT, DIIAC certification tests, Cyber Flag, Cyber Guard, Red Flag, and numerous other test and training activities. - Continue planning support to new and on-going acquisition programs including: F-35, SDB II, JUPITER, Advanced Anti-Radiation Guided Missile (AARGM), MQ-4C Triton, P-8A Poseidon, UCLASS, CAC2S, TacMobile, IPPS-A, CRH, CH-47, LCS, G/ATOR, AH-64, DCGS and several others. - Continue strategic planning efforts to engage new acquisition programs that must demonstrate compliance with Net-Ready Key Performance Parameter (NR-KPP) and Cyber security as part of their Survivability KPP requirements. - Continue to assist customers with the use of distributed test tools and troubleshooting of the end-to-end network infrastructures. Continue providing remote and on-site support for the planning and execution of distributed events. ***FY 2019 Plans:*** - Increase support to 100+ major customer events and numerous smaller test and training activities, as well as maintaining robust, persistent network infrastructures to support distributed collaboration and data dissemination. - Continue planning support to new and on-going acquisition programs. - Provide connectivity to new capabilities and services based on user requirements via both the JMETC Secret Network (JSN) and the JMETC MILS Network (JMN).			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605100D8Z / *Joint Mission Environment Test Capability (JMETC)*	**Project (Number/Name)** 087 / *Joint Mission Environment Test Capability Distributed Test*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- Continue collaboration with the Training community by providing distributed infrastructure and planning support to the Joint Staff, USCYBERCOMMAND and to other customers for their distributed training events. - Continue strategic planning efforts to engage new acquisition programs that must demonstrate compliance with Net-Ready Key Performance Parameter (NR-KPP) and Cybersecurity requirements. - Continue coordination efforts to migrate DoD, Service, Industry, and Academia distributed test and evaluation infrastructures to JMETC's enterprise infrastructures. - Continue to enhance the web-based JMETC Reuse Repository to store distributed test tools, utilities, lessons learned, and test metadata making all available to the DoD test community. - Continue to assist customers with the use of distributed test tools and troubleshooting of the end-to-end network infrastructures. Continue providing remote and on-site support for the planning and execution of distributed events. - Continue to refine, expand, and sustain the RSDP capabilities and processes to support increased customer demand. Implement NSA approved Type-1 encryption capability to secure data at rest in a Multiple Independent Levels of Security (MILS) architecture. - Continue to identify, assess, and develop cyber specific test tools as enterprise solutions to capability gaps. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program Adjustments			
Accomplishments/Planned Programs Subtotals	35.193	22.523	16.558

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

- Number of Distributed test sites

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605100D8Z / *Joint Mission Environment Test Capability (JMETC)*	**Project (Number/Name)** 087 / *Joint Mission Environment Test Capability Distributed Test*

- Number of events conducted
- Number of acquisition programs supported

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605100D8Z / *Joint Mission Environment Test Capability (JMETC)*	Project (Number/Name) 088 / *Joint Mission Environment Test Capability National Cyber Range (NCR) Complex*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
088: *Joint Mission Environment Test Capability National Cyber Range (NCR) Complex*	39.933	29.869	68.534	67.626	-	67.626	67.934	64.306	64.902	68.582	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

In FY 2013, responsibility for the National Cyber Range (NCR) was transferred to the Test Resource Management Center (TRMC) and subsequently aligned under the Joint Mission Environment Test Capability (JMETC) Program Element. Since then, the NCR has executed 200+ events for DOD Customers. The NCR provides secure facilities, technology, processes, and workforce to rapidly create hi-fidelity, mission representative cyberspace environments and facilitate integration/federation of cyberspace test and evaluation (T&E) infrastructure in support of the TRMC Mission. The NCR is accredited to operate at TS//SI-G/TK/HCS-P//SAR. As a result of recent recapitalization and capacity enhancement efforts, the NCR now has the capability to support up to 8 concurrent events and scale up to ~250K virtual nodes. The NCR concurrently emulates complex (Red/Blue/Gray) operationally representative network environments at different classification levels using Multiple Independent Levels of Security (MILS) architecture. The NCR Test Automation Tool Suite minimizes human error, enables verification of test environment, ensures repeatable results and reduces event timelines from weeks/months to hours/days. NCR computing assets can be sanitized after exposure to malicious attacks/malware and restored to a known, clean state. The NCR conducts distributed events with other Cyberspace Ranges via the JMETC MILS Network (JMN) and Joint Information Operations Range (JIOR).

The NCR conducts Cyberspace Testing, Training and Operational Events for the full spectrum of DoD Customers including Research, Development, Acquisition, Testing, Training and Operational Cyber Mission Forces. The NCR executes wide variety of event types including Science and Technology (S&T) Demonstrations, Developmental Test & Evaluation (DT&E), Operational Test & Evaluation (OT&E), Security Controls Assessments (SCA), Cyberspace Operations Training, Cyberspace Tactics, Techniques Procedures (TTP) Development, Forensics/Malware Analysis) and Cyberspace Operations Mission Rehearsal. The NCR enables acquisition programs to conduct Cybersecurity Test and Evaluation (T&E) in a representative Cyberspace Environment to identify and close exposed vulnerabilities, evaluate resiliency and positively impact program cost, schedule and performance. The NCR also supports Training and Certification of Cyber Mission Forces in support of US Cyber Command by enabling operational forces to efficiently evaluate cyber warfighting capability in a realistic joint mission environment. Finally, the NCR is supporting in real time Overseas Contingency Operations as directed by National Authority.

In FY 2016, the Department, as a result of a study conducted by DASD(C3&CB), recognized the magnitude of need for increased cyber test and training capacity and capability. Based on this and other inputs, the Department made the decision to increase funding in the Test Resource Management Center (TRMC) in FY 17 to build out additional cyber T&E capacity based on the National Cyber Range (NCR) architecture. This increased capacity will also be available to conduct training for the Cyber Mission Force. The TRMC worked with the Services to identify facilities where this buildout could be accomplished most efficiently. They also considered additional criteria such as accessibility by acquisition programs, availability of qualified work force, utilities and network availability, timing, and expected cost.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605100D8Z / *Joint Mission Environment Test Capability (JMETC)*	**Project (Number/Name)** 088 / *Joint Mission Environment Test Capability National Cyber Range (NCR) Complex*

To date, TRMC and the Services have identified five sites that are potential candidates. We have begun design and cost estimation in FY17 so that we can begin detailed design and begin build-out in FY 18. Once complete, the Department will have well over four times the cyber test and training capacity offered by the current NCR.

In addition, the JMETC NCR Complex supports the Executive Agent for DoD Cyber Test Ranges.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Joint Mission Environment Test Capability NCR Sustainment	29.869	68.534	67.626
Description: - Since commencing operations, the NCR has executed more than 200+ events. The NCR provided Cybersecurity Test and Evaluation "As a Service" for Major Defense Acquisition Programs (MDAP) and Major Automated Information Systems (MAIS) Acquisition Programs that is simply not available in other venues. - Acquisition Programs supported include Command Post Computing Environment (CP CE), Joint Space Operations Center (JSpOC) Mission System (JMS), P-8A Poseidon, Triton MQ-4C, FireScout, Tactical Mobile (TacMobile), CVN-78 Components (USS Secure, LHA-6, Enterprise GPS, 3DExtended Long Range Radar, Distributed Common Ground Station Family of Systems, Carrier Based Air Refueling System, Aviation Data Management and Control System. - The NCR Team helped DOD Customers manage Cybersecurity Testing by conducting Cyber Table Top (CTT) exercises. DOD programs supported include Command Post Computing Environment, Carrier Based Air Refueling System, P—8A Poseidon, MQ-4C Triton, TacMobile and Small Diameter Bomb. The NCR also supported CTTs for MRTFB Customers to help improve the Cybersecurity Posture of the Ranges. - The NCR supported customers from the Services and Joint Community. Customers include US Cyber Command, Joint Staff J-7, Director, Operational Test & Evaluation (DOT&E), Army PEO Command Control Communications Tactical, US Naval Air Systems Command (NAVAIR), Air Force Space and Missile Command, Army Intelligence and Information Warfare Directorate; Office of Naval Intelligence and the Army Communications and Electronics Research, Development and Engineering Command (CERDEC). - NCR supported Contingency Operations as requested by US Cyber Command. ***FY 2018 Plans:*** - Increased funding will be used to execute events at a steadily increasing OPTEMPO to support 8 concurrent events. The NCR will conduct engineering activities to plan for technical refresh of emerging end of life and end of service computing assets. The NCR will modify the NCR Test Specification Tool Suite to streamline operations and make them interoperable with other cyber ranges			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605100D8Z / *Joint Mission Environment Test Capability (JMETC)*	**Project (Number/Name)** 088 / *Joint Mission Environment Test Capability National Cyber Range (NCR) Complex*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- NCR will begin to build out additional dedicated Persistent Testing and Training Environments to support testing and training customers. - The NCR will continue to provide support for USCC Training and Certification Events by developing blue, red and gray environments for including Cyber Flag and multiple Cyber Knight and Cyber Guard Events. NCR will support to the JS-J6/DOT&E sponsored Enterprise Cyber Range Environment events as appropriate. - The NCR expansion will develop detailed plans for NCR expansion, including at Aberdeen Proving Ground, MD; Patuxent River Naval Air Station, MD; Space and Naval Warfare Systems, Charleston, SC; Eglin Air Force Base (AFB), FL; and Program Executive Officer for Simulation, Training, and Instrumentation (PEO-STRI), Orlando, FL. - NCR will continue to support Contingency Operations as requested by US Cyber Command. ***FY 2019 Plans:*** - The NCR will investigation the enhanced testing of Industrial Control Systems and Avionics Systems Test Beds. - The NCR will continue to implement improvements needed to increase capacity and support increased demand at the existing NCR location. - NCR will continue to build out additional dedicated Persistent Testing and Training Environments to support testing and training customers - The NCR will continue to operate in support of the growing Acquisition Program Cybersecurity Test and Evaluation requirements. The NCR will support test planning and execution for MDAP and MAIS acquisition programs. - The NCR will continue to provide Cyber Table Top support for acquisition programs to help programs address cyber security as early as possible in development. - The NCR will continue to provide support for USCC Training and Certification Events by developing blue, red and gray environments for including Cyber Flag and multiple Cyber Knight and Cyber Guard Events. NCR will support to the JS-J6/DOT&E sponsored Enterprise Cyber Range Environment events as appropriate.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605100D8Z / *Joint Mission Environment Test Capability (JMETC)*	**Project (Number/Name)** 088 / *Joint Mission Environment Test Capability National Cyber Range (NCR) Complex*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- NCR will continue to support DOT&E Assessments of Major Combatant Commands. - NCR will continue to support Contingency Operations as requested by US Cyber Command. - NCR will expand in capacity by establishing additional NCR locations to support cyber Test and Training requirements. TRMC will install computing equipment, install remote access capabilities, attain accreditation from Defense Intelligence Agency, put contracts in place, and hire work force. - Conduct engineering activities to plan for technical refresh of emerging end of life and end of service computing assets - Continue to assess cyber range requirements in close cooperation with the DoD Cyber Test and Training Executive Agents to build priority cyber range capability and capacity to meet identified RDT&E community and CMF needs. - Continue analyses of capability to determine requirements and standards needed to join these cyber test facilities with existing acquisition system hardware-in-the-loop, software-in-the-loop, and systems integration laboratories to test systems in a realistic cyber contested environment. - Continue analyses of capability to determine requirements and standards needed to meet the need for exceptionally large cyber test and training environments, such as those required for Cyber Flag. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Program Adjustments			
Accomplishments/Planned Programs Subtotals	29.869	68.534	67.626

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

- Amount of increase in computing power

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605100D8Z / *Joint Mission Environment Test Capability (JMETC)*	**Project (Number/Name)** 088 / *Joint Mission Environment Test Capability National Cyber Range (NCR) Complex*

- Number of events capable of supporting
- Number of NCR-like facilities available

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605104D8Z / *Technical Studies Support and Analysis*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	133.008	20.300	22.386	22.576	-	22.576	23.158	23.417	23.995	24.434	Continuing	Continuing
421: *Technical Studies*	133.008	20.300	22.386	22.576	-	22.576	23.158	23.417	23.995	24.434	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program is a key source of funding for the Office of the Secretary of Defense and the Joint Staff to manage studies, analyses, strategic planning, and technical support efforts to improve and support policy development, decision making, management and administration of DoD programs and activities. Studies and analyses will examine current and alternative policies, plans, operations, strategies and budgets, providing essential means for managing and responding to the shifting and complex international, political, technological, economic, military, and acquisition environments in which national security planning decisions are made. Independent analyses from subject matter experts are instrumental for senior defense planners in making informed choices regarding requirements for force planning and strategic deployment of assets taking into account technological challenges and resource constraints, and there is a strong need to incorporate the findings of operational analysis in force planning requirements and projections. With the complexities of emerging advanced security threats in the current geopolitical environment, the need for objective analysis and forward looking planning to inform senior leadership for the mid and long-term is vital to remaining strategically competitive.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	23.069	22.386	22.760	-	22.760
Current President's Budget	20.300	22.386	22.576	-	22.576
Total Adjustments	-2.769	0.000	-0.184	-	-0.184
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-1.600	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.350	-			
• SBIR/STTR Transfer	-0.792	-			
• General budget and economic adjustments	-	-	-0.184	-	-0.184
• FFRDC transfer	-0.024	-	-	-	-
• Cancelled account withhold	-0.003	-	-	-	-

Change Summary Explanation

Reductions are reflected for mandated statutory reductions and general budget changes. The FY 17 reprogramming event was an internal one-time realignment of funding to PE 0604016D8Z to facilitate execution of a USD(AT&L) technical requirement.

As part of the Department of Defense reform agenda, the budget estimate reflects a stable trend in the number and cost of reports and studies in the near-term.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605104D8Z / *Technical Studies Support and Analysis*	Project (Number/Name) 421 / *Technical Studies*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
421: *Technical Studies*	133.008	20.300	22.386	22.576	-	22.576	23.158	23.417	23.995	24.434	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This program is a key source of funding for the Office of the Secretary of Defense and the Joint Staff to manage studies, analyses, strategic planning, and technical support efforts to improve and support policy development, decision making, management and administration of DoD programs and activities. Studies and analyses will examine current and alternative policies, plans, operations, strategies and budgets, providing essential means for managing and responding to the shifting and complex international, political, technological, economic, military, and acquisition environments in which national security planning decisions are made. Independent analyses from subject matter experts are instrumental for senior defense planners in making informed choices regarding requirements for force planning and strategic deployment of assets taking into account technological challenges and resource constraints, and there is a strong need to incorporate the findings of operational analysis in force planning requirements and projections. With the complexities of advanced emerging security threats in the current geopolitical environment, the need for objective analysis and forward looking planning to inform senior leadership for the mid and long-term is vital to remaining strategically competitive.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Technical Studies and Analyses Support for the Office of the Secretary of Defense	20.300	22.386	22.576
FY 2018 Plans: Technical Support for the USD(Acquisition, Technology & Logistics) and USD(Acquisition and Sustainment): Studies and analyses of: Technical areas regarding joint warfighting capability and technology planning, strategic and conventional system requirements, semiconductor supply chain assurance, operational mission integration management capabilities, critical munitions requirements, networked sensor architecture planning, counter WMD defense capabilities, strategic defense architectures, industrial base capabilities assessments, cyber capabilities, defense manufacturing technology, effects of defense industry consolidation, methods to facilitate innovative emerging commercial technological solutions, acquisition policy effectiveness, technologies for evolving mission requirements, allied defense capabilities, strategic basing requirements, DoD installations planning, logistics supply chain and energy requirements, NATO policy planning, identifying acquisition program risk, support to Defense Science Board task forces on various evolving technological and warfare issues, and advanced electronic warfare countermeasures. Technical Support for the Director, Cost Assessment and Program Evaluation: Studies and analyses regarding the following areas:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605104D8Z / *Technical Studies Support and Analysis*	**Project (Number/Name)** 421 / *Technical Studies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Requirements regarding investment and resource planning such as emerging strategic and tactical systems requirements, strategic mobility, maintaining force readiness, personnel force models, assessments in support of scenario analyses, special operations and force support requirements, technical studies and analyses to support independent cost estimates and economic research, comparative analyses of alternative strategic and conventional weapons systems configurations and force levels, and continuation of development of critical management instruments for measuring the long-term trends, strength and affordability of the defense program and supporting development of the Future Years Defense Program. Technical Support for the USD(Policy): Studies, analyses, and activities in the following areas: Requirements regarding national security geopolitical posture and policies such as regional and strategic defense strategy, international defense policy planning, strategic force requirements, homeland defense and humanitarian response capabilities, deterrence and counterproliferation requirements, international defense trade and industrial relationships, NATO requirements planning, technological and other external effects on strategic requirements, space and cyber strategic guidance planning, contingency and stability operations, countering emerging terrorist and transnational criminal threats, and strategic-level simulations of areas of interest for legislative and executive branch decision-makers. Technical Support for the USD(Personnel & Readiness): Studies and analyses in the following areas: Requirements regarding sustainment and planning for the force of the future such as active and reserve recruiting and retention issues, medical force infrastructure, compensation analyses, identifying critical personnel requirements, reserve component readiness and sustainability, military family and educational issues, gender and equal opportunity, and strategies for managing the Total Force portfolio. Technical Support for the Joint Staff conducting joint research with OSD: Joint Studies and analyses with OSD based upon contingency planning, cyber force planning, command and control, mobility and supply chain requirements, joint training requirements, force programming planning, and basing requirements. ***FY 2019 Plans:*** Technical Support for the USD(Acquisition and Sustainment): Studies and analyses of:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605104D8Z / *Technical Studies Support and Analysis*	**Project (Number/Name)** 421 / *Technical Studies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Cybersecurity for weapons systems, technological capabilities requirements planning, munitions portfolio requirements, strategic systems and communications capabilities, space systems requirements, industrial base and defense manufacturing requirements, cyber assurance, acquisition policy effectiveness, foreign defense industry developments, strategic basing requirements, DoD installations planning, logistics supply chain and energy requirements, acquisition program performance, support to various Defense Science Board task forces on various evolving technological and warfare issues, and small business technology investment and acquisition strategy. Technical Support for the Director, Cost Assessment and Program Evaluation: Studies and analyses regarding the following areas: Various analytic requirements for maintaining a balanced portfolio of defense capabilities through investment and resource planning such as emerging strategic and tactical systems requirements, mobility and logistical support capabilities, maintaining force readiness and personnel planning requirements, capability planning resulting from scenario analyses, contingency and conventional force requirements, technical studies and analyses to support independent cost estimates and economic research, and continuation of development of critical management instruments for measuring the long-term trends, strength and affordability of the defense program and supporting development of the Future Years Defense Program. Technical Support for the USD(Policy): Studies, analyses, and activities in the following areas: Requirements regarding national security geopolitical posture and policies such as regional and strategic defense strategy, countering weapons of mass destruction, global strategic affairs, defense capabilities continuity, space and cyber policy, homeland defense support of civil authorities, planning, technological and other external effects on strategic requirements, space and cyber strategic guidance planning, protection of defense critical infrastructure, contingency and stability operations, nuclear planning, and strategic-level simulations of areas of interest for legislative and executive branch decision-makers. Technical Support for the USD(Personnel & Readiness): Studies and analyses in the following areas: Requirements regarding sustainment and planning for the force of the future such as active and reserve recruiting and retention issues, training requirements, maintaining strategic readiness, compensation and quality of life matters and retention, identifying critical personnel requirements, reserve component readiness and sustainability, health and medical issues, crisis and contingency readiness, diversity management and equal opportunity, and strategies for managing the Total Force portfolio.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605104D8Z / *Technical Studies Support and Analysis*	**Project (Number/Name)** 421 / *Technical Studies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Technical Support for the Joint Staff conducting joint research with OSD: Joint Studies and analyses with OSD based upon operations research, cyber capabilities, command and control requirements, mobility capabilities, supply chain and support requirements, joint testing and training requirements, homeland defense, force programming planning, and basing requirements. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase reflects general program price changes accounting for inflation. FY 2019 plans reflect the transition of certain functions from the USD(Acquisition, Technology & Logistics) to the USD(Acquisition and Sustainment)			
Accomplishments/Planned Programs Subtotals	20.300	22.386	22.576

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

FY 2019 BA: $22.576 FY 2019 BA Assoc w/Metrics: $22.576 Percent FY 2019 BA Assoc w/Metrics: 100%

This program conducts approximately seventy-five actions per fiscal year to support a wide variety of national security goals of the Department and is designed to encourage a collaborative research approach among the components of OSD and the Joint Staff. The research and study projects supported by this program are closely integrated with the strategic goals of the Department of Defense. The focus of studies varies across a wide spectrum including weapons systems cost analysis, strengthening and leveraging alliances, human resource and military personnel management, examination of innovative technologies, application of technology to operational doctrine, and many other issues of emerging importance. Most of the actions are long to intermediate-range in outlook, and the program allows organizational leaders to plan and guide their research toward meeting their highest-priority goals and other high-level guidance such as executive branch performance management objectives, the Quadrennial Defense Review, the President's National Security Strategy, and the National Military Strategy of the United States of America.

In following the program efficiencies guidance of the Secretary of Defense, the scope of studies and analyses has been limited as necessary in order to focus upon issues of the highest strategic importance and needs to the Department of Defense while continuing to make every effort to support requirements for the Office of the Secretary of Defense developing from legislative direction.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605128D8Z / *Classified Program*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	502.215	130.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
128: *Classified Program*	502.215	130.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

N/A

A. Mission Description and Budget Item Justification

Classified

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	130.000	0.000	0.000	-	0.000
Total Adjustments	130.000	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	130.000	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2017	FY 2018
Project: 128: *Classified Program*		
Congressional Add: *Classified*	130.000	-
Congressional Add Subtotals for Project: 128	130.000	-
Congressional Add Totals for all Projects	130.000	-

Change Summary Explanation

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605128D8Z / *Classified Program*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018
Congressional Add: Classified	130.000	-
FY 2017 Accomplishments: Classified Adjustment		
Congressional Adds Subtotals	130.000	-

D. Other Program Funding Summary ($ in Millions)

N/A

Remarks

N/A

E. Acquisition Strategy

N/A

F. Performance Metrics

None

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605142D8Z / *Systems Engineering*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	187.433	31.276	37.622	38.872	-	38.872	39.252	39.726	39.971	40.840	Continuing	Continuing
142: *Systems Engineering*	165.587	27.722	33.392	33.002	-	33.002	33.398	33.872	34.127	35.103	Continuing	Continuing
143: *Program Protection*	21.846	3.554	4.230	3.870	-	3.870	3.854	3.854	3.844	3.737	Continuing	Continuing
842: *Mission Engineering*	-	0.000	0.000	2.000	-	2.000	2.000	2.000	2.000	2.000	Continuing	Continuing

Note

Service Requirements Review Board (SRRB) efficiencies are included.

A. Mission Description and Budget Item Justification

This Program Element (PE) establishes the dedicated funding line to carry out the duties as described in Title 10 US Code, Section 139, the Weapons Systems Acquisition Reform Act of 2009. The Deputy Assistant Secretary of Defense for Systems Engineering (DASD(SE)) is the principal advisor to the Secretary of Defense and the Under Secretary of Defense for Research and Engineering (USD(R&E)) on systems engineering, development planning, program protection, and related technical fields in the Department of Defense (DoD). The DASD(SE) develops policies and guidance for: (1) the use of systems engineering principles and best practices; (2) the use of systems, system security, and software engineering planning and contracting approaches to enhance manufacturing, reliability, availability, maintainability, and software and hardware assurance, on major defense acquisition programs (MDAPs) and major automated information systems (MAISs); (3) the systems engineering plans (SEPs) and program protection plans (PPPs) for MDAPs and MAISs including software, and systems engineering considerations in support of lifecycle management and sustainability; and (4) the inclusion of provisions relating to systems engineering, assurance and reliability in requests for proposals. The DASD(SE) develops new methods, processes, and tools (MPTs) incorporating state of the practice into system engineering for the DoD in both weapon system design, and design tools. The DASD(SE) reviews and approves the SEP and PPP for each MDAP and MAIS, and monitors and reviews the systems engineering, program protection, and development planning activities of MDAPs and other defense acquisition programs, as directed by the Secretary of Defense. Based on the DASD(SE)'s continuous program engagement, the DASD(SE) advises and makes recommendations to the Secretary of Defense regarding systems engineering, development planning, program protection and the execution of these activities. As a member of the Defense Acquisition Board (DAB), the DASD(SE) provides independent assessments of defense acquisition program's systems engineering, development planning, program protection planning, technical execution, and risk. The DASD(SE) also provides input on the inclusion of systems engineering requirements as part of the Joint Requirements Oversight Council's process for joint military requirements, to include developing specific inputs relating to each capabilities development document.

The DASD(SE) issues guidance to, and consults with, the Services and Agencies with respect to systems engineering across the Department. The DASD(SE) improves DoD's SE capabilities through advocacy, oversight, policy, and guidance for the acquisition workforce responsible for Engineering, and Production, Quality & Manufacturing (PQM); in Engineering Tools and Environments; and in Specialty Engineering.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605142D8Z / *Systems Engineering*

The DASD(SE) periodically reviews the organizations and capabilities of the military departments with respect to systems engineering, development planning, and lifecycle management and sustainability, and identifies needed changes or improvements to such organizations and capabilities. The DASD(SE) prepares and submits a bi-annual report to Congress on systems engineering activities and effectiveness.

This PE includes efforts by the office of the DASD(SE) in implementing the Department's Trusted Defense System Strategy. Specifically, the PE will develop and mature the critical sub discipline of systems engineering - system security engineering (SSE), Hardware and Software Assurance, and the Comprehensive Program Protection Planning process that implements a risk-based approach to protection of critical program information, critical components and mission functions, and information in acquisition programs. These efforts include study and maturation of policy, guidance, system security discipline fundamentals, such as engineering methods, tools, and best practices, and establishing a coalition of assurance activities across the DoD to provide analytical and technical support to acquisition programs. These activities will be promulgated in defense acquisition as a fundamental element of the DASD(SE) systems engineering and technical reviews.

Beginning in FY 2019, this PE will support activities to carry out responsibilities described in Fiscal Year 2017 National Defense Authorization Act (NDAA) Section 855 titled Mission Integration Management (MIM).

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	32.429	37.622	37.146	-	37.146
Current President's Budget	31.276	37.622	38.872	-	38.872
Total Adjustments	-1.153	0.000	1.726	-	1.726
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.112	-			
• Realignment for Higher Priorities	-	-	2.000	-	2.000
• Other Program Adjustments	-0.005	-	-0.013	-	-0.013
• FFRDC Transfer	-0.036	-	-	-	-
• Economic Assumption	-	-	-0.261	-	-0.261

Change Summary Explanation

Realignment for higher priorities reflect a new project line for Mission Engineering.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605142D8Z / *Systems Engineering*	Project (Number/Name) 142 / *Systems Engineering*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
142: *Systems Engineering*	165.587	27.722	33.392	33.002	-	33.002	33.398	33.872	34.127	35.103	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project P142 supports the execution of the missions of the Deputy Assistant Secretary of Defense for Systems Engineering (DASD(SE)) to: (1) provide flexible engineering policy, guidance, and workforce development requirements for the DoD acquisition workforce; (2) foster an acquisition environment of collaboration, teamwork, and joint ownership of program success through a proactive program oversight process, ensuring appropriate levels of systems engineering discipline are applied through all phases of the acquisition life cycle; and (3) engage all stakeholders across government, industry, and academia to collectively advance systems engineering practice and achieve acquisition excellence. The outcome of this effort is to ensure systems engineering principles and disciplines are fully accepted and assimilated into the DoD acquisition workforce positioning the DoD for acquisition excellence and leading to a stronger national defense.

Activities include the following functions:

• Work with acquisition program managers to prepare systems engineering plans (SEPs) to document the technical management approach.
• Conduct periodic program engagements in support of technical reviews to confirm programs are executed in accordance with the SEP.
• Review all aspects of the systems engineering process for major defense acquisition programs (MDAPs) to ensure they are adequate to support fielding and the achievement of cost and performance goals including producibility, reliability, sustainment, and other considerations.
• Participate in Systems Engineering Integrated Project Teams (IPTs), Systems Engineering Working Integrated Project Teams (WIPTs), and Systems Engineering technical reviews, especially Preliminary Design Reviews and Critical Design Reviews.
• Work with DoD Service program managers, their staffs, and other organizations, technical authorities, and oversight organizations to develop and implement technical management programs for MDAPs.
• Conceive plans and lead program support reviews and assessments of MDAP weapons systems and other programs (e.g., Major Automated Information Systems (MAIS)) to shape technical planning and management to ensure program success.
• Conduct other technical reviews as requested (e.g., Nunn-McCurdy certification reviews, Non-Advocate Reviews, focused technical assessments, and software readiness reviews to identify and mitigate program risk).
• Establish engineering policy, guidance, and workforce development to drive the development of fully capable and supportable weapons systems.
• Oversee Component implementation of engineering initiatives and conduct independent assessments.
• Incorporate new MPTs into the engineering practice for development of weapon systems.
• Advance the principles of modularity and open systems and incorporate them when practicable in the design, and acquisition of weapon systems.
• Develop education and training materials for instructing, maintaining, and enhancing the defense acquisition workforce. Activities include: (1) developing guidance to enhance Engineering (ENG) and Production Quality and Manufacturing (PQM) acquisition career planning and progression; and (2) monitoring, and facilitating Defense Acquisition University (DAU) updates to the systems engineering, quality and specialty engineering courses, to ensure the curriculum represents the education and training requirements necessary to be a viable team member in the acquisition process.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605142D8Z / *Systems Engineering*	**Project (Number/Name)** 142 / *Systems Engineering*

• Improve the DoD's capabilities in Specialty Engineering (e.g., reliability & maintainability, human-systems integration, weapons safety, value engineering and manufacturing) through policy, program oversight, fostering practice and technology improvements, initiating long-term strategic improvements, and collaborating with industry.
• Advance DoD engineering practices through the use of digital engineering and model-based systems engineering.
• Increase trust in computer hardware and software in warfighting systems by establishing a cadre of activities across the DoD capable of detecting and reducing or eliminating software and hardware vulnerabilities for systems in development and sustainment.
• Serve as the Defense Standardization Executive and oversee the Defense Standardization Program.
• Guide Service and other component organizations in the development planning process to ensure proposed MDAP programs are executable within acceptable levels of risk.
• Resolve long-term major systems engineering challenges such as systems of systems (SoS) systems engineering, systems engineering of complex systems, and pre-program formulation systems engineering trade off analysis.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Systems Engineering Initiatives	27.722	33.392	33.002
Description: The DASD(SE) provides objective assessments of program risk to support knowledge-based decision making by DoD leaders regarding DoD MDAPs and MAISs. ***FY 2018 Plans:*** Strategic Thrust: Program Support • Monitor programs, providing SE oversight and support to all MDAPs, Major Automated Information Systems (MAIS), and special interest programs. • Expand root cause analysis conducted during and after Program Support Assessments (PSAs). • Expand use of detailed performance measurement and analysis. • Provide decision-quality information and recommendations to DABs, In Progress Reviews, Peer Reviews, and PDR/CDR assessments. Strategic Thrust: Work Force Development • Carry out duties as Functional Lead for Engineering (ENG), Production, Quality, and Manufacturing(PQM), all Department non-construction engineering and assist software engineering. • Build an enduring high performance engineering culture across the Department in Systems Engineering. • Update and deploy courses with increased technical rigor and complex, case-based exercises. • Investigate workforce development initiatives including leadership development, specialized training, and improved instructional methods. • Assess engineering workforce capability and capacity, and, working with Components, develop strategies to address identified gaps. • Perform outreach to services and OSD to focus the Department's attention and behavior on promoting an engineering culture.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605142D8Z / *Systems Engineering*	**Project (Number/Name)** 142 / *Systems Engineering*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Strategic Thrust: Engineering Policy and Guidance • Develop and update core SE policy, guidance and standards; review all acquisition policy for SE implications. • Develop engineering guidance and policies for the integration of specialty engineering functions as part of the SE responsibility in the acquisition process including, but not limited to, program protection/system security engineering; software; manufacturing, reliability, availability, and maintainability; modeling and simulation; configuration management; data management; and risk management. • Assess challenges and impact; develop new guidance, best practices, methods, processes and tools to more effectively implement SE for Systems of Systems. • Provide guidance to Defense acquisition programs for developing and documenting each program's technical strategy and management approach in the SEP throughout the program's lifecycle. Strategic Thrust: Systems Engineering Capabilities Assessment • Work jointly with DT&E to develop and track measurable performance criteria. • Develop and strengthen component SE organization and capabilities. • Periodically review the organizations and capabilities of the Military Departments and Defense Agencies with respect to systems engineering, development planning, and lifecycle management and sustainability, and identify needed changes or improvements to such organizations and capabilities. • Issue guidance to and consult with the Heads of the DoD Components with respect to systems engineering and development planning in the DoD. • Store and analyze performance criteria in SEPs and Test and Evaluation Master Plans (TEMPs) for MDAPs; develop program metrics to aid SE assessments and program execution. Strategic Thrust: Early Systems Engineering and Development Planning • Perform early acquisition risk assessment including pre-MS A engagement with Joint Requirements Oversight Council processes. • Support: (1) Services and COCOMs in pre-MS A formulation; (2) requirements analyses and analysis of alternatives; and (3) initial capabilities document definition and development. Strategic Thrust: Engineering Tools and Environments • Establish guidance and education to support digital engineering use in Systems Engineering. • Continue collaboration in digital engineering methods, processes, tools development and gap identification.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605142D8Z / *Systems Engineering*	**Project (Number/Name)** 142 / *Systems Engineering*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
• Oversee development of, and incorporation of modularity and open system technical enablers by Services in their acquisition efforts. ***FY 2019 Plans:*** Strategic Thrust: Program Support Continue to: • Monitor programs, providing SE oversight and support to all MDAPs, Major Automated Information Systems (MAIS), and special interest programs. • Expand root cause analysis conducted during and after Program Support Assessments (PSAs). • Expand use of detailed performance measurement and analysis. • Provide decision-quality information and recommendations to DABs, In Progress Reviews, Peer Reviews, and PDR/CDR assessments. Strategic Thrust: Work Force Development • Carry out duties as Functional Lead for Engineering (ENG), Production, Quality, and Manufacturing(PQM), all Department non-construction engineering and assist software engineering. • Build an enduring high performance engineering culture across the Department in Systems Engineering. • Update and deploy courses with increased technical rigor and complex, case-based exercises. • Investigate workforce development initiatives including leadership development, specialized training, and improved instructional methods. • Assess engineering workforce capability and capacity, and, working with Components, develop strategies to address identified gaps. • Perform outreach to services and OSD to focus the Department's attention and behavior on promoting an engineering culture. Strategic Thrust: Engineering Policy and Guidance • Develop and update core SE policy, guidance and standards; review all acquisition policy for SE implications. • Develop engineering guidance and policies for the integration of specialty engineering functions as part of the SE responsibility in the acquisition process including, but not limited to, program protection/system security engineering; software; manufacturing, reliability, availability, and maintainability; modeling and simulation; configuration management; data management; and risk management. • Assess challenges and impact; develop new guidance, best practices, methods, processes and tools to more effectively implement SE for Systems of Systems. • Provide guidance to Defense acquisition programs for developing and documenting each program's technical strategy and management approach in the SEP throughout the program's lifecycle.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605142D8Z / *Systems Engineering*	**Project (Number/Name)** 142 / *Systems Engineering*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Strategic Thrust: Systems Engineering Capabilities Assessment • Work jointly with DT&E to develop and track measurable performance criteria. • Develop and strengthen component SE organization and capabilities. • Periodically review the organizations and capabilities of the Military Departments and Defense Agencies with respect to systems engineering, development planning, and lifecycle management and sustainability, and identify needed changes or improvements to such organizations and capabilities. • Issue guidance to and consult with the Heads of the DoD Components with respect to systems engineering and development planning in the DoD. • Store and analyze performance criteria in SEPs and Test and Evaluation Master Plans (TEMPs) for MDAPs; develop program metrics to aid SE assessments and program execution. Strategic Thrust: Early Systems Engineering and Development Planning • Perform early acquisition risk assessment including pre-MS A engagement with Joint Requirements Oversight Council processes. • Support: (1) Services and COCOMs in pre-MS A formulation; (2) requirements analyses and analysis of alternatives; and (3) initial capabilities document definition and development. Strategic Thrust: Engineering Tools and Environments • Establish guidance and education to support digital engineering use in Systems Engineering. • Continue collaboration in digital engineering methods, processes, tools development and gap identification. • Oversee development of, and incorporation of modularity and open system technical enablers by Services in their acquisition efforts. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Level of effort is consistent between FY 2018 and FY 2019. Small changes reflect minor budget fluctuations.			
Accomplishments/Planned Programs Subtotals	27.722	33.392	33.002

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605142D8Z / *Systems Engineering*	**Project (Number/Name)** 142 / *Systems Engineering*

E. Performance Metrics

Improved the Systems Engineering effectiveness of the Department's acquisition enterprise and provided Department leadership with technical insights into acquisition program performance through:

- Systems engineering plans (SEPs) reviewed and approved to document each program's technical management approach.
- Program support assessments (PSAs) and periodic program engagements conducted and program technical reviews supported to confirm programs are executed in accordance with the SEP.
- Technical reviews conducted as requested (e.g., Nunn-McCurdy certification reviews, Non-Advocate Reviews, and focused technical assessments to identify and mitigate program risk).
- DABs, Overarching Integrated Product Teams (OIPTs), and other program review participation to provide technical insights to OSD stakeholders.
- Effective systems engineering policy and guidance established and promulgated throughout the Military Services and the Defense Acquisition System.
- A systems engineering workforce staffed, trained and certified with capable and experienced personnel.
- Improved reliability engineering, reliability growth management, and reliability monitoring in program development contracting, execution and sustainment.
- Service and other component organizations engaged and supported in the development planning process through effective policy, guidance, document reviews and program engagement to ensure proposed MDAP programs are executable within acceptable levels of risk.
- Increased use of digital artifacts in acquisition decision making and expansion of design options.
- Increased use of modular designs and design techniques in weapon systems, coupled with appropriate contracting language and follow through.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605142D8Z / *Systems Engineering*	Project (Number/Name) 143 / *Program Protection*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
143: *Program Protection*	21.846	3.554	4.230	3.870	-	3.870	3.854	3.854	3.844	3.737	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Department of Defense (DoD) must address cybersecurity and supply chain risks to DoD networks, weapons systems, and information stored and processed on both DoD and Defense Industrial Base (DIB) unclassified networks that support DoD programs. Increased reliance on the internet as a vehicle for sharing information, globalization of the supply chain, and advanced persistent threats (APTs) that can evade commercially available security tools and defeat generic security best practices, drives the need for diligent program protection planning and execution. Program Protection Planning includes protection of critical program information, critical components and mission functions, and integrates high level security policies and practical expertise to specific acquisition practices, systems engineering activities, and risk reduction activities. Through this initiative the Department is maturing system security engineering methodologies to protect controlled unclassified information, to include controlled technical information on contractor networks; improve mitigation of supply chain risk management risks, improve integration of cybersecurity into the engineering processes, improve software assurance practices, mature processes to identify Critical Program Information and improve program protection planning. Activities carried out, support implementation of DoD Instruction 5200.44 Trusted Systems and Networks with the use of proven mitigation techniques and tools, the ongoing refinement of risk management processes, and creation of needed technology; implementation of DoD Instruction 5200.39 Critical Program Information (CPI) Identification and Protection Within Research, Development, Test, and Evaluation (RDT&E) to identify and protect Critical Program Information; and implementation of Safeguarding Controlled Unclassified Information on contractor owned networks.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Program Protection	3.554	4.230	3.870
Description: The DASD(SE) provides system security engineering policy, guidance and objective assessments to reduce risks in sharing and storing Controlled Technical Information, improve mitigation of supply chain risk management risks, improve integration of cybersecurity into the engineering processes, improve software and hardware assurance practices and anti-tamper practices, mature processes to identify Critical Program Information and improve program protection planning. Activities carried out support implementation of DoD Instruction 5200.44 Trusted Systems and Networks with the use of proven mitigation techniques and tools, the ongoing refinement of risk management processes, and creation of needed technology; implementation of DoD Instruction 5200.39 Critical Program Information (CPI) Identification and Protection Within Research, Development, Test, and Evaluation (RDT&E) to identify and protect Critical Program Information; and implementation of Safeguarding Controlled Unclassified Information on contractor owned networks.			
FY 2018 Plans: • Provide support to Acquisition Category (ACAT) I programs to conduct broad program protection planning. - Conduct criticality analyses to determine system vulnerabilities. - Develop Program Protection Plans, and track progress to verify protection of critical program capabilities.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605142D8Z / *Systems Engineering*	**Project (Number/Name)** 143 / *Program Protection*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- Review ACAT I Program Protection Plans and provide recommendations for their approval to USD(AT&L). • Advance the state of the practice of systems security engineering. - Continue development of methodology to identify and mitigate system security, to include cybersecurity risk. - Continue to develop courseware, refine guidance, mentor Service teams, provide training, and outreach with government and industry. • Hardware and Software Assurance (HwA and SwA) - Conduct hardware and software technical working groups, assurance oversight steering council and support group. - Approve HwA and SwA concept of operations for collaboration activities and program support. - Approve strategic plan: establish requirements and schedule for Initial Operating Capabilities (IOC) of HwA and SwA efforts. - Conduct comprehensive survey across HwA and SwA activities to: document capability and capacity, identify gaps, propose gap mediation investments.			
FY 2019 Plans: Continue to: • Provide support to Acquisition Category (ACAT) I programs to conduct broad program protection planning. - Conduct criticality analyses to determine system vulnerabilities. - Develop Program Protection Plans, and track progress to verify protection of critical program capabilities. - Review ACAT I Program Protection Plans and provide recommendations for their approval to USD(AT&L). • Advance the state of the practice of systems security engineering. - Continue development of methodology to identify and mitigate system security, to include cybersecurity risk. - Continue to develop courseware, refine guidance, mentor Service teams, provide training, and outreach with government and industry. • Hardware and Software Assurance (HwA and SwA) - Conduct hardware and software technical working groups, assurance oversight steering council and support group. - Approve HwA and SwA concept of operations for collaboration activities and program support. - Approve strategic plan: establish requirements and schedule for Initial Operating Capabilities (IOC) of HwA and SwA efforts. - Conduct comprehensive survey across HwA and SwA activities to: document capability and capacity, identify gaps, propose gap mediation investments.			
FY 2018 to FY 2019 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605142D8Z / *Systems Engineering*	**Project (Number/Name)** 143 / *Program Protection*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Level of effort is consistent between FY 2018 and FY 2019. Small changes reflect minor budget fluctuations.			
Accomplishments/Planned Programs Subtotals	3.554	4.230	3.870

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

The program protection project supports activities focused on: (1) improve system security engineering to reduce risks in sharing and storing controlled unclassified information, to include controlled technical information, (2) improve mitigation to supply chain risks, (3) Program Protection Plans reviewed and recommended for USD(AT&L) approval, (4) effective system security engineering policy and guidance, (5) improve software and hardware assurance and anti-tamper practices and implementation, and (6) mature processes to identify and protect critical program information, critical components and mission functions.

Impact of the program protection initiative is assessed based upon number of major acquisition programs supported with formal assessments, program protection plans reviewed and approved, and through engagement supporting acquisition policy initiatives related to program protection.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605142D8Z / *Systems Engineering*	Project (Number/Name) 842 / *Mission Engineering*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
842: *Mission Engineering*	-	0.000	0.000	2.000	-	2.000	2.000	2.000	2.000	2.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Program Element (PE) establishes a dedicated funding line to support activities to carry out responsibilities described in FY 2017 National Defense Authorization Act (NDAA) Section 855 titled Mission Integration Management (MIM).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Mission Engineering	0.000	-	2.000
FY 2019 Plans: • Coordinate with Joint Service and commanders of the combatant commands to identify major threats, mission scope, Concept of Operations (CONOPS) development, and Operation Plans (OPLAN). • Initiate translation of multi-Service and Coalition mission-based needs for the requirements process, resulting in Capability Requirements. • Develop strategy to use relevant Cross-Service mission threads in coordination with Joint Staff to identify capability gaps. • Determine where multi-Service and Coalition mission areas would benefit from mission engineering and a coordinated implementation approach to set an operational context.			
FY 2018 to FY 2019 Increase/Decrease Statement: New start effort beginning in FY 2019.			
Accomplishments/Planned Programs Subtotals	0.000	-	2.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605151D8Z / *Studies and Analysis Support - OSD*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	17.048	2.675	5.200	3.534	-	3.534	4.831	4.584	3.968	4.007	Continuing	Continuing
151: *Joint Service Training & Readiness System Development Program*	17.048	2.675	5.200	3.534	-	3.534	4.831	4.584	3.968	4.007	Continuing	Continuing

Note

The FY2019 funding request was reduced by $1.437 million to account for the availability of prior year execution balances.

A. Mission Description and Budget Item Justification

The Joint Service programs were established by the Secretary of Defense to improve the readiness and training of the Active and Reserve Components. This project expedites the development of technologies and systems which improve overall effectiveness and performance of the Total Force. It facilitates the sharing of information, while allowing for the transfer of emerging and innovative technologies among the Services and private sector. In addition, this project supports OSD (P&R), other OSD offices, Joint Staff, Unified Commands, and the Services in promoting more efficient and effective use of resources, increasing the effectiveness of military training, and enhancing the readiness and performance of the Total Force. Projects analyze the contributions to readiness of various programs and training techniques and use the results to expedite new concepts and procedures that increase unit effectiveness or decrease costs. Emphasis is placed on developing analytical tools and systematic methodologies to improve readiness and training resource allocations.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	3.797	5.200	4.971	-	4.971
Current President's Budget	2.675	5.200	3.534	-	3.534
Total Adjustments	-1.122	0.000	-1.437	-	-1.437
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-1.000	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.119	-			
• SBIR/STTR Transfer	-0.003	-			
• Other Adjustments	-	-	-1.437	-	-1.437

Change Summary Explanation

Funding adjustment reflects SRRB reductions - Service Requirement Review Board - As part of the Department of Defense reform agenda, the incremental reduction accounts for consolidation and reduction of service contracts.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605151D8Z / *Studies and Analysis Support - OSD*	Project (Number/Name) 151 / *Joint Service Training & Readiness System Development Program*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
151: *Joint Service Training & Readiness System Development Program*	17.048	2.675	5.200	3.534	-	3.534	4.831	4.584	3.968	4.007	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Joint Service programs were established by the Secretary of Defense to improve the readiness and training of the Active and Reserve Components. This project expedites the development of technologies and systems which improve overall effectiveness and performance of the Total Force. It facilitates the sharing of information, while allowing for the transfer of emerging and innovative technologies among the Services and private sector. In addition, this project supports OSD Personnel and Readiness (P&R), other OSD offices, Joint Staff, Unified Commands, and the Services in promoting more efficient and effective use of resources, increasing the effectiveness of military training, and enhancing the readiness and performance of the Total Force. Projects analyze the contributions to readiness of various programs and training techniques and use the results to expedite new concepts and procedures that increase unit effectiveness or decrease costs. Emphasis is placed on developing analytical tools and systematic methodologies to improve readiness and training resource allocations.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Joint Service Training & Readiness System Development	2.675	5.200	3.534

Description: The Joint Service programs were established by the Secretary of Defense to improve the readiness and training of the Active and Reserve Components. This project expedites the development of technologies and systems which improve overall effectiveness and performance of the Total Force. It facilitates the sharing of information, while allowing for the transfer of emerging and innovative technologies among the Services and private sector. In addition, this project supports OSD (P&R), other OSD offices, Joint Staff, Unified Commands, and the Services in promoting more efficient and effective use of resources, increasing the effectiveness of military training, and enhancing the readiness and performance of the Total Force. Projects analyze the contributions to readiness of various programs and training techniques and use the results to expedite new concepts and procedures that increase unit effectiveness or decrease costs. Emphasis is placed on developing analytical tools and systematic methodologies to improve readiness and training resource allocations.

FY 2018 Plans:

* Continue to assess workforce skills and analyze training requirement to support the DoD Strategy in evolving areas;
* Continue to identify and analyze opportunities for early and effective incorporation of human systems interface considerations in system training for new acquisitions;
* Continue to investigate modeling and simulation technologies to increase training effectiveness and lower costs; and

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605151D8Z / *Studies and Analysis Support - OSD*	**Project (Number/Name)** 151 / *Joint Service Training & Readiness System Development Program*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
* Respond to Congressional mandates and directives ***FY 2019 Plans:*** Put in plan ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Explain decrease			
Accomplishments/Planned Programs Subtotals	2.675	5.200	3.534

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Each project contained within this program contains specific metrics to determine progress towards completion. Metrics for all include completed and documented analysis provided by the performer. The completion date for that analysis varies with each project. In addition, to that analysis, each effort contains a roadmap addressing the best use of the findings throughout the department. If the results of the analysis show benefit to the Department, those findings are included in policy, doctrine, tactics and procedures.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605161D8Z / *Nuclear Matters*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	22.309	5.101	5.232	5.050	-	5.050	5.119	5.215	5.299	5.395	Continuing	Continuing
161: *Nuclear Matters*	22.309	5.101	5.232	5.050	-	5.050	5.119	5.215	5.299	5.395	Continuing	Continuing

A. Mission Description and Budget Item Justification

The purpose of the Nuclear Matters program is to sustain the U.S. nuclear deterrent posture, counter nuclear threats, and to develop nuclear and conventional physical security equipment. The funds for this program are used to support research, development, test and evaluation efforts as well as studies and analyses for nuclear weapons security; use control; nuclear weapons stockpile safety, survivability and performance; countering nuclear threats and office management. Funds are also used to develop and implement plans for stockpile transformation; infrastructure analyses and assessments; DoD-NNSA Nuclear Weapons Council activities, as mandated by Title 10 USC, section 179; radiological and nuclear emergency response efforts; and management of international programs of nuclear cooperation, particularly with respect to enhancing international nuclear safety and security and office management. Nuclear Matters is also responsible for policy development and implementation for personnel reliability; nuclear weapons, nuclear command and control, and special nuclear materials security; use control; nuclear weapons transportation; physical security equipment; countering nuclear threats; and nuclear and radiological incident response.

This Program Element can fund travel to support the requirements of this program.

This appropriation will finance work, including manpower, performed by a government agency or by private individuals or organizations under a contractual or grant arrangement with the government who conduct research (systematic study directed toward fuller scientific knowledge or understanding of the subject studied), development (systematic use of the knowledge and understanding gained from research, for the production of useful materials, devices, systems, or methods, including the design and development of prototypes and processes) and test and evaluation efforts.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	5.302	5.232	5.091	-	5.091
Current President's Budget	5.101	5.232	5.050	-	5.050
Total Adjustments	-0.201	0.000	-0.041	-	-0.041
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.194	-			
• FFRDC	-0.006	-	-	-	-
• Programmatic Fiscal Guidance Adjustment	-	-	-0.007	-	-0.007

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense				Date: February 2018	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*		R-1 Program Element (Number/Name) PE 0605161D8Z / *Nuclear Matters*			
• Cancelled Account Withold	-0.001	-	-	-	-
• Economic Assumption Adjustment	-	-	-0.034	-	-0.034

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605161D8Z / *Nuclear Matters*	Project (Number/Name) 161 / *Nuclear Matters*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
161: *Nuclear Matters*	22.309	5.101	5.232	5.050	-	5.050	5.119	5.215	5.299	5.395	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The purpose of the Nuclear Matters program is to sustain the U.S. nuclear deterrent posture, counter nuclear threats, and to develop nuclear and conventional physical security equipment. The funds for this program are used to support research, development, test and evaluation efforts as well as studies and analyses for nuclear weapons security; use control; nuclear weapons stockpile safety, survivability and performance; countering nuclear threats and office management. Funds are also used to develop and implement plans for stockpile transformation; infrastructure analyses and assessments; DoD-NNSA Nuclear Weapons Council activities, as mandated by Title 10 USC, section 179; radiological and nuclear emergency response efforts; and management of international programs of nuclear cooperation, particularly with respect to enhancing international nuclear safety and security and office management. Nuclear Matters is also responsible for policy development and implementation for personnel reliability; nuclear weapons, nuclear command and control, and special nuclear materials security; use control; nuclear weapons transportation; physical security equipment; countering nuclear threats; and nuclear and radiological incident response.

This Program Element can fund travel to support the requirements of this program.

This appropriation will finance work, including manpower, performed by a government agency or by private individuals or organizations under a contractual or grant arrangement with the government who conduct research (systematic study directed toward fuller scientific knowledge or understanding of the subject studied), development (systematic use of the knowledge and understanding gained from research, for the production of useful materials, devices, systems, or methods, including the design and development of prototypes and processes) and test and evaluation efforts.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Nuclear Weapons Council (NWC)	0.620	0.600	0.559
Description: The Nuclear Weapons Council (NWC) is a joint Department of Defense (DoD) and Department of Energy (DOE)/ National Nuclear Security Administration (NNSA) organization established by Congress to facilitate cooperation and coordination between the two Departments as they fulfill their dual agency responsibilities for U.S. nuclear weapons stockpile management.			
FY 2018 Plans: - Oversee the activities on the Congressionally mandated Joint DoD-DOE Nuclear Weapons Council and its support committees to include the Nuclear Weapons Council Standing and Safety Committee, the Compartmented Advisory Committee and the Action Officer group			
FY 2019 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605161D8Z / *Nuclear Matters*	**Project (Number/Name)** 161 / *Nuclear Matters*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- Oversee the activities on the Congressionally mandated Joint DoD-DOE Nuclear Weapons Council and its support committees to include the Nuclear Weapons Council Standing and Safety Committee, the Compartmented Advisory Committee and the Action Officer group ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Funding fluctuates based on funding availability			
Title: International Programs ***Description:*** The United States also participates in several international programs of cooperation regarding nuclear weapons with foreign governments and regional defense organizations that involve unclassified and classified information exchanges. In general, these agreements are designed to promote safety and security, advance stockpile stewardship and collaborate in counter-proliferation efforts. ***FY 2018 Plans:*** - Execute confidence building programs of cooperation with international partners. - Sponsor international partners at national-level nuclear weapons accident/incident exercises. ***FY 2019 Plans:*** - Execute confidence building programs of cooperation with international partners. - Sponsor international partners at national-level nuclear weapons accident/incident exercises. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Funding fluctuates based on funding availability	0.198	0.197	0.191
Title: Nuclear Surety ***Description:*** Because of their political and military importance, destructive power, and the potential consequences of an accident or unauthorized act, nuclear weapons and nuclear weapon systems require special consideration and must be protected against risks and threats inherent in their peacetime and wartime environments. Oversight of the DoD nuclear surety program is provided by Deputy Assistant Secretary of Defense for Nuclear Matters (DASD(NM)). ***FY 2018 Plans:*** - Conduct OSD oversight and provide direction for actions taken under DoDD 4540.5, "Transportation of Nuclear Weapons"; DoDD S-5210.81, "United States Nuclear Weapons Command and Control, Safety, and Security"; DoDD S-3150.7, "Controlling the Use of Nuclear Weapons"; DoDD 5210.42 and 5210.42-R, "The DoD Personnel Reliability Program'; and DoDD 5210.41 and S-5210.41-M, "Physical Security of Nuclear Weapons." - Support activities that support nuclear surety policy and provide OSD oversight of the Nuclear Surety program. ***FY 2019 Plans:***	0.747	0.822	0.745

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605161D8Z / *Nuclear Matters*	**Project (Number/Name)** 161 / *Nuclear Matters*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- Conduct OSD oversight and provide direction for actions taken under DoDD 4540.5, "Transportation of Nuclear Weapons"; DoDD S-5210.81, "United States Nuclear Weapons Command and Control, Safety, and Security"; DoDD S-3150.7, "Controlling the Use of Nuclear Weapons"; DoDD 5210.42 and 5210.42-R, "The DoD Personnel Reliability Program'; and DoDD 5210.41 and S-5210.41-M, "Physical Security of Nuclear Weapons." - Support activities that support nuclear surety policy and provide OSD oversight of the Nuclear Surety program. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Funding fluctuates based on funding availability			
Title: Stockpile Transformation ***Description:*** To meets its security needs and those of its allies, the U.S. will need a safe, secure, and reliable nuclear deterrent for the foreseeable future. There's increased risk, absent nuclear testing, in assuring long-term safety and reliability of today's aging stockpile—the legacy warheads left over from the Cold War. Today's nuclear weapons complex is not sufficiently "responsive" to technical problems in the stockpile, or to potential emerging threats. The task is to ensure the U.S. nuclear weapons stockpile and supporting infrastructure, meets long-term national security needs. ***FY 2018 Plans:*** - Conduct life cycle activities in support of the nuclear weapons stockpile under DoDD 3150.1, "Nuclear Weapons Life Cycle" and DoDI 5030.55, "DoD Procedures for Joint DoD-DOE Nuclear Weapons Life Cycle Activities. - Manage DoD RDT&E activities for nuclear warheads to include B61, W76, W78, W80(0,1), B83, W87, W88 Weapons. - Support studies for warhead replacement. ***FY 2019 Plans:*** - Conduct life cycle activities in support of the nuclear weapons stockpile under DoDD 3150.1, "Nuclear Weapons Life Cycle" and DoDI 5030.55, "DoD Procedures for Joint DoD-DOE Nuclear Weapons Life Cycle Activities. - Manage DoD RDT&E activities for nuclear warheads to include B61, W76, W78, W80(0,1), B83, W87, W88 Weapons. - Support studies for warhead replacement. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Funding fluctuates based on funding availability	1.267	1.033	1.223
Title: Survivability and Weapons of Mass Destruction (WMD) ***Description:*** In the 2010 Quadrennial Defense Review (QDR), the SECDEF directed the Department to rebalance its policy, doctrine, and capabilities to better support six key missions. The fifth on the list of key missions is to prevent proliferation and counter weapons of mass destruction. This project directly supports the nation's defense strategy. ***FY 2018 Plans:***	0.762	0.734	0.711

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605161D8Z / *Nuclear Matters*	**Project (Number/Name)** 161 / *Nuclear Matters*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Continue to: - Oversee the Nuclear Defense Portfolio. - Plan and coordinate the activities of the National Nuclear Forensics Steering Committee and Working Group. - Develop OSD-wide approach to overseeing Global Nuclear Defense missions within DoD. ***FY 2019 Plans:*** Continue to: - Oversee the Nuclear Defense Portfolio. - Plan and coordinate the activities of the National Nuclear Forensics Steering Committee and Working Group. - Develop OSD-wide approach to overseeing Global Nuclear Defense missions within DoD. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Funding fluctuates based on funding availability			
Title: Nuclear Matters Support Program ***Description:*** The Nuclear Matters support program conducts studies / analyses; DoD-NNSA Nuclear Weapons Council activities; and provides funding for analytical support functions. ***FY 2018 Plans:*** - Submit annual reports to the President and the Congress. - Continue to oversee DoD/DOE relationship regarding the survivability and surety of the national nuclear stockpile. - Continue as DoD Sigma 15 Approval Authority (Interface with DOE/NNSA). - Continue to address Freedom of Information Act and Mandatory Declassification Requests. ***FY 2019 Plans:*** - Submit annual reports to the President and the Congress. - Continue to oversee DoD/DOE relationship regarding the survivability and surety of the national nuclear stockpile. - Continue as DoD Sigma 15 Approval Authority (Interface with DOE/NNSA). - Continue to address Freedom of Information Act and Mandatory Declassification Requests. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Funding fluctuates based on funding availability	0.631	0.900	0.734
Title: Physical Security and PPBE Support ***Description:*** Provides contract support services that support the Physical Security Enterprise & Analysis Group, the Security Policy Verification Committee and all Planning, Programming, Budgeting and Execution needs for the Office of the Assistant Secretary of Defense for Nuclear, Chemical and Biological Defense Programs / Nuclear Matters.	0.876	0.946	0.887

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605161D8Z / *Nuclear Matters*	**Project (Number/Name)** 161 / *Nuclear Matters*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
FY 2018 Plans: - Support the Physical Security Enterprise & Analysis Group - Support the Security Policy Verification Committee - Provide all Planning, Programming, budgeting and Execution support for the Nuclear Matters' portfolio ***FY 2019 Plans:*** - Support the Physical Security Enterprise & Analysis Group - Support the Security Policy Verification Committee - Provide all Planning, Programming, budgeting and Execution support for the Nuclear Matters' portfolio ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Funding fluctuates based on funding availability			
Accomplishments/Planned Programs Subtotals	5.101	5.232	5.050

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Success in this area is measured by compliance with various statutes and DoD directives that govern the conduct of the affairs within the Office of DASD(Nuclear Matters). Success is also measured by the currency of information and usability of the website, timeliness and responsiveness of reports due to Congress, performance in various response exercises, and feedback from a number of senior-level government organizations that DASD(Nuclear Matters) supports.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605170D8Z / *Support to Networks and Information Integration*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	51.880	6.996	12.583	11.450	-	11.450	15.041	14.841	14.242	14.510	Continuing	Continuing
170: *Support to NII*	51.880	6.996	12.583	11.450	-	11.450	15.041	14.841	14.242	14.510	Continuing	Continuing

Note

The FY2019 funding request was reduced by 2.012 million to account for the availability of prior year execution balances.

A. Mission Description and Budget Item Justification

This program element supports studies and analysis in the areas of networks, information integration, defense-wide command and control (C2), and communications. This program is funded under Budget Activity 6, RDT&E Management Support because it includes studies and analysis in support of RDT&E efforts.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	7.246	12.583	13.856	-	13.856
Current President's Budget	6.996	12.583	11.450	-	11.450
Total Adjustments	-0.250	0.000	-2.406	-	-2.406
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.241	-			
• Program Adjustment	-0.009	-	-0.394	-	-0.394
• Other Adjustments	-	-	-2.012	-	-2.012

Change Summary Explanation

Program Change Summary:
FY 2017: SIBR/STTR Transfer -0.241 million. Program Adjustment -0.009 million.
FY 2018: No change.
FY 2019: Under-execution -2.012 million, Program Adjustment -0.394 million.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605170D8Z / *Support to Networks and Information Integration*	Project (Number/Name) 170 / *Support to NII*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
170: *Support to NII*	51.880	6.996	12.583	11.450	-	11.450	15.041	14.841	14.242	14.510	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Funding supports Global Positioning System (GPS) User Equipment Synchronization with GPS space and operational control segments to conduct DoD CIO oversight of Global Positioning System (GPS) management and planning activities required for meeting JCIDs requirements. Funding supports policy and guidance for incorporation of alternative means of PNT delivery to augment GPS. Funding also supports the DoD's PNT Oversight Council and inputs into interagency activities under the National Space-Based Positioning, Navigation, and Timing Executive Committee.

The Integrated Planning and Management Project encompasses the National Leadership Command Capability (NLCC) Management Office's (NMO) responsibilities for establishing overall DoD policy and oversight with respect to the capability development, interoperability, standards, and architecture for National and Nuclear Command Capabilities for our National Leadership. The NMO serves as the single point of contact within the Department for policy, long-range plans, programs and budget, integrated mission advocacy, and management of decision-maker capabilities. NMO's objective is to ensure capabilities are in place to provide complete and timely situational awareness and decision tools for senior decision-makers. Additionally, the NMO assists the DoD CIO as the Executive Agent and primary OSD advocate for the White House Military Office with oversight of a wide range of DoD command, control, and communications (C3) assets and oversees the efforts of the Services and Agencies in the design, integration, and deployment of critical and sensitive C3 capabilities. Three overall areas of focus include: 1) National Senior Leader C3 Systems, National Security/Emergency Preparedness (NS/EP), DoD support to Civil Authorities; Continuity of Government (COG); 2) Nuclear C2, Integrated Missile Defense, Tactical Warning, Global Strike; and 3) Cyber Mission Indications and Warnings.

The Mission Assurance Risk Management System (MARMS) is a Department of Defense (DoD) risk management system that directly supports the Secretary of Defense's Mission Assurance (MA) responsibilities as defined in the DoD Directive (DoDD) 3020.40, Mission Assurance, with the objectives of creating resilience and supporting critical processes to enable the protection of assets and ensuring defense critical missions. MARMS will function as an integration framework spanning multiple security domains that will support risk-informed decision-making, resource investment, and improved synchronization at different levels within DoD. MARMS supports multiple Joint Capability Areas (JCA): Command and Control, Logistics, and Protection. MARMS is an acquisition category (ACAT) III software program and has a "high" impact value for each of the three security objectives (confidentiality, integrity, and availability) in accordance with DoD Instruction (DoDI) 8510.01 and the Committee on National Security Systems Instruction (CNSSI) 1253.

Defense Architecture Support includes development, analysis, testing and evaluation of DoD IT Enterprise Reference and solution architecture products in support of the DoD's Joint Information Environment and the closely related Mission Partner Environment. This work also includes improvements to processes that support registration and storage of the Department's enterprise architecture (formerly called DARS). The Department maintains a catalog of architecture data holdings and provides users the ability to store, search, retrieve, and use DoD architecture data through capabilities provided by the architecture portal. The portal is a central, federated hub for discovery, accessibility, understandability, and reusability of architectures. With the ability to import different architecture tool data and display disparate architecture data in a uniform, consistent method for ease of use and understanding. The portal provides a federated environment for sharing of architectures,

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605170D8Z / *Support to Networks and Information Integration*	**Project (Number/Name)** 170 / *Support to NII*

mission threads, and other related capability integrated information between various authoritative repositories to increase effectiveness and efficiency of decision-making in a dynamic environment by our customers. Implementations are accessible on both the NIPRNET (unclassified) and SIPRNET (Collateral Classified). Key features of the Defense Architecture Support program focus on: (1) Research and Development of JIE and MPE architectures, (2) Making JIE and MPE architecture data visible, accessible, trusted, understandable, and interoperable (2) enabling reuse of validated architecture data to build "composite" integrated architectures; (3) enabling architecture analysis; and, (4) integrating architecture data into the DoD mainstream decision-making processes. The Department of the Air Force, Army, and Navy CIO's collaborate in the development of federation web services via the Enterprise Architecture and Engineering Panel under the oversight of the DoD CIOs Enterprise Architecture and Service Board to ensure DoD-wide access to and usability of all components of the composite DoD enterprise architecture model, enterprise services, data and technical standards.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Support to NII	6.996	12.583	11.450
FY 2018 Plans: FY 2018 Plans ($2.905 million): Global Positioning System (GPS) User Equipment Synchronization with GPS space and control segments to conduct DoD CIO oversight of Global Positioning System (GPS) management and planning activities required for meeting JCIDs requirements and supporting the National Space-Based Positioning, Navigation and Timing Executive Committee. Funding will support: - Manage the GPS Security Policy (DoDM-O4650.11). - Manage the Information Assurance/COMSEC elements of DoDM-O4650.11. - Develop the NAVWAR manual (DoDM-4650.ed). - Continue implementation of the GPS Protection Profile matrix from Navigation Warfare Concept of Operations in conjunction with Warfighting Operations Plans (OPLANS) and Contingency Plans (CONPLANS) in coordination with US STRATCOM. - Manage PNT Navigation Warfare Instruction and Annexes to all the Operations Plans (OPLANS) and Contingency Plans (CONPLANS) in coordination with US STRATCOM. - Manage NextGen interfaces with the GPS Wing, Joint Program Development Office (JPDO), and Air Force. Continue implementation of Red Key Sundown Policy. - Provide staff support, perform research and conduct studies as directed by DEPSECDEF in his role as co-chair of the National Executive Committee for Space-Based PNT and for DoD CIO in his role as co-chair of the Executive Steering Group. - Perform annual update of National Five-year Plan for Space-Based Positioning, Navigation and Timing (PNT). - Apply Navigation Warfare Concept of Operations via the Joint Navigation Warfare Center (JNWC) and US STRATCOM to develop Doctrine, Tactics, Techniques and Procedures, Training, Equipment Validation and Material Solutions to Navigation Warfare challenges to the Military Services and Combatant Commanders in the scenarios defined in the CONPLANS and OPLANS. - Manage and implement the DoD PNT investment strategy using the NetCentric Operations CPM portfolio to insure PNT material solutions are developed in a synchronized fashion in JCIDs, DAS, and PPBE.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605170D8Z / *Support to Networks and Information Integration*	**Project (Number/Name)** 170 / *Support to NII*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- Implement additional Instructions (DoDIs) for public affairs and receiver certification, and DoDM for security policy. - Manage inventory of DoD GPS receivers. - Analyze and promote alternative PNT delivery means for inclusion in the force structure for force protection. - Biennially task Intelligence Community (IC) to assess threat vectors to GPS and other means of PNT delivery; biennial operational assessments to reveal gaps in PNT delivery against OPLANS and CONPLANS of COCOMS; maintenance of PNT equipment inventories, refreshed biennially. - Develop Directives, Instructions, and Manuals for implementation of the PNT Strategy within the Department. - Continue special task directed by DCIO to address acceleration of development and fielding of advanced GPS receivers in the Joint Force. - Maintain and update inventory of existing GPS receiver equipage; expand to include antennae and antennae electronics; expand to include delivery of PNT via other-than-GPS equipment. - Address prioritized platforms in fielding plans and guidance to Services. - Develop MGUE “Roadmap” illustrating necessary fielding milestones for Joint Force MGUE equipage. - Administer PNT Council within DoD via supporting DoDDs and DoDIs, agendas and minutes for Council meetings, Council task disposition and annual report to Congress. - Develop 2018 FRP. FY 2017 Accomplishments ($3.375 million) $2.000 million - NC3 Modeling and Simulation and Analysis - The NC3 system is a complex architecture that utilized a "system of systems" approach. The NC3 model focused on communications after a high altitude electromagnetic pulse (HEMP) event. This funding focused on expanding the current NC3 modeling to additional survivable communications systems. The goal was to provide insight on operational impact of changes/degradation of single or multiple systems - supports planning, architecture, and investments. - Provided direction and support to the Defense Information Systems Agency / Joint Systems Engineering and Integration Office (DISA/JSEIO) in developing campaign-level modeling and simulation tools for NC3. The tools expanded on the Joint Operations Visualization Environment (JOVE), Modeling and Simulation for Strategic Communications (MASSC), NC3-N Executable Architecture Management System (NC3-N ExAMS) and NC3 Integrated Scenario Modeler (NISM). Continued IT Enterprise and solution architecture development, analysis, and registration processes. ***FY 2019 Plans:*** FY 2019 Plans ($2.748 million):			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605170D8Z / *Support to Networks and Information Integration*	**Project (Number/Name)** 170 / *Support to NII*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Global Positioning System (GPS) User Equipment Synchronization with GPS space and control segments to conduct DoD CIO oversight of Global Positioning System (GPS) management and planning activities required for meeting JCIDs requirements and supporting the National Space-Based Positioning, Navigation and Timing Executive Committee. Funding will support: - Manage the GPS Security Policy (DoDM-O4650.11). - Manage the Information Assurance/COMSEC elements of DoDM-O4650.11. - Develop the NAVWAR manual (DoDM-4650.ed). - Continue implementation of the GPS Protection Profile matrix from Navigation Warfare Concept of Operations in conjunction with Warfighting Operations Plans (OPLANS) and Contingency Plans (CONPLANS) in coordination with US STRATCOM. - Manage PNT Navigation Warfare Instruction and Annexes to all the Operations Plans (OPLANS) and Contingency Plans (CONPLANS) in coordination with US STRATCOM. - Manage NextGen interfaces with the GPS Wing, Joint Program Development Office (JPDO), and Air Force. Continue implementation of Red Key Sundown Policy. - Provide staff support, perform research and conduct studies as directed by DEPSECDEF in his role as co-chair of the National Executive Committee for Space-Based PNT and for DoD CIO in his role as co-chair of the Executive Steering Group. - Perform annual update of National Five-year Plan for Space-Based Positioning, Navigation and Timing (PNT). - Apply Navigation Warfare Concept of Operations via the Joint Navigation Warfare Center (JNWC) and US STRATCOM to develop Doctrine, Tactics, Techniques and Procedures, Training, Equipment Validation and Material Solutions to Navigation Warfare challenges to the Military Services and Combatant Commanders in the scenarios defined in the CONPLANS and OPLANS. - Manage and implement the DoD PNT investment strategy using the NetCentric Operations CPM portfolio to insure PNT material solutions are developed in a synchronized fashion in JCIDs, DAS, and PPBE. - Implement additional Instructions (DoDIs) for public affairs and receiver certification, and DoDM for security policy. - Manage inventory of DoD GPS receivers. - Analyze and promote alternative PNT delivery means for inclusion in the force structure for force protection. - Biennially task Intelligence Community (IC) to assess threat vectors to GPS and other means of PNT delivery; biennial operational assessments to reveal gaps in PNT delivery against OPLANS and CONPLANS of COCOMS; maintenance of PNT equipment inventories, refreshed biennially. - Develop Directives, Instructions, and Manuals for implementation of the PNT Strategy within the Department. - Continue special task directed by DCIO to address acceleration of development and fielding of advanced GPS receivers in the Joint Force. - Maintain and update inventory of existing GPS receiver equipage; expand to include antennae and antennae electronics; expand to include delivery of PNT via other-than-GPS equipment. - Address prioritized platforms in fielding plans and guidance to Services.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605170D8Z / *Support to Networks and Information Integration*	**Project (Number/Name)** 170 / *Support to NII*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- Develop MGUE "Roadmap" illustrating necessary fielding milestones for Joint Force MGUE equipage. - Administer PNT Council within DoD via supporting DoDDs and DoDIs, agendas and minutes for Council meetings, Council task disposition and annual report to Congress. FY 2019 Plans ($3.800 million) Continue NC3 Modeling and Simulation and Analysis – Continue to provide direction and support to the DISA/JSEIO in developing campaign level modeling and simulation tools for NC3. The research and development of the tools will continue to increase the capabilities of modeling and simulation for strategic communications (MASSC) (conferencing capabilities), NC3-N executable architecture management system (NC3-N ExAMS) (analysis of nodes, metrics and assets associated with a Navy communications system), joint operations visualization environment (JOVE) and NC3 integrated scenario modeler (NISM) (provide extendable, transparent multi-level simulations of scenarios). - $0.800 million – Continue to perform financial database analysis and use the R-DOCs and P-DOCs to create a new structure for the NLCC Investment Strategy. Continue to build automatic extraction tools for the R=DOCs and P-DOCs. Continue developing program lists using programmatic data in Excel. Continue to develop an XML Parser to move data to into a single database to work on Schedule Views (GANTT) and move to a roadmap format, starting off as a manual process, and leading to an automated process. FY 2019 Plans ($4.040 million) System Engineering and Agile Development per MARMS Requirements Definition Package(RDP)-1. In FY19 MARMS will continue development of CD1 Information Sharing, CD2 Assessments, and CD3 Enhanced Stakeholder Systems to an Initial Operational Capability (IOC). This will provide the department with a single repository of DCI and AT data to perform analysis and manage risk perf DODD 3020.40. The development focus in FY19 will be on the development and implementation of the Mission Assurance Workspace and Viewer on SIPRNet and JWICS. The MA Workspace and Viewer will provide the department's leadership with a consolidated MA dashboard, and analytical capabilities to perform planning and analysis of Mission Assurance activities per DoDD 3020.40 and 3020.45. Continue IT Enterprise and solution architecture development, analysis, and registration processes. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease supports contract support to Global Positioning System (GPS) User Equipment Synchronization with GPS space and operational control segments to conduct DoD CIO oversight of Global Positioning System (GPS) management and planning activities required for meeting JCIDs requirements.Decrease also supports reduced contract support to the Mission Assurance			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605170D8Z / *Support to Networks and Information Integration*	**Project (Number/Name)** 170 / *Support to NII*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Risk Management System (MARMS) is a Department of Defense (DoD) risk management system that directly supports the Secretary of Defense's Mission Assurance (MA) responsibilities as defined in the DoD Directive (DoDD) 3020.40, Mission Assurance, with the objectives of creating resilience and supporting critical processes to enable the protection of assets and ensuring defense critical missions.			
Accomplishments/Planned Programs Subtotals	6.996	12.583	11.450

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

PNT Performance Metrics

- Implement and successfully manage PNT Navigation Warfare Instructions and Manuals subordinate to DoDD 4650.05 and Annexes to applicable Operations Plans (OPLANS) and Contingency Plans (CONPLANS) in coordination with the appropriate Unified Combatant Command
- Implement the recommendations of the Analyses of Alternatives for the CIO and DCIO C4IIC Global Positioning System (GPS) portfolio of Position, Navigation, and Timing (PNT) programs and activities and additional PNT alternatives included in the US Army PNT Assurance AoA and the PNT Science and Technology Roadmap.
- Provide staff support, perform research and conduct studies as directed by the CIO and DCIO C4IIC relating to the Global Positioning System (GPS) portfolio of Position, Navigation, and Timing (PNT) programs and activities and other forms of PNT delivery.

Integrated Planning & Management Performance Metrics:

- Continue development of the required infrastructure to support Senior Leader Secure Mobile Communications. (measure of systems upgraded/enhanced)
- Continue development of the Overarching NLCC Initial Capabilities Document JROCM taskings. Includes both the development of measures to inform subordinate JCIDS documents as well as a roadmap and investment strategy for the sustainment and modernization of the NLCC.
- Continue policy development for National Leadership Command Capabilities (NLCC) directives (DoDDs) and instructions (DoDIs) (e.g., updates to DoDI for NC3 Management, develop DoDI for NC3 Governance, etc.).

DARS Performance Metrics:

- Timely development and issuance of policy, guidance, processes, and technologies to build, populate, govern, operate, and protect the Network.
- Policies developed and issued for GIG design, architecture content management, implementation, and operations.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605200D8Z / *General Support to OUSD(I)*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	4.532	1.872	61.451	1.693	-	1.693	1.705	1.746	1.776	2.297	Continuing	Continuing
001: *Sensitive Activities*	3.188	1.249	0.812	1.047	-	1.047	1.052	1.085	1.107	1.622	Continuing	Continuing
002: *Defense Civilian Intelligence Personnel System*	0.544	0.273	0.289	0.296	-	0.296	0.303	0.311	0.319	0.325	Continuing	Continuing
003: *Intelligence, Surveillance, Reconnaissance (ISR) Operations*	0.800	0.350	60.350	0.350	-	0.350	0.350	0.350	0.350	0.350	Continuing	Continuing

Note

Increase of $30M is in support of Missile Defeat and Defense Enhancement.

A. Mission Description and Budget Item Justification

001: Sensitive Activities focuses on developing technologies and their applications on sensitive activities within the Office of the Under Secretary of Defense for Intelligence (OUSD(I)).

002: Defense Civilian Intelligence Personnel System (DCIPS) provides enhancements and updates to the classified Global Force Management (GFM) Defense Intelligence Organizational Server (DIOS), a priority of the Vice Chairman of the Joint Chiefs of Staff, which tracks both civilian and military positions, associated grades and skill levels and hierarchical organizational relationships.

003: Intelligence, Surveillance, Reconnaissance (ISR) Operations requires expert engineering and technical assessments on a wide range of ISR operational issues. Funds will be used to support senior level discussions and decisions on ISR Operations related initiatives, platforms, and sensors.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605200D8Z / *General Support to OUSD(I)*

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	10.374	1.451	1.693	-	1.693
Current President's Budget	1.872	61.451	1.693	-	1.693
Total Adjustments	-8.502	60.000	0.000	-	0.000
• Congressional General Reductions	-0.002	-			
• Congressional Directed Reductions	-8.500	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	30.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Increase	-	30.000	-	-	-

Change Summary Explanation

FY 2018 $30M increase is in support of Missile Defeat and Defense Enhancement.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605200D8Z / *General Support to OUSD(I)*	Project (Number/Name) 001 / *Sensitive Activities*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
001: *Sensitive Activities*	3.188	1.249	0.812	1.047	-	1.047	1.052	1.085	1.107	1.622	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Sensitive Activities focuses on developing technologies and their applications on sensitive activities within the OUSD(I). It includes evaluation of concepts, technology development, and feasibility studies related to intelligence processes, shortfalls, and requirements that affect intelligence policy, planning, and operational guidance.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Sensitive Activities	1.249	0.812	1.047
FY 2018 Plans: Provide technology development and concept evaluation for applications in support of OUSD(I).			
FY 2019 Plans: Will continue to provide technology development and concept evaluation for applications in support of OUSD(I).			
FY 2018 to FY 2019 Increase/Decrease Statement: Increase in funding will provide an additional contractor FTE to support sensitive activities.			
Accomplishments/Planned Programs Subtotals	1.249	0.812	1.047

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605200D8Z / *General Support to OUSD(I)*	Project (Number/Name) 002 / *Defense Civilian Intelligence Personnel System*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
002: *Defense Civilian Intelligence Personnel System*	0.544	0.273	0.289	0.296	-	0.296	0.303	0.311	0.319	0.325	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

DCIPS provides the Defense Intelligence Enterprise (DIE) with independent civilian personnel authorities necessary to hire, develop, reward, and retain the diverse, versatile, and highly qualified workforce necessary to perform the Defense intelligence mission and brings the entire DIE under one personnel framework.

These funds are used to develop modifications and updates which tracks both civilian and military positions, associated grades, skill levels, and hierarchical organizational relationships.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Defense Civilian Intelligence Personnel System	0.273	0.289	0.296
FY 2018 Plans: Develop modifications and enhancements to the GFM DIOS as additional requirements are identified by the Joint Staff J-8.			
FY 2019 Plans: Will continue to develop modifications and enhancements to the GFM DIOS as additional requirements are identified by the Joint Staff J-8.			
FY 2018 to FY 2019 Increase/Decrease Statement: Increased support to deploy an instance of GFM DIOS on JWICS necessary to incorporate personnel information required in the Full Operational Capability (FOC) state of GFM Defense Intelligence (DI).			
Accomplishments/Planned Programs Subtotals	0.273	0.289	0.296

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• 0305192D8Z: *Defense Civilian Intelligence Personnel System*	1.735	1.881	1.792	-	1.792	1.800	1.835	1.875	1.910	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605200D8Z / *General Support to OUSD(I)*	**Project (Number/Name)** 002 / *Defense Civilian Intelligence Personnel System*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost

Remarks

Funding will be used to develop policy, oversee implementation, assess, and continuously improve the effectiveness of DCIPS human capital programs across the DIE. Funding ensures the effectiveness of strategic human capital and workforce planning, and ongoing workforce management, in accordance with both good business practices and to support the effective and efficient conduct of the Defense and National Intelligence missions.

D. Acquisition Strategy

N/A

E. Performance Metrics

Performance for this effort will be measured by the ability of the GFM DIOS to effectively and efficiently track both civilian and military positions, associated grades and skill levels, and hierarchical organizational relationships. Measures will include the ability to integrate upgrades to the system in the following areas: Security Access Enhancements, Common Access Point Website Enhancements, System Health Capabilities, Data Consumption Enhancements, and additional reporting capabilities.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605200D8Z / *General Support to OUSD(I)*	Project (Number/Name) 003 / *Intelligence, Surveillance, Reconnaissance (ISR) Operations*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
003: *Intelligence, Surveillance, Reconnaissance (ISR) Operations*	0.800	0.350	60.350	0.350	-	0.350	0.350	0.350	0.350	0.350	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

ISR Operations initiatives fulfill the requirement for expert engineering and technical assessments on a wide range of ISR operational issues used to support senior level discussions and decisions on ISR Operations related initiatives, platforms, and sensors. The ISR Operations initiatives developed, expanded, and enhanced a prototype framework to ingest and process asset allocation, requirements, tasking, and post-mission artifacts and collected sensor data and analyst intelligence products in order to provide semi-automated assessments for CENTCOM/Joint Intel ISR assessments analysts.

ISR Operations initiatives provide expert engineering and technical assessments on a wide range of ISR issues; establish and maintain interfaces with the senior scientific and technical directorates within OUSD(I), the military services and the Combat Support Agencies; integrate ISR Operations technology roadmaps with related program plans and initiatives; and support senior level discussions and decisions on ISR Operations related initiatives, platforms, and sensors.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Intelligence, Surveillance, Reconnaissance Operations	0.350	60.350	0.350
Description: ISR Operations requires expert engineering and technical assessments on a wide range of ISR operational issues. Funds will be used to support senior level discussions and decisions on ISR Operations related initiatives, platforms, and sensors.			
FY 2018 Plans: Provide expert engineering and technical assessments on a wide range of ISR operational issues. Funds will be used to support senior level discussions and decisions on ISR Operations related initiatives, platforms. and sensors. FY 2018 increase supports the DEPSECDEF directed stand up of the Algorithmic Warfare Cross-Functional Team (Project Maven) for modernizing Full Motion Video exploitation with Artificial Intelligence and Computer Vision. Funds support algorithm development, data labeling interfaces, and advanced hardware (GPUs) required for training neural nets.			
FY 2019 Plans: Will continue to provide expert engineering and technical assessments on a wide range of ISR operational issues. Funds will be used to support senior level discussions and decisions on ISR Operations related initiatives, platforms, and sensors.			
FY 2018 to FY 2019 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605200D8Z / *General Support to OUSD(I)*	**Project (Number/Name)** 003 / *Intelligence, Surveillance, Reconnaissance (ISR) Operations*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
FY 2018 increase of $60 million for the standup of an Algorithmic Warfare Cross-Functional Team to bring automation to the Department (Project Maven). FY 2019 decrease of $30 million is a result of the transition of Project Maven to PE 0305245D8Z, Intelligence Capabilities and Innovation.			
Accomplishments/Planned Programs Subtotals	0.350	60.350	0.350

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605502D8Z *I Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR)*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	225.906	84.770	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
502: *SBIR*	211.421	84.770	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
500: *STTR*	14.485	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

The goals of the Office of the Secretary of Defense (OSD) Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs are to stimulate technological innovation, increase private sector commercialization of federal Research and Development (R&D), increase small business participation in federally funded R&D, and foster participation by minority and disadvantaged firms in technological innovation.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	84.770	0.000	0.000	-	0.000
Total Adjustments	84.770	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	84.770	-			

Change Summary Explanation

Funds are reprogrammed from other OSD programs to support the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605502D8Z / *Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR)*	Project (Number/Name) 502 / *SBIR*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
502: *SBIR*	211.421	84.770	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The goals of the Office of the Secretary of Defense (OSD) Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs are to stimulate technological innovation, increase private sector commercialization of federal Research and Development (R&D), increase small business participation in federally funded R&D, and foster participation by minority and disadvantaged firms in technological innovation. This program supports high priority projects within the DoD Components, their missions and the Warfighter.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: SBIR	84.770	-	-
Description: A set-aside program for small business to engage in defense R&D with potential for commercialization.			
Accomplishments/Planned Programs Subtotals	84.770	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605502D8Z / *Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR)*	Project (Number/Name) 500 / *STTR*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
500: *STTR*	14.485	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The goals of the Office of the Secretary of Defense (OSD) Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs are to stimulate technological innovation, increase private sector commercialization of federal research and development (R&D), increase small business participation in federally funded R&D, and foster participation by minority and disadvantaged firms in technological innovation. This program supports high priority projects within the DoD Components, their missions and the Warfighter.

B. Accomplishments/Planned Programs ($ in Millions)

N/A

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605790D8Z *I Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR)*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	8.842	2.185	2.372	2.545	-	2.545	2.575	2.624	2.667	2.716	Continuing	Continuing
P518: *SBIR/Challenge Admin*	8.842	2.185	2.372	2.545	-	2.545	2.575	2.624	2.667	2.716	Continuing	Continuing

A. Mission Description and Budget Item Justification

This Program Element (PE) provides funding for the administration of the Department of Defense (DoD) Small Business Innovation Research (SBIR) Program and the Small Business Technology Transfer (STTR) Program. The SBIR/STTR Program funds over one billion dollars annually in mission oriented research and development projects via small technology companies. The purpose of the program is to stimulate technological innovation, increase private sector commercialization of Federal R&D, increase small business participation in Federally funded R&D, foster participation by minority and disadvantaged firms in technological innovation, and foster cooperative research & technology transfer between small business and research institutions. The SBIR/STTR Program is codified in 15 USC 638. The SBIR/STTR Programs competitively fund scientific and technical innovation to specifically address the needs of participating DoD components.

(U) DoD components participating in the SBIR and STTR Program include the: Army, Navy, Air Force, Defense Advanced Research Projects Agency (DARPA), Missile Defense Agency (MDA), Defense Threat Reduction Agency (DTRA), U.S. Special Operations Command (SOCOM), Joint Science & Technology Office for Chemical & Biological Defense (CBD), National Geospatial-Intelligence Agency (NGA), the Defense Logistics Agency (DLA), the Defense Microelectronics Activity (DMEA), the Defense Health Program (DHP) and the Office of Secretary of Defense (OSD.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	2.187	2.372	2.563	0.000	2.563
Current President's Budget	2.185	2.372	2.545	0.000	2.545
Total Adjustments	-0.002	0.000	-0.018	0.000	-0.018
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• FFRDC Transfer	-0.002	-	-	-	-
• Economic Adjustment	-	-	-0.018	-	-0.018

Change Summary Explanation

Economic Adjustment

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605790D8Z / *Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR)*	Project (Number/Name) P518 / *SBIR/Challenge Admin*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
P518: *SBIR/Challenge Admin*	8.842	2.185	2.372	2.545	-	2.545	2.575	2.624	2.667	2.716	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

(U) The SBIR/STTR Program is executed in three phases. The purpose of Phase I is to determine, insofar as possible, the scientific technical and commercial merit, and feasibility of ideas submitted under the SBIR/STTR Program. Phase II awards are made to firms that have been awarded a Phase I contract on the basis of the results of their Phase I effort and the scientific, technical, and commercial merit of the Phase II proposal. Phase II is the principal research or research and development effort and is expected to produce a well-defined deliverable prototype. Phase III SBIR/STTR efforts derive from, extend or conclude Phase I or Phase II efforts, and are not funded with SBIR/STTR funds. Under Phase III, companies participating in the SBIR/STTR Program are expected to obtain funding from the private sector and/or non-SBIR/STTR government sources to develop the prototype into a viable product or non-R&D service for sale in military and/or private sector markets.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: SBIR/Challenge Admin	2.185	2.372	2.545
Description: (U) Program element (PE) 0605790D8Z is the only source of funds for the coordination, administration and execution of the Department's SBIR/STTR Programs. The DoD Office of Small Business Programs is tasked with providing Departmental SBIR/STTR policy guidance, oversight and implementation and therefore requires program element (PE) 0605790D8Z to fund these administrative activities. In addition to funding costs for program administration, coordination and execution, PE 0605790D8Z funds essential elements of the SBIR/STTR Program that are required by law including: (1) Coordinate and execute the administrative portions of the DoD SBIR/STTR Programs including the development of technical topics, preparation of SBIR/STTR R&D solicitations and receipt of proposal responses; (2) Maintain and modify automated processes across the entire SBIR/STTR lifecycle including the development and maintenance of information systems and software required for the measurement, evaluation, and effective management of the Department's SBIR/STTR Programs; (3) Implement an aggressive outreach program including the execution of two National conferences and outreach to small technology companies, potential investors in such companies, SDBs, WOSBs, Institutions of Higher Learning, underrepresented states, and others, to facilitate participation in the SBIR/STTR Programs; (4) Coordinate oversight, collect results, track execution and provide reporting of Phase II technology transition in the DoD SBIR Commercialization Readiness Program (CRP); and (5) Prepare all reports mandated by law and policy.			
FY 2018 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605790D8Z / *Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR)*	**Project (Number/Name)** P518 / *SBIR/Challenge Admin*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
(U) Program element (PE) 0605790D8Z is the only source of funds for the coordination, administration and execution of the Department's SBIR/STTR Programs. The DoD Office of Small Business Programs is tasked with providing Departmental SBIR/ STTR policy guidance, oversight and implementation and therefore utilizes program element (PE) 0605790D8Z to fund these administrative activities. In addition to funding costs for program administration, coordination and execution, PE 0605790D8Z funds essential elements of the SBIR/STTR Program that are required by law including: (1) Coordinate and execute the administrative portions of the DoD SBIR/STTR Programs including the development of technical topics, preparation of SBIR/STTR R&D solicitations and receipt of proposal responses; (2) Maintain and modify automated processes across the entire SBIR/STTR lifecycle including the development and maintenance of information systems and software required for the measurement, evaluation, and effective management of the Department's SBIR/STTR Programs; (3) Implement an aggressive outreach program including the execution of two National conferences and outreach to small technology companies, potential investors in such companies, SDBs, WOSBs, Institutions of Higher Learning, underrepresented states, and others, to facilitate participation in the SBIR/STTR Programs; (4) Coordinate oversight, collect results, track execution and provide reporting of Phase II technology transition in the DoD SBIR Commercialization Readiness Program (CRP); and (5) Prepare all reports mandated by law and policy.			
FY 2019 Plans: (U) Program element (PE) 0605790D8Z is the only source of funds for the coordination, administration and execution of the Department's SBIR/STTR Programs. The DoD Office of Small Business Programs is tasked with providing Departmental SBIR/ STTR policy guidance, oversight and implementation and therefore utilizes program element (PE) 0605790D8Z to fund these administrative activities. In addition to funding costs for program administration, coordination and execution, PE 0605790D8Z funds essential elements of the SBIR/STTR Program that are required by law including: (1) Coordinate and execute the administrative portions of the DoD SBIR/STTR Programs including the development of technical topics, preparation of SBIR/STTR R&D solicitations and receipt of proposal responses; (2) Maintain and modify automated processes across the entire SBIR/STTR lifecycle including the development and maintenance of information systems and software required for the measurement, evaluation, and effective management of the Department's SBIR/STTR Programs; (3) Implement an aggressive outreach program including the execution of two National conferences and outreach to small technology companies, potential investors in such companies, SDBs, WOSBs, Institutions of Higher Learning, underrepresented states, and others, to facilitate participation in the SBIR/STTR Programs; (4) Coordinate oversight, collect results, track execution and provide reporting of Phase II technology transition in the DoD SBIR Commercialization Readiness Program (CRP); and			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605790D8Z / *Small Business Innovation Research (SBIR)/Small Business Technology Transfer (STTR)*	**Project (Number/Name)** P518 / *SBIR/Challenge Admin*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
(5) Prepare all reports mandated by law and policy. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Under Program element (PE) 0605790D8Z the OSBP utilizes this sole source of funds for the coordination, administration and execution of DoD's SBIR/STTR Programs. The various areas that are administered require continuous enhancements for stakeholders to successfully participate in these programs. This results in a need for an increase to the funding source. This increase addresses enhancements to the outreach, collection and reporting portion of the program as well as training - more specifically fraud waste and abuse training required by law with respect to the participation in these programs.			
Accomplishments/Planned Programs Subtotals	2.185	2.372	2.545

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Not applicable for this item.

E. Performance Metrics

(U) Performance is in support of the administration of the program and compliance with statutory requirements.

(U) For PE 0605790D8Z, management and administration of the DoD SBIR/STTR Programs, the following measures have been established to meet requirements as mandated by law: 1) Coordinate and execute the administrative portions of the DoD SBIR/STTR Programs, especially the creation of the five solicitations; 2) Maintain and improve automated processes across the entire SBIR/STTR lifecycle; 3) Develop and conduct an aggressive outreach program, especially the planning and execution of an annual government training workshop and one small business conference; 4) Coordinate oversight, collect results, track execution and provide reporting of Phase

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605798D8Z / *Defense Technology Analysis*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	-	24.965	24.365	24.487	-	24.487	28.392	28.054	27.101	27.605	Continuing	Continuing
796: *Laboratory Resource Management*	-	6.060	3.462	3.124	-	3.124	3.957	3.912	3.779	3.850	Continuing	Continuing
797: *Defense Technology Analysis*	-	4.562	6.095	5.500	-	5.500	6.967	6.887	6.654	6.781	Continuing	Continuing
798: *Defense Support Teams*	-	2.052	2.178	1.966	-	1.966	2.490	2.462	2.378	2.424	Continuing	Continuing
102: *Data Vulnerability Assessment and Analysis*	-	11.125	12.630	13.897	-	13.897	14.978	14.793	14.290	14.550	Continuing	Continuing
579: *Critical Technology Assessments*	-	1.166	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Note

Service Requirements Review Board (SRRB) efficiencies are included.

The FY2019 funding request was reduced by $3.531 million to account for the availability of prior year execution balances.

A. Mission Description and Budget Item Justification

The Under Secretary of Defense for Research and Engineering (USD(R&E)) is the principal staff advisor to the Secretary and Deputy Secretary of Defense for research and engineering (R&E) matters. In this capacity, the USD(R&E) has the responsibility to conduct analyses and studies; develop policies; provide technical leadership, oversight and advice; make recommendations; and issue guidance for Department of Defense (DoD) R&E programs. Additionally, the USD(R&E) provides technical support on R&E aspects of programs subject to review by the Defense Acquisition Board, to include assessments of technology maturity consistent with DoD acquisition policy. The mission of the DoD R&E program is to create, demonstrate, prototype, and apply technology that enables affordable and decisive military superiority. Pursuing the R&E mission requires attention to: (1) identification and development of new technological opportunities; (2) insertion of new technologies into warfighting systems and operations; and (3) management and evaluation of the effectiveness of technology programs. This program element (PE) provides mission support to the Office of the USD(R&E) (OUSD(R&E)) covering a wide range of studies and analysis in support of the R&E program and its impacts to the Department's decision to fund Research, Development, Test and Evaluation (RDT&E) efforts.

The PE provides funding for the Defense Laboratory Office within the USD(R&E). The Defense Laboratory Office mission is to craft policy and provide the oversight necessary to both preserve current and develop future DoD in-house laboratory capability such that they continue to generate mission-critical innovations that increase the U.S. military advantage and enhance U.S. national security. The Defense Laboratory Office advocates and supports the DoD laboratory system in three areas: (1) facilities and infrastructure; (2) personnel and quality of workforce; and (3) technology transfer.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605798D8Z / *Defense Technology Analysis*

The PE provides engineering, scientific, and analytical support to the USD(R&E) in its responsibility for direction, overall quality, and content of the science and technology (S&T) program and to ensure that the technology being developed is affordable and minimizes system development risk. The Defense Technology Analysis project conducts assessments and analysis to ensure maximum utilization of research and development funds and to accomplish the overall objectives of the S&T program. Funds are required for technical, analytical and management support, equipment and supplies, travel, and publications.

The DoD's key expertise for reviewing and guiding R&E programs resides in the USD(R&E). The USD(R&E) staff augment their responsibilities through their connections to technology experts in various fields throughout academia, industry, and government. The Defense Support Teams project supports the directed responsibilities by building teams of technology experts to conduct program technical assessments. The teams analyze the key engineering problem areas and offer adjustments in the development and test plan; alternate technical approaches; or new technologies that could enable successful development. The teams provide unbiased reviews and gather advice from the Nation's leading technical experts.

This PE also provides funding for Data Vulnerability Assessment and Analysis to establish a joint analysis capability to conduct comprehensive assessments of unclassified information losses, engaging acquisition and intelligence sources to determine consequences and appropriate preventative/mitigation actions.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	22.650	24.365	25.898	-	25.898
Current President's Budget	24.965	24.365	24.487	-	24.487
Total Adjustments	2.315	0.000	-1.411	-	-1.411
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	3.000	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.654	-			
• FFRDC Transfer	-0.028	-	-	-	-
• Other Program Adjustments	-0.003	-	2.291	-	2.291
• Economic Assumption	-	-	-0.171	-	-0.171
• Other Adjustments	-	-	-3.531	-	-3.531

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2017	FY 2018
Project: 796: *Laboratory Resource Management*		
Congressional Add: *Program Increase - Defense Technology Transfer*	3.000	-
Congressional Add Subtotals for Project: 796	3.000	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605798D8Z / *Defense Technology Analysis*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2017	FY 2018
Congressional Add Totals for all Projects	3.000	-

Change Summary Explanation

FY 2019 Program Adjustments are reflective of high priority DoD requirements.
Funds rephase from FY19 to FY20 and FY21 to aid in increasing program execution rates closer to the DoD benchmarks.
The FY2019 funding request was reduced by $3.531 million to account for the availability of prior year execution balances.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605798D8Z / *Defense Technology Analysis*	Project (Number/Name) 796 / *Laboratory Resource Management*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
796: *Laboratory Resource Management*	-	6.060	3.462	3.124	-	3.124	3.957	3.912	3.779	3.850	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Defense Laboratory Office provides advocacy, strategic planning, and policy for the DoD's in-house laboratories. The DoD Laboratory Enterprise consists of more than 60 laboratories with approximately 67,000 employees (approximately 40,000 of whom are scientists and engineers). The Defense Laboratory Office develops plans and investment strategies for laboratory infrastructure, technology transfer programs, and personnel development. Section 211 of the FY 2017 National Defense Authorization Act (NDAA) also transferred the management of the laboratory demonstration program at Science and Technology Reinvention Laboratories (STRLs) from the Under Secretary of Defense for Personnel and Readiness (USD(P&R)) to the Assistant Secretary of Defense for Research and Engineering (ASD(R&E)). Section 218 of the FY 2018 NDAA amended the authority by redesignating management to the Under Secretary of Defense for Research and Engineering (USD(R&E)).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Defense Laboratory Office	3.060	3.462	3.124
Description: Provides advocacy, strategic planning, and policy for the DoD's in-house laboratories. Develops plans and investment strategies for laboratory infrastructure, technology programs, and personnel development.			
FY 2018 Plans: The Defense Laboratories Office (DLO) will conduct strategic planning and policy development for oversight of DoD in-house laboratories. The DLO will develop new standards for facility sustainment models for DoD laboratories and will process all laboratory demonstration items, to include changes to Federal Register Notices (FRNs) through modifications, new FRNs, and the adoption of existing authorities. The office will monitor the status of Sec. 233 Management pilot programs in each of the Services and will revise the strategic plan for technology transfer within DoD. The DLO will update standards and metrics for Defense Technology Transfer (T2) that more accurately assess the value of the program.			
FY 2019 Plans: The DLO will conduct strategic planning and policy development for oversight of DoD in-house laboratories and the Laboratory Quality Enhancement Program Panels. The DLO will continue to process all personnel and laboratory demonstration items and monitor the status of Sec. 233 Management pilot programs in each of the services. In addition, the DLO will implement the strategic plan for technology transfer within the Department.			
FY 2018 to FY 2019 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605798D8Z / *Defense Technology Analysis*	**Project (Number/Name)** 796 / *Laboratory Resource Management*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
The level of effort is consistent between FY 2018 and FY 2019. Small changes reflect minor budget fluctuations.			
Accomplishments/Planned Programs Subtotals	3.060	3.462	3.124

	FY 2017	FY 2018
Congressional Add: Program Increase - Defense Technology Transfer	3.000	-
FY 2017 Accomplishments: The Defense Laboratories Office received a $2.000M Congressional Add for FY 2016 with the goal of increasing the commercialization of intellectual property developed in the Department's laboratories and engineering centers. The FY 2016 funds were issued to the U.S. Army Aviation and Missile Research, Development, and Engineering Center (AMRDEC) for execution. AMRDEC drafted the Partnership Intermediary Agreement (PIA) Work Description, the topic of which was "Technology Transfer, Avionics Technology, and Teaming for Future Tactical Operations Challenges." This was applied to both aviation and unmanned platforms and was competed among a variety of institutions, including those in academia. After the open competition, Wichita State University was selected as the Partner. The Defense Laboratories Office plans to apply the FY 2017 Congressional Add to the same PIA announcement.		
Congressional Adds Subtotals	3.000	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

The performance of the Laboratory Resource Management project is based on the success of initiatives to implement strategic planning objectives. Measures include the quality and timeliness of policy, plans, guidance, reports, and processes.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605798D8Z / *Defense Technology Analysis*	Project (Number/Name) 797 / *Defense Technology Analysis*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
797: *Defense Technology Analysis*	-	4.562	6.095	5.500	-	5.500	6.967	6.887	6.654	6.781	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Defense Technology Analysis (DTA) project provides engineering, scientific, and analytical support to the Office of the Under Secretary of Defense for Research and Engineering (OUSD(R&E)) in its responsibility for direction, overall quality, and content of the science and technology (S&T) program. Furthermore, it ensures that the technology being developed is affordable and minimizes system development risk. The DTA program conducts assessments and analyses to ensure maximum utilization of research and development funds to accomplish the overall objectives of the S&T program. Funds are required for technical, analytical, management support, travel, and publications.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Defense Technology Analysis	4.562	6.095	5.500
Description: The Defense Technology Analysis (DTA) project provides engineering, scientific, and analytical support to the OUSD(R&E) in its responsibility for direction, overall quality, and content of the S&T program. Furthermore, it ensures that the technology being developed is affordable and minimizes system development risk.			
FY 2018 Plans: In FY 2018, the DTA project will provide engineering, scientific, analytical, and managerial support to the OUSD(R&E) in developing strategies, plans, and policies to develop and exploit technology; conducting technology analyses, making recommendations, and developing guidance for S&T plans and programs; reviewing acquisition programs and making recommendations to optimize effectiveness of the DoD investments; and oversight of S&T issues and initiatives and responding to Congressional special interests.			
FY 2019 Plans: In FY 2019, the DTA project will provide engineering, scientific, analytical, and managerial support to the OUSD(R&E) in developing strategies, plans, and policies to develop and exploit technology; conducting technology analyses, making recommendations, and developing guidance for S&T plans and programs; reviewing acquisition programs and making recommendations to optimize effectiveness of the DoD investments; and oversight of S&T issues and initiatives and responding to Congressional special interests.			
FY 2018 to FY 2019 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605798D8Z / *Defense Technology Analysis*	**Project (Number/Name)** 797 / *Defense Technology Analysis*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
The level of effort is consistent between FY 2018 and FY 2019. Small changes reflect minor budget fluctuations.			
Accomplishments/Planned Programs Subtotals	4.562	6.095	5.500

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Several indicators allow the Department to measure the success of the DTA program element. The number of efforts funded and completed satisfactorily and the OASD(R&E) influence on S&T program decisions serve as valuable indicators of the program's effectiveness. Feedback into the oversight mechanisms of the program to guide investment decisions serve as additional metrics.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605798D8Z / *Defense Technology Analysis*	Project (Number/Name) 798 / *Defense Support Teams*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
798: *Defense Support Teams*	-	2.052	2.178	1.966	-	1.966	2.490	2.462	2.378	2.424	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Department's key expertise for reviewing and guiding research and engineering (R&E) programs resides in the Office of the Under Secretary of Defense for Research and Engineering (OUSD(R&E)). The OUSD(R&E) staff augment their responsibilities through connections to technology experts in various fields throughout academia, industry, and government. The Defense Support Teams project supports the directed responsibilities by building teams of technology experts to conduct program technical health check-ups. The teams analyze the key engineering problem areas and offer adjustments in the development and test plans, alternate technical approaches, or new technologies that could enable successful development. The teams provide unbiased reviews and gather advice from the Nation's leading technical experts.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Defense Support Teams	2.052	2.178	1.966
Description: The Defense Support Teams project supports the directed responsibilities by building teams of technology experts to conduct program technical health check-ups. The teams analyze the key problem areas and offer adjustments in the development plans, alternate technical approaches, or new technologies that could enable successful development. The teams provide unbiased reviews and gather advice from the Nation's leading technical experts. ***FY 2018 Plans:*** In FY 2018, support teams will be established and technology analyses conducted to support R&E program investment decisions. For selected acquisition programs and efforts, there will be a review in technical detail of the respective program issues to offer technical solutions to program managers. The support teams will assess the maturity of technologies that are candidates for transition to acquisition programs. ***FY 2019 Plans:*** In FY 2019, support teams will be established and technology analyses conducted to support R&E program investment decisions. For selected acquisition programs and efforts, the teams will review in technical detail the respective program issues and offer technical solutions to program managers. The support teams will assess the maturity of technologies that are candidates for transition to acquisition programs. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The level of effort is consistent between FY 2018 and FY 2019. Small changes reflect minor budget fluctuations.			
Accomplishments/Planned Programs Subtotals	2.052	2.178	1.966

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605798D8Z / *Defense Technology Analysis*	**Project (Number/Name)** 798 / *Defense Support Teams*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Several indicators allow the Department to measure the success of the Defense Technology Analysis (DTA) PE. The number of technological introspections, as evidenced by completed support teams and OUSD(R&E) influence on acquisition decisions, serve as valuable indicators of the program's effectiveness. The establishment and outputs of Defense Support Teams are additional indicators of program metrics. Feedback into the oversight mechanisms of the science and technology (S&T) program, to guide investment decisions, serve as additional metrics.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605798D8Z / *Defense Technology Analysis*	Project (Number/Name) 102 / *Data Vulnerability Assessment and Analysis*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
102: *Data Vulnerability Assessment and Analysis*	-	11.125	12.630	13.897	-	13.897	14.978	14.793	14.290	14.550	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Most DoD technical information resides on unclassified networks where it is at risk of being targeted for cyber espionage campaigns. Protecting DoD unclassified controlled technical information is a high priority for the Department, and is critical to preserving intellectual property and competitive capabilities of our national industrial base. To maintain full confidence in our systems, the Department must also assess the effect the loss of this information has on our warfighting capabilities. DoD contractors who produce or access controlled technical information must incorporate security standards on their networks and report cyber-intrusion incidents that result in the loss of this information. These requirements are important, but insufficient in the face of a determined adversary. The Department must take steps to understand the impacts of losses and rethink how we safeguard our capabilities. This information, while unclassified, includes data and intellectual property concerning defense systems requirements, concepts of operations, technologies, designs, engineering, systems production, and component manufacturing.

This project supports protection of unclassified controlled technical information, and an analysis of losses, to determine consequences and appropriate requirements, acquisition, programmatic, and strategic courses of action.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Data Vulnerability Program	11.125	12.630	13.897
Description: The Data Vulnerability Assessment and Analysis project will establish a joint analysis capability to conduct comprehensive assessments of controlled unclassified technical information losses, and will engage acquisition and intelligence sources, to determine consequences and appropriate preventative/mitigation actions.			
FY 2018 Plans: During FY 2018 Quarter 1, the project completed contractor manning for initial proactive protection efforts linked to the Department's critical acquisition programs and technologies. The project integrated the Department's critical acquisition and technology list with a Joint Requirements Oversight Council critical technology and capabilities list. For the remainder of FY 2018, the project will collocate the Defense Cyber Crime Center (DC3) joint analysis capability with DoD's Damage Assessment Management Office (DAMO). The project will integrate collection efforts to produce one list of critical acquisition programs and capabilities that identify the Department's critical acquisition programs that are tiered for proactive protection efforts. It will continue to develop links to the security community and adjust to the FY 2017 National Defense Authorization Act (NDAA) Section 901 mandated reorganization to develop enhanced protection for critical acquisition programs and technologies. The project is linked with the DoD cross functional team (CFT) on Maintaining DoD Technological Advantage and will begin to adapt joint			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605798D8Z / *Defense Technology Analysis*	**Project (Number/Name)** 102 / *Data Vulnerability Assessment and Analysis*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
analysis capability to address any changes in the Department's strategic direction. In FY 2018, the program identified an initial set of resources for FY 2019 and will plan future resource requirements for enhanced protection of critical acquisition programs and technologies, adjusted for the FY 2017 NDAA reorganization. The program will standardize projects to identify feasible protection and safeguards; develop dynamic links with program protection planning activities; and demonstrate advanced analytic tools, coupled with identification of additional information feeds/sources of data. ***FY 2019 Plans:*** In FY 2019, the program will incorporate changes into governance models and documents to accommodate changes from the Maintaining DoD Technological Advantage CFT and the FY 2017 NDAA Section 901 reorganization. The program will adjust manning for proactive protection efforts linked to the Department's critical acquisition programs and technologies. In addition, it will collect and integrate the Department's critical acquisition programs and tier for proactive protection efforts and conduct trend analysis on the Department's critical acquisition programs and technologies to incorporate findings into the nomination/protection processes. The program will finalize colocation with DC3 and DoD DAMO and continue to advance analytic tool suite capabilities and build common data model. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Level of effort is consistent between FY 2018 and FY 2019. Small changes reflect minor budget fluctuations.			
Accomplishments/Planned Programs Subtotals	11.125	12.630	13.897

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

The Data Vulnerability Assessment and Analysis metric is the number of completed cases.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605798D8Z / *Defense Technology Analysis*	Project (Number/Name) 579 / *Critical Technology Assessments*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
579: *Critical Technology Assessments*	-	1.166	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Critical Technology Assessments provide the technical reference guidance in support of development and implementation of DoD technology security policies on international transfers of defense related goods, services, and technologies. The export control program provides an ongoing assessment and analysis of global goods and technologies; determines significant advances in the development, production, and use of military capabilities by potential adversaries; and determines goods and technologies being developed worldwide with potential to significantly enhance or degrade U.S. military capabilities in the future. Identified in the Export Administration Act of 1979, and extended by Presidential Executive Order, to review militarily critical goods and technologies, and to consider worldwide technology capabilities, the Militarily Critical Technologies List (MCTL) is a congressionally-mandated source document for identification of leading edge and current technologies monitored worldwide for national security, nonproliferation control of weapons of mass destruction, and advanced conventional weapons.

Specific activities include:
- Monitor and assess dual-use and military technologies worldwide.
- Assist in the development of proposals for negotiation in various multilateral export control regimes.
- Provide limited worldwide technology capability assessments for the MCTL and other U.S. international critical technologies efforts.
- Identify and determine technical parameters for proposals for international control of weapons of mass destruction.
- Identify foreign technologies of interest to the DoD and opportunities for international cooperative research and development.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Critical Technology Assessments	1.166	-	-
Description: Critical Technology Assessments provide the technical reference guidance in support of development and implementation of DoD technology security policies on international transfers of defense related goods, services, and technologies. The export control program provides an ongoing assessment and analysis of global goods and technologies; determines significant advances in the development, production, and use of military capabilities by potential adversaries; and determines goods and technologies being developed worldwide with potential to significantly enhance or degrade U.S. military capabilities in the future.			
Accomplishments/Planned Programs Subtotals	1.166	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605798D8Z / *Defense Technology Analysis*	**Project (Number/Name)** 579 / *Critical Technology Assessments*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

- Currency of the user community of critical technology assessments.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605804D8Z / *Development Test & Evaluation*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	58.280	20.822	20.571	20.179	-	20.179	20.261	20.311	20.658	21.049	Continuing	Continuing
804: *Development Test & Evaluation*	58.280	20.822	20.571	20.179	-	20.179	20.261	20.311	20.658	21.049	Continuing	Continuing

Note

Service Requirements Review Board (SRRB) efficiencies are included.

A. Mission Description and Budget Item Justification

This Program Element (PE) establishes the dedicated funding line to carry out the duties In Accordance With Department of Defense Instruction (DoDI) 5000.02 Change 2 dated February 2017. Specific responsibilities are outlined in DoDI 5134.17 Change 1 dated September 2015. The Deputy Assistant Secretary of Defense for Development Test and Evaluation (DASD(DT&E)) is the principal advisor to the Secretary of Defense, the Office of the Under Secretary of Defense, Research and Engineering (OUSD(R&E)) on Development Test and Evaluation (DT&E) in the DoD.

The DT&E program element is budgeted in the Research Development Test and Evaluation (RDT&E) budget activity to support and improve the DT&E efforts of Major Defense Acquisition Program (MDAP), Major Automated Information System (MAIS) / Business System Category Programs, and other Special Interest (SI) acquisition programs designated by OUSD(R&E) as they progress through the acquisition/development lifecycle; oversee the Test and Evaluation (T&E) career field of the defense acquisition workforce; develop policy and guidance for the conduct of DT&E within the DoD; and prepare reports to Congress as required.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	19.541	20.571	20.321	-	20.321
Current President's Budget	20.822	20.571	20.179	-	20.179
Total Adjustments	1.281	0.000	-0.142	-	-0.142
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	2.000	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.692	-			
• Other Program Adjustments	-	-	-0.007	-	-0.007
• FFRDC Transfer	-0.024	-	-	-	-
• Reprogrammed to Cancelled Account	-0.003	-	-	-	-
• Economic Assumption	-	-	-0.135	-	-0.135

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605804D8Z / *Development Test & Evaluation*

Congressional Add Details ($ in Millions, and Includes General Reductions)

	FY 2017	FY 2018
Project: 804: *Development Test & Evaluation*		
Congressional Add: *Development Test And Evaluation - Program Increase*	2.000	0.000
Congressional Add Subtotals for Project: 804	2.000	0.000
Congressional Add Totals for all Projects	2.000	0.000

Change Summary Explanation

FY 2019 adjustments are reflective of minor budget adjustments.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605804D8Z / *Development Test & Evaluation*	Project (Number/Name) 804 / *Development Test & Evaluation*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
804: *Development Test & Evaluation*	58.280	20.822	20.571	20.179	-	20.179	20.261	20.311	20.658	21.049	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides resources to support Acquisition Program Managers, Chief Developmental Testers, and Lead DT&E Organizations in the development of comprehensive and efficient DT&E strategies to support key acquisition milestones and engineering decisions. This project also manages the Test & Evaluation (T&E) career field and curriculum for the DoD acquisition workforce, develops policy and guidance for the conduct of DT&E within DoD, and prepares reports to Congress as required. Specific activities include the following:

- The Deputy Assistant Secretary of Defense DT&E (DASD(DT&E)) ensures that test strategies beginning at Milestone A, are documented in the Test and Evaluation Master Plans (TEMPs). DASD(DT&E) reviews and approves/disapproves the developmental test and evaluation strategy within the TEMPs.
- Provide formal DT&E Assessments prior to major milestone decisions to inform the acquisition decision-makers on the readiness of programs to release the Engineering and Manufacturing Development (EMD) Request For Proposal (RFP) pre Milestone B, and begin production, Milestone C, with the goal of reducing discovery of performance issues later in the acquisition cycle.
- Managing the Scientific Test and Analysis Techniques Center of Excellence (STAT COE). Over the last four years, the STAT COE has supported over 40 Acquisition Program Managers in the development of statistically optimized test programs. These efforts have resulted in 175 more efficient and effective test plans and a test cost avoidance of about $160M.
- Coordinate with the Test Resources Management Center (TRMC) to identify DoD test infrastructure gaps and support development of the TRMC strategic plan.
- Coordinate with the Director of Systems Engineering (SE) to ensure that the DT&E activities of the DoD are fully integrated into, and consistent with, the SE and development planning processes of the Department.
- Develop policy and guidance to ensure efficient and effective DT&E across DoD, including policy and guidance for developmental testing of interoperability and cybersecurity in coordination with the Joint Staff and DoD Chief Information Officer (CIO).
- As the T&E Functional Leader, establish, oversee, and maintain the education, training and experience requirements including competencies and certification standards to enhance the T&E acquisition workforce. Monitor and facilitate Defense Acquisition University (DAU) updates of T&E courses to ensure the curriculum supports the certification standards and provides the appropriate education and training.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Development Test and Evaluation	18.822	20.571	20.179
Description: This program supports and improves the DT&E efforts of Major Defense Acquisition Program (MDAP), Major Automated Information System (MAIS) /Business System Category Programs, and other Special Interest (SI) acquisition programs as they progress through the acquisition/development lifecycle; oversee the Test and Evaluation (T&E) career field of the defense			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605804D8Z / *Development Test & Evaluation*	**Project (Number/Name)** 804 / *Development Test & Evaluation*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
acquisition workforce; develop policy and guidance for the conduct of DT&E within the DoD; and prepare the annual DT&E report to Congress. ***FY 2018 Plans:*** - Work with Acquisition Program Managers, Chief Developmental Testers, and Lead DT&E organizations to improve DT&E planning and develop comprehensive and efficient DT&E strategies through the use of disciplined Evaluation Framework Matrices and STAT. - Continue to implement the DASD(DT&E) 'Shift Left' philosophy that focuses on ensuring DT&E strategies are developed in advance of releasing Technology Maturation and Risk Reduction (TMRR) and Engineering and Manufacturing Development (EMD) Request For Proposals (RFPs), and increasing the amount and quality of data available to support production decisions with specific focus on cybersecurity, interoperability, and reliability. - Review/approve all TEMPs submitted to support milestone reviews. Ensure DT&E planning is complete prior to the start of DT&E activities. - Refine DT&E policies and methodologies addressing DT&E across all Acquisition programs. - Publish DT&E data-based system performance assessments to support Defense Acquisition Board (DAB) review of MDAP and Business System Category programs proceeding to major milestones. - Promote the application of sound DT&E and related technical disciplines across the Department's acquisition community and programs. - Convene the T&E Key Leadership Position Certification Board to review T&E key leadership candidates. - Serve as Functional Manager of the T&E acquisition workforce. - Review the DAU T&E education, training, and experience requirements including competencies and certification standards; position category description(s); and content of the DAU courses. Provide direction on needed changes. - Sustain the Scientific Test and Analysis Techniques Center of Excellence (STAT COE). - Prepare reports to Congress as required. ***FY 2019 Plans:*** - Work with Acquisition Program Managers, Chief Developmental Testers, and Lead DT&E organizations to improve DT&E planning and develop comprehensive and efficient DT&E strategies through the use of disciplined Evaluation Framework Matrices and Scientific Test and Analysis Techniques (STAT). - Continue to implement the DASD(DT&E) 'Shift Left' philosophy that focuses on ensuring DT&E strategies are developed in advance of releasing Technology Maturation and Risk Reduction (TMRR) and Engineering and Manufacturing Development (EMD) RFPs, and increasing the amount and quality of data available to support production decisions with specific focus on cybersecurity, interoperability, and reliability.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605804D8Z / *Development Test & Evaluation*	**Project (Number/Name)** 804 / *Development Test & Evaluation*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- Review/approve all TEMPs submitted to support milestone reviews. Ensure DT&E planning is complete prior to the start of DT&E activities. - Refine DT&E policies and methodologies addressing DT&E across all Acquisition programs. - Publish DT&E data-based system performance assessments to support Defense Acquisition Board (DAB) review of MDAP and Business System Category programs proceeding to major milestones. - Promote the application of sound DT&E and related technical disciplines across the Department's acquisition community and programs. - Convene the T&E Key Leadership Position Certification Board to review T&E key leadership candidates. - Serve as Functional Manager of the T&E acquisition workforce. - Review the DAU T&E education, training, and experience requirements including competencies and certification standards; position category description(s); and content of the DAU courses. Provide direction on needed changes. - Work with the Services to identify funding to sustain the STAT COE. - Prepare reports to Congress as required. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Realignment of program priorities.			
Accomplishments/Planned Programs Subtotals	18.822	20.571	20.179

	FY 2017	FY 2018
Congressional Add: Development Test And Evaluation - Program Increase	2.000	0.000
FY 2017 Accomplishments: Developed in-depth data-based system performance assessments to support Defense Acquisition Board reviews of MDAPs. Refined Cybersecurity test policy and procedures and supported MDAP Program Managers and Chief Developmental testers in the development of cybersecurity test strategies. ***FY 2018 Plans:*** N/A.		
Congressional Adds Subtotals	2.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

N/A

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605804D8Z / *Development Test & Evaluation*	**Project (Number/Name)** 804 / *Development Test & Evaluation*

E. Performance Metrics

- Engaged and conducted oversight on all AT&L-designated MDAP, MAIS, and SI programs.
- Advised at Defense Acquisition Board (DAB), Overarching Integrated Product Teams (OIPT), and Nunn-McCurdy Reviews.
- Reviewed DT&E strategy in Test and Evaluation Master Plans (TEMPs) for MDAP, MAIS, and Special Interest programs.
- Prepared formal DT&E assessments to inform Acquisition decision makers of readiness to enter EMD or begin Low Rate Initial Production.
- Supported OSD led Peer Reviews.
- The Scientific Test and Analysis Techniques Center of Excellence (STAT COE) supported development of disciplined test strategies.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0606100D8Z / *Budget and Program Assessments*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	26.580	3.863	3.992	5.768	0.000	5.768	4.029	4.110	4.177	4.251	Continuing	Continuing
101: *Budget and Program Assessments*	26.580	3.863	3.992	3.972	0.000	3.972	4.029	4.110	4.177	4.251	Continuing	Continuing
107: *Internet DMZ Migration*	-	0.000	0.000	1.796	-	1.796	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program supports the Office of the Director, Cost Assessment & Program Evaluation (CAPE). It funds assessments that help to resolve budget and programmatic issues across the full range of the Department's activities. Projects that support this effort help to inform the leadership on program alternatives, capability concept development, design and cost, as well as the appropriate balance of capabilities across the force, and also to identify how well the Department's expenditures are meeting its goals, and how well the force can implement the Defense strategy.

This program provides for analytical research across the entire spectrum of defense issues and concerns. The research agenda is focused on near to long-term problems identified by the Secretary of Defense, and addresses difficult and complex questions linked to program alternatives for current and future capabilities and forces in order to enhance the senior leadership's deliberations and decision-making.

This program provides the scientific and technical engineering services needed for research studies in the development of models and simulations and the evaluation of current analytical tools and scientific methods used to evaluate and assess weapons systems and warfighting capabilities for warfighting environments and scenarios, and related force structure. Deliverables from this program will include reports, briefings, and analyses designed to illuminate critical issues facing the Department. Outcomes include recommendations for new modeling techniques, programmatic alternatives, and scenario development.

In FY 2019 CAPE received increased funding from the DoD Joint Service Provider to support the migration, implementation, and sustainment of its DoD Non-Classified Internet Protocol Router Network Demilitarized Zone (DMZ) efforts. In addition to the one-year increased RDT&E funding in FY 2019 described in this exhibit, CAPE also received additional Procurement and Operation and Maintenance (O&M) funding throughout the FY 2019-2023 FYDP to support the migration and sustainment of these developmental solutions. CAPE's funds are included in the total Internet DMZ Migration amount transferred from JSP to OSD so that CAPE and three other affected OSD Principal Staff Assistants (PSAs) can execute their own long-term solutions outside of the JSP DMZ.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0606100D8Z / *Budget and Program Assessments*

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	4.014	3.992	4.009	-	4.009
Current President's Budget	3.863	3.992	5.768	-	5.768
Total Adjustments	-0.151	0.000	1.759	-	1.759
• Congressional General Reductions	-0.004	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.147	-			
• SBIR/STTR Transfer	-	-			
• Fiscal Guidance Adjustment	-	-	-0.005	-	-0.005
• Revised Inflation Guidance	0.000	0.000	-0.032	0.000	-0.032
• Internet DMZ Migration	0.000	0.000	1.796	0.000	1.796

Change Summary Explanation

FY 2017 total reflects final congressional enactment action. Outyear numbers reflect fiscal guidance and revised inflation guidance. The FY 2019 one-year funding increase reflects CAPE's share of a transfer from the DoD Joint Service Provider to various OSD Principal Staff Assistants in support of the migration, implementation, and sustainment of DoD Non-Classified Internet Protocol Router Network Demilitarized Zone (DMZ) efforts. In addition to the increased RDT&E funding described in this exhibit, CAPE also received additional Procurement and Operation and Maintenance (O&M) funding to support the migration and sustainment of these developmental efforts. These funds will enable CAPE to initiate the execution of its own long-term solutions outside of the JSP DMZ.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0606100D8Z / *Budget and Program Assessments*	Project (Number/Name) 101 / *Budget and Program Assessments*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
101: *Budget and Program Assessments*	26.580	3.863	3.992	3.972	0.000	3.972	4.029	4.110	4.177	4.251	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This program supports the Office of the Director, Cost Assessment & Program Evaluation (CAPE). It funds assessments that help to resolve budget and programmatic issues across the full range of the Department's activities. Projects that support this effort help to inform the leadership on program alternatives, capability concept development, design and cost, the appropriate balance of capabilities across the force, and also to identify how well the Department's expenditures are meeting its goals, and how well the force can implement the Defense strategy.

This program provides for analytical research across the entire spectrum of defense issues and concerns. The research agenda is focused on near to long-term problems identified by the Secretary of Defense, and addresses difficult and complex questions linked to program alternatives for current and future capabilities and forces in order to enhance DoD senior leadership's deliberations and decision-making.

This program provides the scientific and technical engineering services needed for research studies in the development of models and simulations and the evaluation of current analytical tools and scientific methods used to evaluate and assess weapons systems and warfighting capabilities for warfighting environments and scenarios, and related force structure. Deliverables from this program will include reports, briefings, and analyses designed to illuminate critical issues facing the Department. Outcomes include recommendations for new modeling techniques, programmatic alternatives, and scenario development.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: OSD Support for Programming Budget	3.863	3.992	3.972
Description: This program provides for analytical research across the entire spectrum of defense issues and concerns. The research agenda is focused on near to long-term problems identified by the Secretary of Defense, and addresses difficult and complex questions linked to program alternatives for current and future capabilities and forces in order to enhance senior leadership deliberations and decision-making. ***FY 2018 Plans:*** Studies, analyses, and assessments will be focused on: - Improving cost analysis tools to inform program, budget, and Defense Acquisition Board reviews. - In support of the Weapon System Acquisition Reform Act (WSARA), independently assessing, analyzing, and where appropriate, updating cost indices, inflation rates, and escalation rates used in preparing the President's Budget for major acquisition programs.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0606100D8Z / *Budget and Program Assessments*	**Project (Number/Name)** 101 / *Budget and Program Assessments*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- Developing, assessing, and enhancing databases that provide cost data for major weapon systems. - Improving estimates produced by the Defense Employment and Purchases Projection System (DEPPS) and Defense Translator, which are used to support decision briefs to the President, Congress, Secretary of Defense, and Deputy Secretary of Defense. - Modeling and analyzing aircraft survivability against various threat detection approaches and in various operational environments. Assessing the ability of aircraft and weapons to operation in anti-access/area denial regions. - Modeling logistical vulnerabilities against various threats and in various operational environments. Assessing the cost and mission effectiveness of proposed improvements. - Modifying and supporting a wargaming repository. - Analyzing OCO funding data to determine how funding was actually spent as distinguished from DoD base budget resources. Provide normalization information that can be applied to existing Defense Resources Data Warehouse (DRDW) data for the current budget position. ***FY 2019 Plans:*** Studies, analyses, and assessments will be focused on: - Improving cost analysis tools to inform program, budget, and Defense Acquisition Board reviews. - In support of the Weapon System Acquisition Reform Act (WSARA), independently assessing, analyzing, and where appropriate, updating cost indices, inflation rates, and escalation rates used in preparing the President's Budget for major acquisition programs. - Developing, assessing, and enhancing databases that provide cost data for major weapon systems. - Improving estimates produced by the Defense Employment and Purchases Projection System (DEPPS) and Defense Translator, which are used to support decision briefs to the President, Congress, Secretary of Defense, and Deputy Secretary of Defense. - Modeling and analyzing aircraft survivability against various threat detection approaches and in various operational environments. Assessing the ability of aircraft and weapons to operation in anti-access/area denial regions. - Modeling logistical vulnerabilities against various threats and in various operational environments. Assessing the cost and mission effectiveness of proposed improvements. - Modifying and supporting a wargaming repository. - Analyzing OCO funding data to determine how funding was actually spent as distinguished from DoD base budget resources. Provide normalization information that can be applied to existing Defense Resources Data Warehouse (DRDW) data for the current budget position. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** FY 2019 funding levels are virtually steady-state and will fund a mix of research activities to carry out the plans stated above.			
Accomplishments/Planned Programs Subtotals	3.863	3.992	3.972

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0606100D8Z / *Budget and Program Assessments*	**Project (Number/Name)** 101 / *Budget and Program Assessments*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

A mix of competitive contracts with commercial firms and research provided by university-affiliated research centers (UARCs), and Federally Funded Research and Development Centers (FFRDCs).

E. Performance Metrics

The products or expected outcomes of this program are studies and analyses to support resource allocation decisions, major defense acquisition decisions, and issues of high interest to the Secretary of Defense. Performance is measured by the quality of the analyses and is monitored through the review of the organizational assessment process. The primary goal is to ensure that study and analytical products are timely, clear, complete, accurate, responsive, balanced, and objective.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0606100D8Z / *Budget and Program Assessments*	Project (Number/Name) 107 / *Internet DMZ Migration*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
107: *Internet DMZ Migration*	-	0.000	0.000	1.796	-	1.796	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Internet DMZ Migration reflects CAPE activities as part of a broader DoD effort to provide additional funds to Office of the Secretary of Defense (OSD) Principal Staff Assistants to enable them to migrate, implement, and sustain their DoD Non-classified Internet Protocol Router Network Demilitarized Zones (DMZ) efforts. CAPE's RDT&E funds will support initial cloud development and conversion costs.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Internet DMZ Migration	0.000	0.000	1.796
Description: In FY 2019 CAPE received increased funding from the DoD Joint Service Provider to support the migration, implementation, and sustainment of its DoD Non-Classified Internet Protocol Router Network Demilitarized Zone (DMZ) efforts. In addition to the increased RDT&E funding described in this exhibit, CAPE also received additional Procurement and Operation and Maintenance (O&M) funding to support the migration and sustainment of these developmental efforts. CAPE's funds are included in the total Internet DMZ Migration amount transferred from JSP to OSD so that CAPE and three other affected OSD Principal Staff Assistants (PSAs) can execute their own long-term solutions outside of the JSP DMZ. ***FY 2018 Plans:*** New one-year project in FY 2019 ***FY 2019 Plans:*** Initial cloud development and conversion. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase from FY 2018 to FY 2019 is due entirely to the nature of the project. This is a new FY 2019 initiative that provides O&M, Procurement, and RDT&E funding. The RDT&E funding is for FY 2019 only in support of initial cloud development and database conversion activities. There was no prior-year funding and there is no outyear funding in the FY 2019 President's Budget.			
Accomplishments/Planned Programs Subtotals	0.000	0.000	1.796

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0606100D8Z / *Budget and Program Assessments*	**Project (Number/Name)** 107 / *Internet DMZ Migration*

D. Acquisition Strategy

A mix of competitive contracts with commercial firms and research provided by university-affiliated research centers (UARCs), and Federally Funded Research and Development Centers (FFRDCs).

E. Performance Metrics

The products or expected outcomes of this program are studies and analyses to support an Internet DMZ Migration implementation plan that explores and evaluates cloud computing strategies and addresses data conversion issues. Performance is measured by the quality of the analyses and is monitored through the review of the organizational assessment process. The primary goal is to ensure that study and analytical products are timely, clear, complete, accurate, responsive, balanced, and objective.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0606225D8Z / *ODNA Technology & Research Analysis*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	3.500	0.000	1.000	1.030	-	1.030	1.061	1.093	1.126	1.159	Continuing	Continuing
106: *Technology and Research Analysis*	3.500	0.000	1.000	1.030	-	1.030	1.061	1.093	1.126	1.159	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Program Element established during FY 2016 year of execution.

A. Mission Description and Budget Item Justification

The Office of Net Assessment develops and coordinates analyses that examine the standing trends and future prospects of U.S. and other military capabilities and military potential. The net assessments address near and long-term problems and opportunities for the U.S. military forces to help counter technological advantages of potential adversaries of the United States. These efforts will pursue research to analyze the future security environment.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	0.000	1.000	0.000	-	0.000
Current President's Budget	0.000	1.000	1.030	-	1.030
Total Adjustments	0.000	0.000	1.030	-	1.030
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Increase	-	-	1.030	-	1.030

Change Summary Explanation

FY 2016 increase due to reprogramming actions from other OSD programs.

C. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Technology and Research Analysis	0.000	1.000	1.030

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0606225D8Z / *ODNA Technology & Research Analysis*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Description: The Office of Net Assessment develops and coordinates analyses that examine the standing trends and future prospect of U.S. and other military capabilities and military potential. The net assessments address near and long-term problems and opportunities for the U.S. military forces to help counter technological advantages of potential adversaries of the United States. These efforts will pursue research to analyze the future security environment. ***FY 2018 Plans:*** - Invest in Biosciences Net Assessment to assess potential revolutionary advances. - Continue to conduct analysis on future concepts of operation and possible courses of action and responses to emerging capabilities. - Conduct analysis in AI/Human Machine Teaming to identify areas of consideration for potential advanced capability demonstrations. ***FY 2019 Plans:*** - Continue analysis on future concepts of operation and possible courses of action and responses to emerging capabilities. - Continue investment in a Biosciences Net Assessment and Human Machine Teaming to assess potential revolutionary advances. - Continue analysis in AI to identify areas of consideration for potential advanced capability demonstrations. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase for program continuation			
Accomplishments/Planned Programs Subtotals	0.000	1.000	1.030

D. Other Program Funding Summary ($ in Millions)

N/A

Remarks

E. Acquisition Strategy

N/A

F. Performance Metrics

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0203345D8Z / *Defense Operations Security Initiative (DOSI)*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	3.788	2.070	2.551	3.008	-	3.008	3.046	3.108	3.174	3.191	Continuing	Continuing
345: *Defense Operations Security Initiative*	3.788	2.070	2.551	3.008	-	3.008	3.046	3.108	3.174	3.191	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

DOSI establishes and leads the Department's next generation Operations Security (OPSEC) capability development and affiliated investment strategy. Investments support DoD's current and emerging OPSEC capability gaps, including countering advances in non-U.S. Intelligence, Surveillance, and Reconnaissance (ISR) capabilities and denying the understanding of U.S. capability, capacity, and readiness from adversaries. These investments spur Department innovation and preserve U.S. technology superiority. DOSI Analysis and Engineering Studies lead the community's ability to sustain and maximize technology advantage as they are transitioned to Service and Agency programs for sustainment, maintenance, and capacity programming. Test and evaluation analyses establish measure and countermeasure effectiveness in current and emerging operational environments.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	2.072	2.551	3.015	-	3.015
Current President's Budget	2.070	2.551	3.008	-	3.008
Total Adjustments	-0.002	0.000	-0.007	-	-0.007
• Congressional General Reductions	-0.002	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Departmental Adjustment	-	-	-0.007	-	-0.007

Change Summary Explanation

N/A

C. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Defense Operations Security Initiative	2.070	2.551	3.008

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0203345D8Z / *Defense Operations Security Initiative (DOSI)*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Description: RDT&E investments focus on countering advances in non-U.S. ISR capabilities and denying understanding of U.S. capability, capacity, and readiness. These investments spur Department innovation and preserve U.S. information and technology superiority. DOSI's Analysis and Engineering lead the OPSEC community's ability to sustain and maximize technological advantage. ***FY 2018 Plans:*** - Oversee research, development, and testing on next generation capabilities that counter foreign ISR capabilities and deny understanding of U.S. capability, capacity and readiness. - Provide oversight and advocacy for transitioning developed capabilities into formalized program offices and program executive offices across DoD Components. - Participate in Defense RDT&E processes to advance basic and applied research, science, and technology; and technology development and testing to elevate OPSEC capability and capacity across the Department. ***FY 2019 Plans:*** - Will continue to oversee research, development, and testing on next generation capabilities that counter foreign ISR capabilities and deny understanding of U.S. capability, capacity and readiness. - Will continue to provide oversight and advocacy for transitioning developed capabilities into formalized program offices and program executive offices across DoD Components. - Will continue to participate in Defense RDT&E processes to advance basic and applied research, science, and technology, and technology development and testing to elevate OPSEC capability and capacity across the Department. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Funding will support increased capability, via R&D contracts, in denying adversary collection of critical information across the spectrum of DoD operations; and corresponds to countering technical and remote sensing technology adversaries use to collect and exploit US vulnerabilities.			
Accomplishments/Planned Programs Subtotals	2.070	2.551	3.008

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• 0203345D8Z O&M DW: *Defense Operations Security Initiative*	2.176	3.636	3.932	-	3.932	3.917	3.989	3.989	4.063	Continuing	Continuing

Remarks

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0203345D8Z / *Defense Operations Security Initiative (DOSI)*

E. Acquisition Strategy

The acquisition, management, and contracting strategy involves the following:

• Adhere to guidance outlined in DoD 5000, Directive 7, Federal Acquisition Regulations (FAR), and FAR Supplement Policies and Procedures.

• RDT&E OPSEC capabilities, systems, tools, products, and services through a disciplined, yet agile, process that ensures signature management and signature obfuscation capabilities are available for DoD components.

• Sustain an acquisition process that is responsive and responsible to internal and external customers and stakeholders.

• Continue to support the warfighter's need for capabilities that dominate today's dynamic, networked battlespace by providing strategy across the DoD for the planning and execution of OPSEC.

F. Performance Metrics

RDT&E performance metrics are used to establish baseline and assess progress toward enhancement and increase of OPSEC capabilities and capacities across the DoD's assigned responsibilities. The following metrics are based on the ROI of RDT&E investments and provide assessment to meeting:

1) operational requirements for OPSEC capabilities, 2) technical requirements for successful engineering, and 3) programmatic requirements for sustaining RDT&E successes across the Department:

- Seventy percent of evaluations and tests on engineered next generation capabilities address CCMD and/or DoD Component requirements. The remaining thirty percent serve as the pivot to improve service level operational capabilities or to address alternate technologies.
- One hundred percent of completed capabilities includes affiliated specifications, architecture, raw material inventories and documentation. They are maintained in a centralized database repository used to support feedback and future efforts.
- Fifty percent of next generation capabilities transition into DoD Component Program Management Offices and Program Executive Offices to fulfill DoD urgent needs, while the remaining fifty percent are reviewed for alternative operational utility and sent to the appropriate Service or Agency for application.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0303260D8Z / *Defense Military Deception Program Office (DMDPO)*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	1.867	0.843	1.006	1.005	-	1.005	1.017	1.039	1.051	1.067	Continuing	Continuing
891: *Defense Military Deception Program*	1.867	0.843	1.006	1.005	-	1.005	1.017	1.039	1.051	1.067	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

DMDPO establishes and leads the Department's next generation physical and electromagnetic decoys capability and affiliated investment strategy. Investments support DoD's current and emerging Military Deception (MILDEC) capability gaps, including multi-spectrum signature emulation. These investments spur technology innovation maximizing Joint Force Commanders' ability to reduce operational risks across system survivability and force protection while maximizing the ability to dictate operational conditions such as freedom of maneuver, positional advantage, and initiative. R&D capabilities are transitioned to Service and Agency programs for sustainment, maintenance, and capacity programming. Test and evaluation analyses establish Department requirement forecasts on capability programming.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	0.916	1.006	1.025	0.000	1.025
Current President's Budget	0.843	1.006	1.005	0.000	1.005
Total Adjustments	-0.073	0.000	-0.020	0.000	-0.020
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.073	0.000			
• Departmental Adjustment	-	-	-0.020	-	-0.020

C. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Defense Military Deception Program Office	0.843	1.006	1.005
FY 2018 Plans: - Oversee research, development and testing on a high-fidelity next generation decoys affiliated with current Combatant Command (CCMD) and Service requirements - Provide oversight and advocacy for transitioning developed capabilities into formalized program offices and program executive offices across DoD Components			

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0303260D8Z / *Defense Military Deception Program Office (DMDPO)*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- Participate in Defense RDT&E processes to advance basic and applied research, science and technology, and technology development and testing to elevate MILDEC capability and capacity across the Department ***FY 2019 Plans:*** - Will continue to oversee research, development and testing on high-fidelity next generation decoys affiliated with current CCMD and Service requirements - Will continue to provide oversight and advocacy for transitioning developed capabilities into formalized program offices and program executive offices across DoD Components - Will continue to participate in Defense RDT&E processes to advance basic and applied research, science and technology, and technology development and testing to elevate MILDEC capability and capacity across the Department ***FY 2018 to FY 2019 Increase/Decrease Statement:*** N/A			
Accomplishments/Planned Programs Subtotals	0.843	1.006	1.005

D. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• 0303260D8Z O&M DW: *Defense Military Deception Program Office*	1.711	2.227	2.268	-	2.268	2.278	2.307	2.336	2.379	Continuing	Continuing

Remarks

E. Acquisition Strategy

The acquisition, management, and contracting strategy involves the following:
• Adhere to guidance outlined in DoD 5000, Directive 7, Federal Acquisition Regulations (FAR), and FAR Supplement Policies and Procedures.
• Acquire and sustain MILDEC capabilities, systems, tools, products, and services through a disciplined, yet agile, process that ensures information related capabilities are available for DoD components.
• Sustain an acquisition process that is responsive and responsible to internal and external customers and stakeholders.
• Continue to support the warfighter's need for capabilities that dominate today's dynamic, networked battlespace by providing governance, oversight, and strategy across the DoD for the planning and execution of MILDEC activities.

F. Performance Metrics

RDT&E performance metrics are among the metrics used to establish the baseline and assess progress toward revitalization of MILDEC capabilities and capacities across the DoD's assigned responsibilities. The following metrics are based on the return on investment of RDT&E investments and provide assessment to meeting:

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0303260D8Z *I Defense Military Deception Program Office (DMDPO)*

1) operational requirements for MILDEC capabilities, 2) technical requirements for successful engineering, and 3) programmatic requirements for sustaining RDT&E successes across the Department:

- Seventy percent of evaluations and tests on engineered next generation capabilities address CCMD and DoD Component requirements. The remaining thirty percent serve as the pivot to improve service level operational capabilities or to address alternate technologies.
- One hundred percent of completed capability development includes affiliated specifications, architecture, raw material inventories, and documentation. They are maintained in a centralized database repository used to support feedback and future efforts.
- Fifty percent of next generation capabilities transition into DoD Component Program Management Offices and Program Executive Offices to fulfill DoD urgent needs, while the remaining fifty percent are reviewed for alternative operational utility and sent to the appropriate Service or Agency for application.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0305193D8Z / *Cyber Intelligence*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	13.302	10.511	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	23.813
194: *Intelligence Support to Cyber Operations*	13.302	10.511	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	23.813

A. Mission Description and Budget Item Justification

Beginning in FY 2018, funds moved to PE 0305245D8Z, Intelligence Capabilities and Innovation. Intelligence Support to Cyber Operations funded development, testing, prototyping, and demonstration of innovative intelligence capabilities to integrate intelligence and counterintelligence activities across numerous domains and technical areas.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	18.523	0.000	0.000	-	0.000
Current President's Budget	10.511	0.000	0.000	-	0.000
Total Adjustments	-8.012	0.000	0.000	-	0.000
• Congressional General Reductions	-0.012	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-8.000	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0305193D8Z / *Cyber Intelligence*	Project (Number/Name) 194 / *Intelligence Support to Cyber Operations*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
194: *Intelligence Support to Cyber Operations*	13.302	10.511	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	23.813
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Beginning in FY 2018, funds moved to PE 0305245D8Z, Intelligence Capabilities and Innovation. Intelligence Support to Cyber Operations funded development, testing, prototyping, and demonstration of innovative intelligence capabilities to integrate intelligence and counterintelligence activities across numerous domains and technical areas.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Intelligence Support to Cyber Operations	10.511	-	-
Accomplishments/Planned Programs Subtotals	10.511	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0305245D8Z / *Intelligence Capabilities and Innovation*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	18.992	109.529	0.000	109.529	71.551	71.117	70.310	70.600	Continuing	Continuing
245: *Intelligence Capabilities and Innovation*	-	0.000	18.992	109.529	-	109.529	71.551	71.117	70.310	70.600	Continuing	Continuing

Note

The FY2019 funding request was reduced by 2.929 million to account for the availability of prior year execution balances.

A. Mission Description and Budget Item Justification

Intelligence Capabilities and Innovation (ICI) funds Project Intelligence Innovation which is the development, testing, prototyping and demonstration of innovative intelligence capabilities to integrate intelligence and counterintelligence activities across numerous domains and technical areas including signals intelligence (SIGINT), measurements and signature intelligence (MASINT), electronic warfare, cyber, geospatial intelligence (GEOINT), multi-sensor integration, biometrics, identity management, collection management, special communications, clandestine operations, and tagging, tracking and locating. Innovation is the rapid experimentation and development of existing technologies (hardware, software, licenses, databases, analytics, etc.) to create new capabilities and demonstrate their intelligence value in support of warfighter operations.

Beginning in FY 2019, ICI also funds Project Maven which fields increasing amounts of automation to Full Motion Video (FMV) ground exploitation stations for Tactical Unmanned Aerial Vehicles (TUAVs), Medium Altitude and High Altitude ISR platforms. Maven uses artificial intelligence, deep learning, and computer vision algorithms to detect, classify, and track objects within FMV images (e.g., person, vehicle, and weapon). Maven algorithms increase the intelligence value of ISR, reduce the human burden of screening so analysts can multi-task increasing productivity, and seeds the generation of insight from GEOINT. Project Maven is a commercial technology initiative that inserts commercial Artificial Intelligence (AI) into existing programs of records. Most military intelligence exploitation systems were designed pre-AI and require specialized integration to enable the insertion of algorithms into their software baseline. Project Maven is the pathfinder AI initiative for the DoD and is investing in critical AI architecture to support the rapid expansion of AI to other mission areas besides GEOINT. As Maven algorithms increase in capability, the algorithms will move to the edge (on the sensor platform).

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0305245D8Z / *Intelligence Capabilities and Innovation*

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	0.000	18.992	19.427	0.000	19.427
Current President's Budget	0.000	18.992	109.529	0.000	109.529
Total Adjustments	0.000	0.000	90.102	0.000	90.102
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Departmental Adjustment	-	-	90.102	-	90.102

Change Summary Explanation

Increase of $93.161 million is due to Project Maven moving from USDI General Support program element to ICI program element. Decrease of $3.059 million is a result of Project Intelligence Innovation re-phasing funding to better align its contractual funding to the period of performance.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0305245D8Z / *Intelligence Capabilities and Innovation*	Project (Number/Name) 245 / *Intelligence Capabilities and Innovation*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
245: *Intelligence Capabilities and Innovation*	-	0.000	18.992	109.529	-	109.529	71.551	71.117	70.310	70.600	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project Intelligence Innovation funds the development, testing, prototyping and demonstration of innovative intelligence capabilities to integrate intelligence and counterintelligence activities across numerous domains and technical areas including SIGINT, MASINT, electronic warfare, cyber, GEOINT, multi-sensor integration, biometrics, identity management, collection management, special communications, clandestine operations, and tagging, tracking and locating.

Project Maven fields increasing amounts of automation to FMV ground exploitation stations for TUAVs, Medium Altitude and High Altitude ISR platforms. Maven uses artificial intelligence, deep learning, and computer vision algorithms to detect, classify, and track objects within FMV images (e.g., person, vehicle, and weapon). Maven algorithms increase the intelligence value of ISR, reduce the human burden of screening so analysts can multi-task increasing productivity, and seeds the generation of insight from GEOINT. Project Maven is a commercial technology initiative that inserts commercial AI into existing programs of records. Most military intelligence exploitation systems were designed pre-AI and require specialized integration to enable the insertion of algorithms into their software baseline. Project Maven is the pathfinder AI initiative for the DoD and is investing in critical AI architecture to support the rapid expansion of AI to other mission areas besides GEOINT. As Maven algorithms increase in capability, the algorithms will move to the edge (on the sensor platform).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Intelligence Capabilities and Innovation	0.000	18.992	109.529
FY 2018 Plans: Develops Intelligence Capabilities and Innovation capabilities and capacity to support Combatant Commands, Combat Support Agencies, and Services to execute cyber and asymmetric operations activities. This includes critical and emerging intelligence capabilities and innovation as well as emerging technology solutions in support of Defense Intelligence Enterprise cyber and technical collection requirements and gaps.			
FY 2019 Plans: Project Intelligence Capabilities and Innovation (ICI), will continue to develop Intelligence Capabilities and Innovation capabilities and capacity to support Combatant Commands, Combat Support Agencies, and Services to execute cyber and asymmetric operations activities to include critical and emerging intelligence capabilities and innovation as well as emerging technology solutions in support of Defense Intelligence Enterprise cyber and technical collection requirements and gaps. Project Maven will use Rapid prototype sprints to field increasing amounts of automation to FMV ground exploitation stations for TUAVs, Medium Altitude and High Altitude ISR platforms. Maven will use artificial intelligence, deep learning, and computer			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0305245D8Z / *Intelligence Capabilities and Innovation*	**Project (Number/Name)** 245 / *Intelligence Capabilities and Innovation*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
vision algorithms to detect, classify, and track objects within FMV images (e.g., person, vehicle, and weapon). This initiative brings artificial intelligence, deep learning, and computer vision into the process of object detection, identification, and tracking at computer process speed versus human speed. Incorporating computer vision and algorithms will reduce the human burden and provide efficient and effective exploration of data. Project Maven will develop algorithms focused on tactical UAV FMV automatic target recognition (ATR) and an operational PED environment for platforms and ground stations. AW will build capabilities, integrate AI and machine learning (ML) to provide actionable intelligence and enhance military decision-making by providing algorithms for object detection, classification and user alerts. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease in Project Intelligence Innovation is due to Departmental rephasing of funding to better align its contractual funding to the period of performance. Beginning in FY 2019, funds for Project Maven transfer from the USDI General Support program element to the Intelligence Capabilities and Innovation program element. AW-Project Maven enables automation of PED.			
Accomplishments/Planned Programs Subtotals	0.000	18.992	109.529

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Intelligence Capabilities and Innovation acquisition, management, and contracting strategy follows guidance outlined in the DoD 5000 series directives, Federal Acquisition Regulation (FAR) and FAR supplement policies and procedures. Management uses project management tools and meetings to ensure delivery of stated capabilities and performance criteria.

E. Performance Metrics

Performance Metrics are measured through internal management controls and external assessments. Performance metrics include, but are not limited to, time, money, realism, fidelity, and transition as defined below:

- Time – Enable the warfighter to speed up processes faster than current capabilities allow.
- Money – Enable the warfighter to reduce duplication of effort and to prepare and execute events at a more effective and efficient cost than current capabilities allow.
- Realism – Enable the warfighter to create an environment that is close to the real world environment that current capabilities allow.
- Fidelity – Ensure unity of efforts throughout the Intelligence Capabilities and Innovation communities.
- Transition – Select projects that have the greatest likelihood of transition to operational capabilities.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0306310D8Z / *CWMD Systems: RDT&E Management Support*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	1.231	1.244	-	1.244	1.273	1.300	1.319	1.343	Continuing	Continuing
814: *RDT&E Management Support*	0.000	0.000	1.231	1.244	-	1.244	1.273	1.300	1.319	1.343	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Countering Weapons of Mass Destruction (CWMD) Systems program provides funding for research, development, integration, and deployment of CWMD capabilities. Funding is allocated to a portfolio of projects and activities in response to Combatant Command needs and research initiatives.

The CWMD Systems program is organized to develop, enhance, mature and transition technologies across the RDT&E continuum, from Advanced Technology Development through Operational Systems Development, as well as limited sustainment in unique cases. A focus area is investment in CWMD-related technologies that require additional development to transition them to mature capabilities, in response to validated, prioritized requirements. This effort fills a seam in which capability gaps are not being addressed adequately or sufficiently to meet warfighter needs. The CWMD Systems program closes gaps identified by specialized military units and leverages prior S&T investments to continue development and fielding of operational systems to those units.

The program's legacy focus on CWMD situational awareness capabilities remains a significant component of the investment portfolio. The Joint Requirements Oversight Council approved the Information Systems Initial Capabilities Document for CWMD Situational Awareness in 2015, which identifies the need for a family of systems to mitigate capability gaps identified by the Combatant Commands. U.S. Special Operations Command, which assumed CWMD mission responsibilities in January 2017 per the Unified Command Plan, is providing focus and direction for development of CWMD situational awareness capabilities. In June 2017, Deputy Commander USSOCOM requested support for development of a DoD CWMD "User Defined Operational Picture" (UDOP) that can access and share relevant WMD intelligence and operational information with DoD mission partners (Combatant Commands, U.S. Government agencies, and key allies). The CWMD Systems program funds initiatives to close CWMD situational awareness gaps by leveraging mature technologies and modifying existing systems. Existing DoD information systems, networks, and applications are utilized and/or modified using CWMD Systems funding. Development of new applications reuses software to the extent possible. The CWMD Systems program also funds technology-enabled analytical cells at the Defense Threat Reduction Agency and the Defense Intelligence Agency, which support Combatant Commands. These cells curate, synthesize, and contextualize CWMD information for end-users. This hybrid approach facilitates cross-organizational information sharing and collaboration, necessary for addressing the transregional character of WMD proliferation.

The CWMD Systems program utilizes four Research, Development, Test & Evaluation (RDT&E) program elements (BA-3 / PE#0303310D8Z, BA-5 / PE#0305310D8Z, BA-6 / PE#0306310D8Z, and BA-7 / PE#0607310D8Z), as well as an Operations and Maintenance (O&M) "CWMD Sustainment" line (PE#0901388D8Z ORC-2531).

This Program Element (PE) funds research, development, test and evaluations efforts to support planning, development, and sustainment of CWMD technologies, including situational awareness information systems, or other systems as needed.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0306310D8Z *I CWMD Systems: RDT&E Management Support*

This appropriation funds travel to support the requirements of this program, and work (including manpower) performed by a government agency or by private individuals or organizations under a contractual or grant arrangement with the government who conduct research, development and test and evaluation efforts.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	0.000	1.230	1.251	-	1.251
Current President's Budget	0.000	1.231	1.244	-	1.244
Total Adjustments	0.000	0.001	-0.007	-	-0.007
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Reallocation from other CWMD Systems appropriations	-	0.001	0.002	-	0.002
• Economic adjustments	-	-	-0.009	-	-0.009

Change Summary Explanation

Changes the result of reallocation of resources across the portfolio to support full RDT&E cycle and technology transition,.and normal program adjustments

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0306310D8Z / *CWMD Systems: RDT&E Management Support*	Project (Number/Name) 814 / *RDT&E Management Support*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
814: *RDT&E Management Support*	0.000	0.000	1.231	1.244	-	1.244	1.273	1.300	1.319	1.343	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Countering Weapons of Mass Destruction (CWMD) Systems program provides funding for research, development, integration, and deployment of CWMD capabilities. Funding is allocated to a portfolio of projects and activities in response to Combatant Command needs and research initiatives.

The CWMD Systems program is organized to develop, enhance, mature and transition technologies across the RDT&E continuum, from Advanced Technology Development through Operational Systems Development, as well as limited sustainment in unique cases. A focus area is investment in CWMD-related technologies that require additional development to transition them to mature capabilities, in response to validated, prioritized requirements. This effort fills a seam in which capability gaps are not being addressed adequately or sufficiently to meet warfighter needs. The CWMD Systems program closes gaps identified by specialized military units and leverages prior S&T investments to continue development and fielding of operational systems to those units.

The program's legacy focus on CWMD situational awareness capabilities remains a significant component of the investment portfolio. The Joint Requirements Oversight Council approved the Information Systems Initial Capabilities Document for CWMD Situational Awareness in 2015, which identifies the need for a family of systems to mitigate capability gaps identified by the Combatant Commands. U.S. Special Operations Command, which assumed CWMD mission responsibilities in January 2017 per the Unified Command Plan, is providing focus and direction for development of CWMD situational awareness capabilities. In June 2017, Deputy Commander USSOCOM requested support for development of a DoD CWMD "User Defined Operational Picture" (UDOP) that can access and share relevant WMD intelligence and operational information with DoD mission partners (Combatant Commands, U.S. Government agencies, and key allies). The CWMD Systems program funds initiatives to close CWMD situational awareness gaps by leveraging mature technologies and modifying existing systems. Existing DoD information systems, networks, and applications are utilized and/or modified using CWMD Systems funding. Development of new applications reuses software to the extent possible. The CWMD Systems program also funds technology-enabled analytical cells at the Defense Threat Reduction Agency and the Defense Intelligence Agency, which support Combatant Commands. These cells curate, synthesize, and contextualize CWMD information for end-users. This hybrid approach facilitates cross-organizational information sharing and collaboration, necessary for addressing the transregional character of WMD proliferation.

The CWMD Systems program utilizes four Research, Development, Test & Evaluation (RDT&E) program elements (BA-3 / PE#0303310D8Z, BA-5 / PE#0305310D8Z, BA-6 / PE#0306310D8Z, and BA-7 / PE#0607310D8Z), as well as an Operations and Maintenance (O&M) "CWMD Sustainment" line (PE#0901388D8Z ORC-2531).

This project funds research, development, test and evaluations efforts to support planning, development, and sustainment of CWMD technologies, including situational awareness information systems, or other systems as needed.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0306310D8Z / *CWMD Systems: RDT&E Management Support*	**Project (Number/Name)** 814 / *RDT&E Management Support*

This appropriation funds travel to support the requirements of this program, and work (including manpower) performed by a government agency or by private individuals or organizations under a contractual or grant arrangement with the government who conduct research, development and test and evaluation efforts.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: P814 / RDT&E Management	0.000	1.231	1.244
Description: Perform activities to support the planning, development, and sustainment of CWMD technologies, including situational awareness information systems, or other systems as needed. ***FY 2018 Plans:*** • Perform studies and analyses to support the planning, development, and sustainment of CWMD technologies, include situational awareness information systems • Evaluate CWMD-related technologies under consideration for further development, testing, and fielding against validated requirements ***FY 2019 Plans:*** • Perform studies and analyses to support the planning, development, and sustainment of CWMD technologies, include situational awareness information systems • Evaluate CWMD-related technologies under consideration for further development, testing, and fielding against validated requirements ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase due to program and cost growth, and the reallocation of resources within portfolio to support full RDT&E cycle and technology transition.			
Accomplishments/Planned Programs Subtotals	0.000	1.231	1.244

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Utilize or reuse information technologies to field initial capabilities to end-users. As technologies mature and user needs are refined, systems or applications may transition to acquisition program(s) or be sustained separately. Integration of or interoperability among systems is also an acquisition pathway.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0306310D8Z / *CWMD Systems: RDT&E Management Support*	**Project (Number/Name)** 814 / *RDT&E Management Support*

E. Performance Metrics

Success in this area is measured by compliance with various statutes and DoD directives that govern the conduct of the affairs within the Office of the Assistant Secretary of Defense for Nuclear, Chemical and Biological Defense Programs (OASD/NCB). Maintain cost, schedule, and performance reporting, review, and adjudication. Maintain requirements traceability matrix.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0804767D8Z / *COCOM Exercise Engagement and Training Transformation (CE2T2)*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	237.610	29.149	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
758: *Joint National Training Capability (JNTC)*	135.488	20.260	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
761: *Joint Simulations Systems (JSS)*	17.289	1.016	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
769: *Joint Knowledge Development & Distribution Capability (JKDDC)*	20.385	3.756	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
770: *U.S. Forces Korea Training and Exercise Support*	33.908	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	33.908
701: *Air Force Joint National Training Capability (JNTC)*	12.167	2.524	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
772: *Navy Joint National Training Capability (JNTC)*	16.373	1.593	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
079: *USSTRATCOM SPACE CYBER*	2.000	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	2.000

Note

This program transfers to the Joint Staff (PE 0804767J) beginning in FY 2018.

A. Mission Description and Budget Item Justification

These programs support readiness of the joint force by creating a Joint Training Environment to replicate the complex and changing operational environment. The funding increase beginning in FY 2016 represents planned growth and internal reprogramming decisions to accelerate development of a cloud-enabled joint training environment. These investments directly support defense strategic guidance and enhance joint warfighting readiness by building training capabilities that support the operational readiness of the force. The elements associated with this coordinated effort consist of:

- Joint National Training Capability (JNTC)
- Joint Simulation System (JSS)
- Joint Knowledge Development & Distribution Capability (JKDDC)
- U.S. Forces Korea Training & Exercise Support (USFK)
- Air Force Joint National Training Capability (JNTC)

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0804767D8Z *I COCOM Exercise Engagement and Training Transformation (CE2T2)*

- Navy Joint National Training Capability (JNTC)

JNTC: The mission of the Joint National Training Capability (JNTC) program is to advance joint capabilities and interoperability by concentrating on emerging joint training requirements through collective training experiences using a managed set of globally distributed capabilities and activities. The program resources Service and SOF joint training and enabling capabilities that improve interoperability and realism of tactical and operational joint training between the Services and USSOCOM. JNTC enables joint collective training for Combatant Commands and Services by developing relevant joint training content and ensuring global distributed access. The enabling capabilities support the Services and USSOCOM in their requirement to provide trained and ready forces in support of Combatant Command operational requirements. This program will focus efforts on improving, rather than consuming, readiness and create a ready surge force consistent with Chairman's guidance.

JSS: The Joint Simulation System (JSS) provides a low cost, distributed or deployable, web-based joint training capability with a small technical and operator footprint. The JSS funding provides warfighters with joint simulations and tools that enhance and enable Joint training across Services, Combatant Commands, Combat Support Agencies, NATO and multinational partners. The Joint simulations and tools provided by JSS funding are critical enablers that support the delivery of trained, capable, and interoperable joint forces. JSS's intent is to maintain a capability to share simulation environments with coalition partners.

JKDDC: Joint Knowledge Development & Distribution Capability (JKDDC) Joint Knowledge Online (JKO) is the JS J7 program of record for online joint training that implements and operationalizes the OSD T2 JKDDC. JKO directly supports the CE2T2 program by developing, delivering, tracking, and reporting online training for Combatant Command exercises; Combatant Command required training; doctrinally based Joint Operations Core Curriculum; multinational, coalition, IA training; and OSD required training (externally funded). JKO also expends funding for leading edge technology review, market research, and integration to directly enhance specific aspects of the training capability as required for J7 support to Combatant Commanders. JKO satisfies all requirements necessary to provide the CE2T2 stakeholders with a distributed learning capability and access to web-based training content.

USFK: FY 2015 is the last year for dedicated funding within the overall program. The U.S. Forces Korea (USFK) Training & Exercise Support program develops simulations capable of satisfying all joint exercise training requirements in the Korean Theater of Operations. Interoperability with the Republic of Korea-developed Korean Simulation System (KSIMS) is a critical and unique requirement of this USFK RDT&E program. This solution will be capable of interoperating in a common battle space that realistically represents the operating environment to all levels of training audiences -- tactical to strategic -- in Korean theater exercises. While supporting USFK's specific requirements, this solution will contain enhancements that will benefit other combatant commander training programs that use the aging Joint, Live, Virtual, and Constructive (JLVC) simulations and the emerging JLVC 2020 simulations.

Air Force JNTC: The Air Force JNTC funding provides a focused upgrade to develop models for space-based capabilities for integration into the JLVC environment. The Air Force supports development of cross-domain solutions that enable the integration of systems with disparate security requirements, and significantly increases the training audience to additional joint and coalition participants.

Navy JNTC: These funds enable the Navy to develop unique maritime capabilities that integrate JLVC elements into a seamless joint training environment. The Navy program activities include conducting research, development, test and evaluation, and cross-service architecture certification on joint-capable systems. Additionally, the

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0804767D8Z *I COCOM Exercise Engagement and Training Transformation (CE2T2)*

program develops cross-domain architectures for U.S. and Coalition Forces and ensures sister service modeling/simulation and instrumentation efforts follow a unified standard.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	29.951	0.000	0.000	-	0.000
Current President's Budget	29.149	0.000	0.000	-	0.000
Total Adjustments	-0.802	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Actuals	-0.802	-	-	-	-

Change Summary Explanation

The CE2T2 program transfers to the Joint Staff (PE 0804767J) beginning in FY 2018.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0804767D8Z / *COCOM Exercise Engagement and Training Transformation (CE2T2)*	**Project (Number/Name)** 758 / *Joint National Training Capability (JNTC)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
758: *Joint National Training Capability (JNTC)*	135.488	20.260	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

CE2T2 Project 758: Joint National Training Capability transfers from USD-PR PE 0804767D8Z to Joint Staff PE 0804767J in fiscal year 2018

A. Mission Description and Budget Item Justification

Investment in the Joint National Training Capability (JNTC) program will enable Service and Combatant Commands to train as they operate. The funding requested continues development of exercise Scenario Management Tools and services that support planning and execution of joint training, and continued maturation of a single integrating architecture for Joint Training. Funding supports the development of cloud-enabled modular training application services. Program intent is to reduce dependence on touch labor, and mitigate the impact of reductions in operation and sustainment funding. Focus must be maintained to deliver operationally relevant training environments and respond to changes in the warfighter's operational environment. JNTC enables the Department of Defense to be responsive to the warfighters' pace of changing operational concepts, threat environments, and best practices. In FY 2017, this investment continues expanding access for Service and Combatant Command trainers to plan and execute joint training. Funds support improved relevance and realism of training by providing capabilities that replicate the contemporary and future operating environment.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Joint National Training Capability (JNTC)	20.260	-	-
Description: JNTC provides the technical standards, architecture (blueprint), and development processes required to integrate/ link joint training programs. The Joint Training Environment is envisioned as an integrated network of training sites and nodes, and accessible joint training and force development services. By leveraging existing training programs and initiating specific actions, JNTC develops credible opposing force capabilities and expanded access to assets typically unavailable to the training audience. This enhances the integration of joint training objectives into Service training events. Funding in this account supports the technical integration of Joint and Service modeling and simulation training capabilities. Technical integration enables selective aggregation of training audiences at the Combatant Command, Joint Task Force, and Component Command Headquarter levels. The funding supports modernization of the Joint Training Environment (JTE) to increase warfighter access to automated training enablers within the Joint Training Synthetic Environment (JTSE) through web-based and cloud capabilities. The Adaptive Training Capability Program (ATCP) is a subordinate component of JNTC that enables the Joint Force to be responsive to the warfighters' pace of changing operational concepts, threat environments, and best practices. ATCP funding			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0804767D8Z / *COCOM Exercise Engagement and Training Transformation (CE2T2)*	**Project (Number/Name)** 758 / *Joint National Training Capability (JNTC)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
advances joint capabilities and interoperability by addressing emerging joint training requirements through a managed set of globally distributed JLVC enablers. ATCP funding promotes joint context to Service training programs and joint enablers supporting Combatant Command training requirements and CJCS High Interest Training Issues identified in the Chairman's Annual Training Guidance.			
Accomplishments/Planned Programs Subtotals	20.260	-	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• 0804767D8Z: *JNTC O&M Funding*	35.880	-	-	-	-	-	-	-	-	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

RDT&E development efforts are evaluated based on the performance metrics below. This ensures the Joint Force Trainer capabilities development effort synchronizes with warfighter requirements. Performance metrics include, but are not limited to; access, cost, realism, relevance and technology as defined below:

• Access – Develop design standards that enable participation across DoD and, as applicable, with Coalition Partners. Make the environment available to meet user demands.
• Cost – Enable the Joint Force Trainer to prepare and execute training at a more effective and efficient cost than current capabilities allow.
• Realism – Enable the Joint Force Trainer to create a training environment that is closer to the real world environment than current capabilities allow.
• Relevance – Maintain operational relevance through adaptation to the changing operational environment.
• Technology – Sustain the training environment network through developments for distributed home station training that include modular cloud-enabled training services.

Measures:
• Cost- Vendors provide ordered hours and project costs remain within 10 percent of government estimates.
• Schedule- Task completions (software enhancements, bug fixes, and cyber security requirements) delivered within 6 months of government estimate.
• Performance- Product results, outcomes, or milestones meet specific requirements and successfully pass more than 80 percent of operational assessment test cases.
• DoD Demand- Number of Commands, Services, and Agencies using Joint Staff developed training products.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0804767D8Z / *COCOM Exercise Engagement and Training Transformation (CE2T2)*	**Project (Number/Name)** 758 / *Joint National Training Capability (JNTC)*

- Partner Nation Demand- Number of partner nations using Joint Staff developed training products.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0804767D8Z / *COCOM Exercise Engagement and Training Transformation (CE2T2)*	**Project (Number/Name)** 761 / *Joint Simulations Systems (JSS)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
761: *Joint Simulations Systems (JSS)*	17.289	1.016	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

CE2T2 Project 761: Joint Simulations Systems (JSS) transfers from USD-PR PE 0804767D8Z to Joint Staff PE 0804767J in fiscal year 2018

A. Mission Description and Budget Item Justification

The Joint Simulation System (JSS) will decompose, harvest, and reuse DoD investment in joint simulations to develop cloud-enabled modular services (CEMS), reaching Initial Operating Capability in FY 2016. JSS will further development of existing Joint Conflict and Tactical Simulation (JCATS) and Joint Theater Level Simulation (JTLS) as required, to remain relevant and responsive to meet Combatant Command training requirements as the Joint Training Environment is implemented. JSS will provide design and development of web-based applications used as services in CEMS environment.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Joint Simulation System (JSS)	1.016	-	-
Description: This effort provides warfighters with joint simulations and tools that enhance and enable Joint training across Services, Combatant Commands, agencies and coalition partners. These joint simulations and tools are part of an overall JLVC baseline of training capabilities. They represent a set of training enablers, and "certified systems" that are interoperable and acceptable for usage within the joint training environment. The joint simulations and tools provided by JSS are critical enablers that support the delivery of trained, capable, and interoperable Joint Forces.			
Accomplishments/Planned Programs Subtotals	1.016	-	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• 0804767D8Z: *JSS O&M Funding*	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	-	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0804767D8Z / *COCOM Exercise Engagement and Training Transformation (CE2T2)*	**Project (Number/Name)** 761 / *Joint Simulations Systems (JSS)*

E. Performance Metrics

RDT&E development efforts are evaluated based on performance metrics. This ensures the development of Joint Force Trainer capabilities synchronizes with warfighter requirements. Performance metrics include, but are not limited to; time, cost, realism, and fidelity as defined below:

- Time – Will the effort enable the Joint Force Trainer to prepare and execute training more timely than current capabilities allow?
- Cost – Will the effort enable the Joint Force Trainer to prepare and execute training at a more effective and efficient cost than current capabilities allow?
- Realism – Will the effort enable the Joint Force Trainer to create a training environment that is closer to the real world environment than current capabilities allow?
- Fidelity – Will the effort enable the Joint Force Trainer to create more detailed capabilities in the training environment than current capabilities allow?

Measures:

- Cost- Vendors provide ordered hours and project costs remain within 10 percent of government estimates.
- Schedule-Task completions (software enhancements, bug fixes, and cyber security requirements) delivered within 6 months of government estimate.
- Performance- Produce results, outcomes or milestones meet specified requirements and successfully pass more than 80 percent of operational assessment test cases. JTLS and JCATs availability of use in support of all training activities remains above 95 percent.
- DoD Demand- Number of exercises/events supported by JTLS/JCATS.
- Partner Nation Demand- Number partner nations using Joint Staff developed training products (active foreign military sales cases).

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0804767D8Z / *COCOM Exercise Engagement and Training Transformation (CE2T2)*	**Project (Number/Name)** 769 / *Joint Knowledge Development & Distribution Capability (JKDDC)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
769: *Joint Knowledge Development & Distribution Capability (JKDDC)*	20.385	3.756	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

CE2T2 Project 769: Joint Knowledge Development & Distribution Capability (JKDDC) transfers from USD-PR PE 0804767D8Z to Joint Staff PE 0804767J in fiscal year 2018

A. Mission Description and Budget Item Justification

Joint Knowledge Online (JKO) is the DoD unique and authoritative source for online joint training. JKO is tasked to develop a DoD enterprise-wide, Joint Individual Training Toolkit of web-enabled individual and small group training products, services and enabling training technology. Products and services are developed in response to OSD(P&R) CE2T2 Program Goals & Objectives guidance, CJCS High Interest Training Issues, Joint Staff J7 training priorities, and JKO Stakeholder (Combatant Commands, Services, and Combat Support Agencies) prioritized training requirements. JKO supports a career-long joint learning continuum, joint professional military education, and tailored common training standards to Service members for tasks that are jointly executed, resulting in trained, capable, and interoperable joint forces. JKO research and development will improve all components of the Joint Content Management Architecture including:

- JKO Learning Content Management System (LCMS): Development and enhancement is required to integrate advanced individual and staff training technologies and methodologies with larger scale, collective training exercises, and modernize military training capability with a DoD enterprise-wide online training toolkit. JKO LCMS is necessary to develop, host and deliver JKO courses and track/report students' progress, completions and survey results more effectively and efficiently. JKO LCMS extends web-based, distributed access to mission-critical joint training requirements. There are currently over 2.7 million registered users of the JKO LCMS.
- Small Group Scenario Trainer (SGST) desktop modeling and simulation based training: This JKO capability trains and prepares thousands of military and civilian personnel deploying to Combatant Command theaters of operation prior to serving in their assigned Combined/Joint Task Force (C/JTF) billets. Specifically, C/JTF 'battle staffs' will be adequately trained, as individuals and the staffs collectively, based on SGST development and implementation throughout the joint training enterprise. JKO integration of SGST simulation exercise scenarios and pre-requisite JKO courses enable blended learning training support to large-scale, collective training exercises that augment the Joint Event Learning Cycle and in meeting combatant commanders exercise objectives.
- JKO mobile application training device development: Development and enhancements facilitate the global distribution of web-based joint training content on portable, hand-held platforms (cell pones and tablets). JKO Mobile App extends access to training courses and learning resources to personal use of mobile phones and tablets.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Joint Knowledge Development & Distribution Capability (JKDDC)	3.756	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0804767D8Z / *COCOM Exercise Engagement and Training Transformation (CE2T2)*	**Project (Number/Name)** 769 / *Joint Knowledge Development & Distribution Capability (JKDDC)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Description: JKDDC Joint Knowledge Online (JKO) advanced technology initiatives primarily include the JKO Learning Content Management System (LCMS) application, Small Group Scenario Trainer (SGST) desktop modeling and simulation based training capability, and mobile courseware training devices.. These capabilities facilitate the training and preparation of tens of thousands of military and civilian personnel deploying to Combatant Command (CCMD) theaters of operation prior to serving in their assigned Combined/Joint Task Force (C/JTF) billets. Specifically, JKO LCMS development and enhancements are required to host and deliver JKO courses and track/report students' completions more effectively and efficiently. C/JTF "battle staffs" will be better trained, as individuals and the staffs collectively, based on SGST development and implementation throughout the joint training enterprise. JKO mobile courseware training device development facilitates the global distribution of web-based joint training content on portable, hand-held platforms (cell phones and tablets) for DoD personnel.			
Accomplishments/Planned Programs Subtotals	3.756	-	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• 0804768D8Z: *JKDDC O&M Funding*	5.286	-	-	-	-	-	-	-	-	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Joint Staff prescribed performance metrics include, but are not limited to; time, cost, realism, and fidelity as defined below:

- Time – Will the effort enable the Joint Force Trainer to prepare and execute training more timely than current capabilities allow?
- Cost – Will the effort enable the Joint Force Trainer to prepare and execute training at a more effective and efficient cost than current capabilities allow?
- Realism – Will the effort enable the Joint Force Trainer to create a training environment that is closer to the real world environment than current capabilities allow?
- Fidelity – Will the effort enable the Joint Force Trainer to create more detailed capabilities in the training environment than current capabilities allow?

Measures:
- Identify, develop, test and implement 15 or more cybersecurity, operational, and functional JKO LCMS requirements.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0804767D8Z / *COCOM Exercise Engagement and Training Transformation (CE2T2)*	**Project (Number/Name)** 769 / *Joint Knowledge Development & Distribution Capability (JKDDC)*

- Identify, develop, test and implement 12 or more cybersecurity, operational and functional JKO SGST requirements.
- Identify, develop, test and implement 6 or more cybersecurity, operational and functional JKO Mobile App requirements.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0804767D8Z / *COCOM Exercise Engagement and Training Transformation (CE2T2)*	Project (Number/Name) 770 / *U.S. Forces Korea Training and Exercise Support*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
770: *U.S. Forces Korea Training and Exercise Support*	33.908	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	33.908
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

2015 was the last year for dedicated funding of the CE2T2 project 770: U.S. Forces Korea Training and Exercise Support.

A. Mission Description and Budget Item Justification

The U.S. Forces Korea (USFK) Training & Exercise Support program developed simulations capable of satisfying all joint exercise training requirements in the Korean Theater of Operations. Interoperability with the Republic of Korea-developed Korean Simulation System (KSIMS) was a critical and unique requirement of this USFK RDT&E program. This solution is capable of interoperating in a common battle space that realistically represents the operating environment to all levels of training audiences -- tactical to strategic -- in Korean theater exercises. While supporting USFK's specific requirements, this solution contains enhancements that will benefit other combatant commander training programs that use the aging Joint, Live, Virtual, and Constructive (JLVC) simulations and the emerging JTSE (previously JLVC 2020) simulations.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: USFK Training & Exercise Support	0.000	-	-
Description: This program provided Joint Training Environment support to the 2015 stand-up of KORCOM as a sub-unified command under USPACOM. This program developed a jointly accredited, supported, and funded federation of constructive models and simulations which are capable of satisfying all joint exercise training requirements in the Korean Theater of Operations (and which is interoperable with KSIMS). While supporting U.S. Forces Korea specific training requirements, this solution was inextricably linked to the JTSE modeling and simulation capability via Cloud-Enabled Modular Services. It provided a common, interoperable simulated battlespace which realistically represents the operating environment to all levels of training audiences (tactical to strategic) in Korean theater exercises and across the Combatant Commands, Services, and coalition Partners.			
Accomplishments/Planned Programs Subtotals	0.000	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0804767D8Z / *COCOM Exercise Engagement and Training Transformation (CE2T2)*	**Project (Number/Name)** 770 / *U.S. Forces Korea Training and Exercise Support*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• 0804767D8Z: *U.S. Forces Korea Training & Exercise Proc*	0.000	0.000	0.000	-	0.000	-	-	-	-	0.000	0.299

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

RDT&E development efforts are evaluated based on performance metrics. This ensures the development of Joint Force Trainer capabilities synchronizes with warfighter requirements. Performance metrics include, but are not limited to; time, cost, realism, and fidelity as defined below:

• Time – Will the effort enable the Joint Force Trainer to prepare and execute training more timely than current capabilities allow?
• Cost – Will the effort enable the Joint Force Trainer to prepare and execute training at a more effective and efficient cost than current capabilities allow?
• Realism – Will the effort enable the Joint Force Trainer to create a training environment that is closer to the real world environment than current capabilities allow?
• Fidelity – Will the effort enable the Joint Force Trainer to create more detailed capabilities in the training environment than current capabilities allow?

Measures:
• Develop software for interoperability of JLVC versions along with initial integration of the Army's Multi-Resolution Federation (MRF). Additionally, provide a validated approach for Cross Domain Information Sharing technologies and Korea Battle Simulation Center (KBSC) simulations to the joint training enterprise that meets USFK technical training requirements.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0804767D8Z / *COCOM Exercise Engagement and Training Transformation (CE2T2)*	**Project (Number/Name)** 701 / *Air Force Joint National Training Capability (JNTC)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
701: *Air Force Joint National Training Capability (JNTC)*	12.167	2.524	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

CE2T2 Project 701: Air Force Joint National Training Capability (JNTC) transfers from USD-PR PE 0804767D8Z to Joint Staff PE 0804767J in fiscal year 2018

A. Mission Description and Budget Item Justification

The Air Force JNTC funding provides a focused upgrade to develop models for space-based and cyber capabilities for integration into the Joint Live, Virtual, Constructive (JLVC) environment. The Air Force supports development of cross-domain solutions that enable the integration of systems with disparate security requirements, and significantly increases the training audience to additional joint and coalition participants.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Air Force Joint National Training Capability (JNTC)	2.524	-	-
Description: The Air Force JNTC assists in the engineering, development, and deployment of Joint Cross Domain Information Sharing (JCDIS) Enterprise Network Architecture which will enable joint and coalition participants to train while protecting classified information. Furthermore, the Air Force is creating cyber-contested environments in the distributed mission operations setting to challenge the joint exercise/training audience. Finally, comprehensive space effects are being integrated into the Joint, Live, Virtual and Constructive (JLVC) federation of models.			
Accomplishments/Planned Programs Subtotals	2.524	-	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• 0804767D8Z: *Air Force JNTC O&M Funding*	9.636	-	-	-	-	-	-	-	-	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0804767D8Z / *COCOM Exercise Engagement and Training Transformation (CE2T2)*	**Project (Number/Name)** 701 / *Air Force Joint National Training Capability (JNTC)*

E. Performance Metrics

RDT&E development efforts are evaluated based on performance metrics. This ensures the development of Joint Force Trainer capabilities synchronize with warfighter requirements. Performance metrics include, but are not limited to; time, cost, realism, and fidelity as defined below:

• Time – Will the effort enable the Joint Force Trainer to prepare and execute training more timely than current capabilities allow?
• Cost – Will the effort enable the Joint Force Trainer to prepare and execute training at a more effective and efficient cost than current capabilities allow?
• Realism – Will the effort enable the Joint Force Trainer to create a training environment that is closer to the real world environment than current capabilities allow?
• Fidelity – Will the effort enable the Joint Force Trainer to create more detailed capabilities in the training environment than current capabilities allow?

Measures:
• Cyber: Establish a persistent simulation environment that can be configured rapidly and accurately to reflect the desired operating environment of the training audience. Also, create an ability to reflect cyber activities against a live Integrated Air Defense system.
• Space: A fully operational GPS environment which allows space operators to actively participate in Distributed Mission Operations-Space LVC missile warning, GPS disruption and Infrared special events. Also develop space models to model Space as a contested environment to accurately portray impacts of adversary actions in the Space domain.
• OPFOR: A prototype for a next generation tactical surface to air threat simulator emulating modern fielded threats fielded with potential adversary maneuver elements.
• A plan for integrating Army ground instrumentation within the Air Force run Polygon range complex.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0804767D8Z / *COCOM Exercise Engagement and Training Transformation (CE2T2)*	Project (Number/Name) 772 / *Navy Joint National Training Capability (JNTC)*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
772: *Navy Joint National Training Capability (JNTC)*	16.373	1.593	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

CE2T2 Project 772: Navy Joint National Training Capability (JNTC) transfers from USD-PR PE 0804767D8Z to Joint Staff PE 0804767J in fiscal year 2018

A. Mission Description and Budget Item Justification

These funds enable the Navy to develop unique maritime capabilities that integrate Joint Live, Virtual, and Constructive (JLVC) elements into a seamless joint training environment. The Navy program activities include conducting research, development, test and evaluation, and cross-service architecture certification on joint-capable systems. Additionally, the program develops cross-domain architectures for U.S. and Coalition Forces and ensures sister service modeling/simulation and instrumentation efforts follow a unified standard.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Navy Joint National Training Capability (JNTC)	1.593	-	-
Description: Develops unique maritime capabilities that integrate Joint Live, Virtual, and Constructive (JLVC) elements into a seamless joint training environment. Using a scientific and phased approach that focuses on modeling ground, air, space, and maritime capabilities, this program researches new technology and methods that provide a crucial technology-based foundation that supports all JNTC Training Transformation (T2), JLVC Federation, and Combatant Commanders Exercise and Engagement (CE2) operations.			
Accomplishments/Planned Programs Subtotals	1.593	-	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• 0804767D8Z: *Navy JNTC O&M Funding*	7.770	-	-	-	-	-	-	-	-	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0804767D8Z / *COCOM Exercise Engagement and Training Transformation (CE2T2)*	**Project (Number/Name)** 772 / *Navy Joint National Training Capability (JNTC)*

E. Performance Metrics

RDT&E development efforts are evaluated based on performance metrics. This ensures the Joint Force Trainer capabilities development effort synchronizes with warfighter requirements. Performance metrics include, but are not limited to; time, money, realism, and fidelity as defined below:

• Time – Will the effort enable the Joint Force Trainer to prepare and execute training more timely than current capabilities allow?
• Cost – Will the effort enable the Joint Force Trainer to prepare and execute training at a more effective and efficient cost than current capabilities allow?
• Realism – Will the effort enable the Joint Force Trainer to create a training environment that is closer to the real world environment than current capabilities allow?
• Fidelity – Will the effort enable the Joint Force Trainer to create more detailed capabilities in the training environment than current capabilities allow?

• The Navy will produce one Navy Training Baseline (NTB) software release to include documentation; will design and implement upgrades to Joint Semi-Automated Forces (JSAF) consistent with approved requirements and CRs and document the effects of JSAF capabilities (robustness) and stability. Will design, implement, test, and integrate NTB enhancements in accordance with requirements.

• For JSAF, Joint Simulation BUS (JBUS) reliability, scalability, and tactical control, the Navy will continuously update the Common Operational Picture (COP) during large scale JLVC exercises.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0804767D8Z / *COCOM Exercise Engagement and Training Transformation (CE2T2)*	Project (Number/Name) 079 / *USSTRATCOM SPACE CYBER*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
079: *USSTRATCOM SPACE CYBER*	2.000	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	2.000
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

CE2T2 Project 079: USSTRATCOM SPACE CYBER transfers from USD-PR PE 0804767D8Z to Joint Staff PE 0804767J in fiscal year 2018

A. Mission Description and Budget Item Justification

These funds enabled USSTRATCOM to provide funding to architecture and analysis support to Space Security and Defense Program (SSDP) and the JOINT SPACE OPERATIONS CENTER (JICSpOC) through Modeling, Simulation and Analysis (MS&A); Trade-Off Analysis; Concept Development; Scenario Development; and Military Utility Analysis.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: USSTRATCOM SPACE CYBER	0.000	-	-
Description: The USSTRATCOM CYBER funding provided architecture and analysis support to SPACE Security and Defense Program (SSDP) and the JOINT SPACE OPERATIONS CENTER (JICSpOC) through Modeling, Simulation and Analysis (MS&A); Trade-Off Analysis; Concept Development; Scenario Development; and Military Utility Analysis.			
Accomplishments/Planned Programs Subtotals	0.000	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

All USSTRATCOM missions were exercised during the two Global series exercises during fiscal year with a specific emphasis placed on UCP missions to include: Strategic Deterrence (including Nuclear Commend and Control processes), Space Operations, and Cyberspace Operations. Additional focus areas included USSTRATCOM supporting plans. The entire command, to include components and task forces participated with the goal to meet over 95% of exercise and training objectives.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0804767D8Z / *COCOM Exercise Engagement and Training Transformation (CE2T2)*	**Project (Number/Name)** 079 / *USSTRATCOM SPACE CYBER*

• Complete TPAs in JTIMs IAW CJCSI 3500.01 with a goal of over 75 percent rated T.
• Insure Command readiness across all UCP-assigned missions leading up to major training events with a goal of 100 percent of B2C2WG and battle roster augmentees trained.
• All USSTRATCOM missions exercised with a specific emphasis on Nuclear Command and Control processes. Entire USSTRATCOM command, to include components and task forces, participating in two GLOBAL series exercises per FY. Goal was met in 1st and 2nd quarter.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0909999D8Z / *Financing for Cancelled Account Adjustments*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	4.399	0.437	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
546: *Financing for Cancelled Account Adjustments*	4.399	0.437	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

RDT&E Management Support. Financing for cancelled accounts adjustments.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.437	0.000	0.000	-	0.000
Total Adjustments	0.437	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.437	-			
• SBIR/STTR Transfer	-	-			

C. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Not applicable for this item.	0.437	-	-
Accomplishments/Planned Programs Subtotals	0.437	-	-

D. Other Program Funding Summary ($ in Millions)

N/A

Remarks

E. Acquisition Strategy

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0909999D8Z *I Financing for Cancelled Account Adjustments*

F. Performance Metrics

Not applicable for this item.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0607210D8Z / *Industrial Base Analysis and Sustainment Support*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	45.712	15.584	10.882	10.376	-	10.376	10.428	10.524	10.595	10.789	Continuing	Continuing
819: *Industrial Base Analysis and Sustainment*	45.712	15.584	10.882	10.376	0.000	10.376	10.428	10.524	10.595	10.789	Continuing	Continuing

A. Mission Description and Budget Item Justification

Industrial Base Analysis and Sustainment (IBAS), directed in Title 10 USC Section 2508, provides the Department with a unique capability to achieve the strategic goal of a strong, resilient, responsive and healthy US Industrial Base (IB) that improves the Departments force readiness posture. This program is uniquely positioned to improve the US Industrial Base's ability to respond to the Departments needs by applying focused investments (as directed in 10 USC Sec 2508) to: 1) monitor and assess the current state of the IB, 2) address critical issues in the IB relating to Urgent Operational Needs, 3) address supply chain vulnerabilities and, 4) support efforts to expand the Industrial Base.

Manufacturing dominance underpins technical dominance. A healthy manufacturing and defense industrial base and resilient supply chains are essential to the economic strength and national security of the United States. The ability of the United States to maintain readiness, and to surge in response to an emergency, directly relates to the capacity, capabilities, and resiliency of our manufacturing and defense industrial base and supply chains.

IBAS is fundamental to achieving a modern IB that integrates traditional and emerging sectors to be able to respond at will to National Security Requirements.

IBAS investments focus on addressing Industrial Base issues that support defense needs by identifying and closing gaps in defense manufacturing capabilities and creating and sustaining reliable sources. Key areas of IBAS investment will include:
1) advancing and sustaining both traditional and emerging defense manufacturing sectors,
2) preserving critical and unique manufacturing and design skills,
3) supporting and expanding reliable sources, and
4) identifying and mitigating supply chain vulnerabilities

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0607210D8Z / *Industrial Base Analysis and Sustainment Support*

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	16.195	10.882	10.461	-	10.461
Current President's Budget	15.584	10.882	10.376	-	10.376
Total Adjustments	-0.611	0.000	-0.085	-	-0.085
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.593	-			
• FFRDC Transfer	-0.018	-	-	-	-
• Economic Assumptions	-	-	-0.085	-	-0.085

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607210D8Z / *Industrial Base Analysis and Sustainment Support*	Project (Number/Name) 819 / *Industrial Base Analysis and Sustainment*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
819: *Industrial Base Analysis and Sustainment*	45.712	15.584	10.882	10.376	0.000	10.376	10.428	10.524	10.595	10.789	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

IBAS mission is to strengthen the force posture and readiness of the U.S. Defense Manufacturing and Industrial Base to respond at will to national security needs.

The IBAS program has a multi-pronged approach to identify projects: 1) assessments of the national technology and industrial base by the OSD Acquisition, Technology and Logistics (AT&L) office of Manufacturing and Industrial Base Policy (MIBP) as directed by 10 U.S. Code 2505, and 2) working directly with defense programs, and 3) working directly with industry. MIBP collaborates with the services and agencies in performing assessments under the Title 10 USC Section 2505 program to identify elements of the industrial base critical to a healthy defense industrial base:

1) Gaps in national-security-related domestic manufacturing capabilities
2) Threatened, single, or sole source capabilities especially within the lower tiers
3) Education and manufacturing workforce skills

IBAS investments seek to ameliorate industrial base and manufacturing issues to strengthen the defense industrial base. All projects are evaluated for industrial base risk using fragility and criticality risk criteria, similar to the more familiar probability and consequence risk criteria. Fragility examines characteristics that make a specific capability likely to be disrupted. Criticality examines characteristics that make a specific capability difficult to replace if disrupted.

IBAS currently focuses efforts and investments in four categories: Radars, Sensors, and Electronics Sectors; Materials Sector; Munitions and Missiles Sector; and Cross-cutting Supply Chain Vulnerabilities Mitigation.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Radars, Sensors, and Electronics Sectors	3.364	2.836	2.207
Description: The enabling components and systems capabilities availability is limited with few domestic suppliers, presenting risks to system production and sustainment and directly impacting system procurement and maintenance costs. These limitations of technology can be overcome by identifying common industrial base challenges, development of sustainable modular and scalable architectures, supported by a strengthened and broadened domestic supplier base. Sector investments will improve production process efficiencies, explore modular and scalable technology, and upgrade outdated radar and sensor technology.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607210D8Z / *Industrial Base Analysis and Sustainment Support*	**Project (Number/Name)** 819 / *Industrial Base Analysis and Sustainment*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
FY2017 Success Story - Fused Panoramic Night Vision Goggle (F-PANO): The scope of this FY2017 effort focused on the development, build, and evaluation of a system consisting of a fused panoramic binocular goggle, battery pack with embedded Augmented Reality (AR) processor. The F-PANO will be a modular, lightweight, ruggedized system, and support reconfiguration, maintenance, and future upgrade through module replacement, reprogrammable firmware, and software updates. ***FY 2018 Plans:*** Radar Affordability: Continuing an effort started in 2014 to collaborate and field cross reaching radar technologies, with an emphasis on driving down program costs through common technology optimization and industry coordination. FY 2018 focuses on industry engagement and DoD program office technology down selections. Unmanned Systems & Technologies: Wide spread adoption of unmanned systems and their supporting technologies are experiencing industry shortfalls in developing/delivering/servicing unmanned systems. This effort will identify and address material, manufacturing, and supply chain vulnerabilities from micro/man portable systems up to the large platforms – across all domains of air, surface, sub surface, land, blue water, and space. FY2018 focuses on assisting with the Navy Triton program, PMA-262, associated industrial base and production facilities. Technologies of focus include radar, sensors/apertures, power management, avionics equipment, and large scale complex composites manufacturing. Directed Energy (DE): OSD (MIBP) is coordinating critical technology investments that promote improvements in DE production technologies and applications involved in lasers and common electro optic technologies. FY2018 – Phase 0- coordinating with government and industry communities to in develop critical industrial base technology list and common investment strategies. Small Diameter Bomb Multispectral Zinc Sulfide (ZnS): Establish and qualify domestic source for multispectral Zinc Sulfide (ZnS) dome capability for critical munitions. FY 2018 efforts focus on identifying supply chain alternatives and establishing requirements to establish and certify a new production supply chain. ***FY 2019 Plans:*** Radar Affordability, Unmanned Systems & Technologies, and Small Diameter Bomb Multispectral Zinc Sulfide: continues efforts initiated in FY 2018, described above. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease of $.629 represents reduced cost phasing of efforts initiated in FY 2018 and continuing into FY 2019. This decrease represents reprioritization and realignment of available resources within this Program Element.			
Title: Materials Sector	0.000	2.336	2.575

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607210D8Z / *Industrial Base Analysis and Sustainment Support*	**Project (Number/Name)** 819 / *Industrial Base Analysis and Sustainment*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Description: This multi-year Materials Sector is focused on maturing technologies necessary for the construction of DoD ground, air, and space assets, to mitigate risks associated with the reliance on non-US materials and components. This sector is envisioned to address the technical risk associated with the dependence on materials from foreign non allied countries. ***FY 2018 Plans:*** Carbon Nanotube (CNT) Sourcing: The scope of this industrial base risk mitigation program, with projects across multiple fiscal years, is to work with suppliers and DoD program offices to identify and transition additional sources of supply of ceramic materials for warfighter body armor and ballistic protection systems for defense platforms. This effort will include working with industry to develop, test, qualify and transition new ceramic materials and manufacturing processes. ***FY 2019 Plans:*** Boron Carbide Ceramic Materials Sourcing: Support the development, testing, qualification and potential transition of new boron carbide ceramic materials for DoD ballistic protection requirements. The goal of the program is to reduce existing defense industrial base and supply chain risks. Carbon Fiber Domestic Sourcing: The scope of this industrial base risk mitigation program is to work with suppliers and DoD program offices to identify and transition domestic alternatives to single foreign sources of carbon fibers used in DoD National Security Space applications and related programs (e.g., missiles, space launch vehicles, and satellites). This effort will include working with industry to develop, test, qualify and transition newly developed composite materials and manufacturing processing using commercially available carbon fibers. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase of $.239 reflects completion of funding for FY 2018 efforts and FY 2019 new start efforts for Boron Carbide and Carbon Fiber. This increase represents reprioritization and realignment of available resources within this Program Element.			
Title: Munitions and Missiles Sector	8.496	1.633	4.481
Description: With a multi-decade decline in missile program development and procurement, design and production capabilities for critical components within the missile sector industrial base are at risk. This has a significant impact on current and future missile programs, limiting the readiness and availability of superior technology to U.S. Warfighters. The missile sector sustainment will exercise the design and production skills of this critical industrial base by improving existing production processes, exploring advanced materials for higher performance, and upgrading outdated technology for missile components. ***FY 2018 Plans:*** Fuze initiative for Electronic Sage and Arm Device (ESAD), an effort continuing from prior years, to mitigate a supply chain loss caused by a reduction in non-DoD demand. Industrial Base (IB) design and production workforce critical skills were needed to			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607210D8Z / *Industrial Base Analysis and Sustainment Support*	**Project (Number/Name)** 819 / *Industrial Base Analysis and Sustainment*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
meet future requirements. Application of ESAD designs as common architecture to multiple missiles and munitions during this phase enables realization of the desired cost savings. This project is continuing under other investment programs. Continues efforts from prior years for Fuze initiatives (Electronic Safe and Arm Device (ESAD). ***FY 2019 Plans:*** Fuze initiatives (Electronic Safe and Arm Device (ESAD): continues efforts from FY 2018 and prior years. Critical Energetic Materials (CEM): Develop prototype manufacturing processes to maintain an adequate North American industrial base for critical key energetic materials and their pre-cursors. Project phasing is expected to be: Phase 1 – Analysis of current technology/capability; Phase 2 – Develop a plan for a prototype manufacturing process; Phase 3 – Build the prototype manufacturing process; and Phase 4 – Provide samples of the materials with that manufacturing process. Solid Rocket Motor (SRM): This initiative is to conduct advanced propulsion system technology development, maturation and demonstration in order to maintain critical skillsets and advance the state-of-the-art in propulsion component, subsystems and system solutions that enable multi-mission capabilities. Fund two tactical SRM producers to conduct tradeoff analysis and initial system/design engineering of multiple propulsion concepts. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase of $2.918 includes 1) increase for tentatively final FY 2019 investment in the multiple year Fuze initiative efforts, and 2) new-start efforts for Solid Rocket Motor and Critical Energetic Materials. Munitions and Missiles Sector increase represents reprioritization and realignment of available resources within this Program Element.			
Title: Supply Chain Vulnerabilities Mitigation	3.724	4.077	1.113
Description: Supply Chain Mitigation will be a multi-year program that leverages the best industrial, academic, and government resources through formal collaborations to enable the highest technical talent to define and address strategic manufacturing value chain vulnerabilities and program specific technical issues in support of the IBAS mission. ***FY 2018 Plans:*** Securing the Industrial Base (SIB) – Hack for the Defense Industrial Base (DIB) Cyber: The Industrial Base and manufacturing sector is a major target for both foreign and domestic cyber attacks and data security issues. The objectives of this multiple fiscal years of effort include: analyze the MIB ecosystem (people, processes, and systems); empower the Manufacturing Industrial Base; monitor the dynamic threat environment; identify operational vulnerabilities and prevent the impact of cyber threats; and maintain resiliency and cybersecurity assurance.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607210D8Z / *Industrial Base Analysis and Sustainment Support*	**Project (Number/Name)** 819 / *Industrial Base Analysis and Sustainment*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Southeast Manufacturing Skills Challenge: Similar to STEM efforts such as First Robotics, the SMSC project seeks to close gaps in industrial capabilities, increase industrial base readiness, elevate the prestige of manufacturing, and identify future supply chain members by establishing a manufacturing skills challenge. This effort across multiple fiscal years starting in FY 2017 is a collaboration between OSD and the National Aeronautics and Space Administration (NASA) to define and address strategic manufacturing value chain vulnerabilities and technologies, and strengthen workforce skills. This effort includes competitions with "Support for a prize". The pilot effort will focus on welding and machining workforce in the Southeast corridor including Mississippi, Louisiana, Alabama, and South Carolina where large ship, aerospace, and automotive growth have created workforce skills and supply chain challenges. Accelerator Pilot Project, continuing from FY2016, FY2017 and across multiple future fiscal years, is an effort that comprehensively addresses some of the discovery-to-transition infrastructure shortfalls, including both identifying emerging companies and increasing business viability for startup and other nascent companies focused on advanced manufacturing and application technologies. The Pilot Program will be uniquely focused on hardware and manufacturing based companies. The comprehensive program will provide access to business strategy and development, mentors in their technology domain, DoD users, investors, and prototype manufacturing facilities. The first cohort of six to ten startup teams in Phase 1, will encompass the following components: Curriculum and Faculty; Advisor/Mentor Network; Marketing coalition of public and private partners and sponsors; Solicitation and Selection Plan; “demo days” at the end of the program. ***FY 2019 Plans:*** Continues efforts initiated in FY 2018 for Securing the Industrial Base (SIB) – Hack for the Defense Industrial Base (DIB) Cyber, and Manufacturing Skills Challenge. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase of $.353 reflects phasing of funding for FY 2018 continuing efforts and FY 2019 new start efforts. This increase represents realignment and reprioritization of available resources within this Program Element.			
Accomplishments/Planned Programs Subtotals	15.584	10.882	10.376

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

N/A

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607210D8Z / *Industrial Base Analysis and Sustainment Support*	**Project (Number/Name)** 819 / *Industrial Base Analysis and Sustainment*

E. Performance Metrics

Goal - Insert industrial base considerations consistently in program review:
To make informed investment and production decisions
To avoid reconstitution costs for capabilities that DoD will need again.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607210D8Z / *Industrial Base Analysis and Sustainment Support*	**Project (Number/Name)** 819 / *Industrial Base Analysis and Sustainment*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Munitions and Missiles Sector	C/Various	various : various	34.311	6.394		0.901		2.787		-		2.787	Continuing	Continuing	-
Supply Chain Vulnerabilities Mitigation	C/Various	various : various	1.300	2.912		2.838		0.757		-		0.757	Continuing	Continuing	-
Radars, Sensors, & Electronics Sector	C/Various	various : various	6.045	2.630		1.800		1.500		-		1.500	Continuing	Continuing	-
Critical Materials Sector	C/Various	various : various	2.800	-		1.800		1.750		-		1.750	Continuing	Continuing	-
		Subtotal	44.456	11.936		7.339		6.794		-		6.794	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Joint Army Navy NASA Air Force Interagency Propulsion Committee	MIPR	Arlington VA : Arlington VA	-	0.250		0.235		0.235		-		0.235	Continuing	Continuing	-
SBIR/STTR Tax Estimated Contributions/Reductions	MIPR	Various : Various	-	-		0.397		0.381		-		0.381	Continuing	Continuing	-
		Subtotal	-	0.250		0.632		0.616		-		0.616	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management - Army level support	Option/ BOA	Frontier Technology Inc : Rock Island, IL	-	1.550		1.295		1.319		-		1.319	Continuing	Continuing	-
Program Management - OSD level support	Option/ BOA	ByteCubed LLC : Alexandria VA	-	1.342		1.100		1.121		-		1.121	Continuing	Continuing	-
Program Management - Army	MIPR	RDECOM ECBC : Rock Island IS	1.256	0.506		0.516		0.526		-		0.526	Continuing	Continuing	-
		Subtotal	1.256	3.398		2.911		2.966		-		2.966	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607210D8Z / *Industrial Base Analysis and Sustainment Support*	Project (Number/Name) 819 / *Industrial Base Analysis and Sustainment*	

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	45.712	15.584		10.882		10.376		-		10.376	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607210D8Z / *Industrial Base Analysis and Sustainment Support*	Project (Number/Name) 819 / *Industrial Base Analysis and Sustainment*	

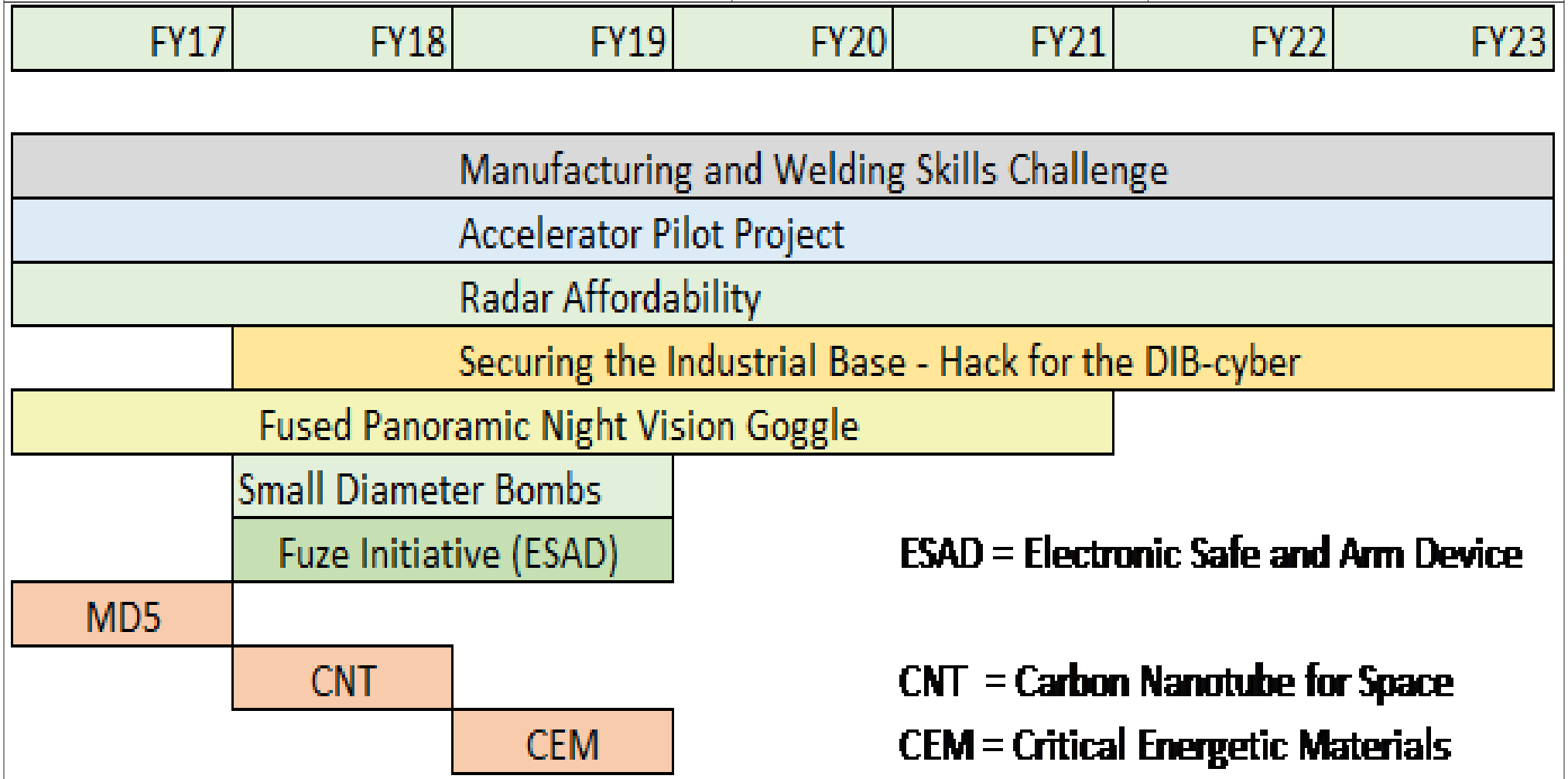

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607210D8Z / *Industrial Base Analysis and Sustainment Support*	**Project (Number/Name)** 819 / *Industrial Base Analysis and Sustainment*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
All Sectors				
Securing the Industrial Base - Hack for the Defense Industrial Base - Cyber	2	2018	4	2023
Manufacturing and Welding Skills Challenge	2	2018	4	2023
Accelerator Pilot Project	2	2017	4	2023
Radar Affordability	2	2017	4	2023
Fuzed Panoramic Night Vision Goggle	2	2017	4	2018
Small Diameter Bombs	2	2018	4	2020
Boron Carbide Ceramic Material Sourcing	2	2019	4	2021
Carbon Nanotube for Space	2	2018	4	2019
PAN Alternative to Rayon Carbon Fiber	2	2019	4	2022
Fuze Initiative	2	2017	4	2020
Solid Rocket Motor	2	2019	4	2021
Critical Energetic Materials	2	2019	4	2020

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0607310D8Z / *CWMD Systems: Operational Systems Development*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	6.553	4.035	7.222	5.915	-	5.915	8.489	8.424	8.064	8.301	Continuing	Continuing
242: *Operational System Development*	6.553	4.035	7.222	5.915	-	5.915	8.489	8.424	8.064	8.301	Continuing	Continuing

Note

The FY2019 funding request was reduced by $1.474 million to account for the availability of prior year execution balances.

A. Mission Description and Budget Item Justification

The Countering Weapons of Mass Destruction (CWMD) Systems program provides funding for research, development, integration, and deployment of CWMD capabilities. Funding is allocated to a portfolio of projects and activities in response to Combatant Command needs and research initiatives.

The CWMD Systems program is organized to develop, enhance, mature and transition technologies across the RDT&E continuum, from Advanced Technology Development through Operational Systems Development, as well as limited sustainment in unique cases. A focus area is investment in CWMD-related technologies that require additional development to transition them to mature capabilities, in response to validated, prioritized requirements. This effort fills a seam in which capability gaps are not being addressed adequately or sufficiently to meet warfighter needs. The CWMD Systems program closes gaps identified by specialized military units and leverages prior S&T investments to continue development and fielding of operational systems to those units.

The program's legacy focus on CWMD situational awareness capabilities remains a significant component of the investment portfolio. The Joint Requirements Oversight Council approved the Information Systems Initial Capabilities Document for CWMD Situational Awareness in 2015, which identifies the need for a family of systems to mitigate capability gaps identified by the Combatant Commands. U.S. Special Operations Command, which assumed CWMD mission responsibilities in January 2017 per the Unified Command Plan, is providing focus and direction for development of CWMD situational awareness capabilities. In June 2017, Deputy Commander USSOCOM requested support for development of a DoD CWMD "User Defined Operational Picture" (UDOP) that can access and share relevant WMD intelligence and operational information with DoD mission partners (Combatant Commands, U.S. Government agencies, and key allies). The CWMD Systems program funds initiatives to close CWMD situational awareness gaps by leveraging mature technologies and modifying existing systems. Existing DoD information systems, networks, and applications are utilized and/or modified using CWMD Systems funding. Development of new applications reuses software to the extent possible. The CWMD Systems program also funds technology-enabled analytical cells at the Defense Threat Reduction Agency and the Defense Intelligence Agency, which support Combatant Commands. These cells curate, synthesize, and contextualize CWMD information for end-users. This hybrid approach facilitates cross-organizational information sharing and collaboration, necessary for addressing the transregional character of WMD proliferation.

The CWMD Systems program utilizes four Research, Development, Test & Evaluation (RDT&E) program elements (BA-3 / PE#0303310D8Z, BA-5 / PE#0305310D8Z, BA-6 / PE#0306310D8Z, and BA-7 / PE#0607310D8Z), as well as an Operations and Maintenance (O&M) "CWMD Sustainment" line (PE#0901388D8Z ORC-2531).

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0607310D8Z / *CWMD Systems: Operational Systems Development*

This Program Element (PE) funds upgrades and improvements to fielded systems or system components that are designed for the CWMD mission or can be repurposed to support it. Funding is used to integrate prototypes into existing systems or modify and enhance existing systems.

This appropriation funds travel to support the requirements of this program, and work (including manpower) performed by a government agency or by private individuals or organizations under a contractual or grant arrangement with the government who conduct research, development and test and evaluation efforts.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	4.194	7.222	7.439	-	7.439
Current President's Budget	4.035	7.222	5.915	-	5.915
Total Adjustments	-0.159	0.000	-1.524	-	-1.524
• Congressional General Reductions	0.000	-			
• Congressional Directed Reductions	0.000	-			
• Congressional Rescissions	-	-			
• Congressional Adds	0.000	-			
• Congressional Directed Transfers	0.000	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• FFRDC	-0.005	-	-	-	-
• Adjustment to account for the availability of prior year execution balances	-	-	-1.474	-	-1.474
• Economic adjustments	-0.154	-	-0.050	-	-0.050

Change Summary Explanation

The FY2018 - FY2019 reductions were made to account for the availability of prior year execution balances and other economic impacts.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense											Date: February 2018	
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0607310D8Z / *CWMD Systems: Operational Systems Development*				Project (Number/Name) 242 / *Operational System Development*			
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
242: *Operational System Development*	6.553	4.035	7.222	5.915	-	5.915	8.489	8.424	8.064	8.301	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Countering Weapons of Mass Destruction (CWMD) Systems program provides funding for research, development, integration, and deployment of CWMD capabilities. Funding is allocated to a portfolio of projects and activities in response to Combatant Command needs and research initiatives.

The CWMD Systems program is organized to develop, enhance, mature and transition technologies across the RDT&E continuum, from Advanced Technology Development through Operational Systems Development, as well as limited sustainment in unique cases. A focus area is investment in CWMD-related technologies that require additional development to transition them to mature capabilities, in response to validated, prioritized requirements. This effort fills a seam in which capability gaps are not being addressed adequately or sufficiently to meet warfighter needs. The CWMD Systems program closes gaps identified by specialized military units and leverages prior S&T investments to continue development and fielding of operational systems to those units.

The program's legacy focus on CWMD situational awareness capabilities remains a significant component of the investment portfolio. The Joint Requirements Oversight Council approved the Information Systems Initial Capabilities Document for CWMD Situational Awareness in 2015, which identifies the need for a family of systems to mitigate capability gaps identified by the Combatant Commands. U.S. Special Operations Command, which assumed CWMD mission responsibilities in January 2017 per the Unified Command Plan, is providing focus and direction for development of CWMD situational awareness capabilities. In June 2017, Deputy Commander USSOCOM requested support for development of a DoD CWMD "User Defined Operational Picture" (UDOP) that can access and share relevant WMD intelligence and operational information with DoD mission partners (Combatant Commands, U.S. Government agencies, and key allies). The CWMD Systems program funds initiatives to close CWMD situational awareness gaps by leveraging mature technologies and modifying existing systems. Existing DoD information systems, networks, and applications are utilized and/or modified using CWMD Systems funding. Development of new applications reuses software to the extent possible. The CWMD Systems program also funds technology-enabled analytical cells at the Defense Threat Reduction Agency and the Defense Intelligence Agency, which support Combatant Commands. These cells curate, synthesize, and contextualize CWMD information for end-users. This hybrid approach facilitates cross-organizational information sharing and collaboration, necessary for addressing the transregional character of WMD proliferation.

The CWMD Systems program utilizes four Research, Development, Test & Evaluation (RDT&E) program elements (BA-3 / PE#0303310D8Z, BA-5 / PE#0305310D8Z, BA-6 / PE#0306310D8Z, and BA-7 / PE#0607310D8Z), as well as an Operations and Maintenance (O&M) "CWMD Sustainment" line (PE#0901388D8Z ORC-2531).

This project funds upgrades and improvements to fielded systems or system components that are designed for the CWMD mission or can be repurposed to support it. Funding is used to integrate prototypes into existing systems or modify and enhance existing systems.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607310D8Z / *CWMD Systems: Operational Systems Development*	**Project (Number/Name)** 242 / *Operational System Development*

This appropriation funds travel to support the requirements of this program, and work (including manpower) performed by a government agency or by private individuals or organizations under a contractual or grant arrangement with the government who conduct research, development and test and evaluation efforts.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: P*242: Operational Systems Development	4.035	7.222	5.915
Description: Funds upgrades and improvements to fielded systems or system components that are designed for the CWMD mission or can be repurposed to support it. Funding is used to integrate prototypes into existing systems or modify and enhance existing systems. Address the prioritized capability needs of existing information systems and other platforms to augment, upgrade and enhance core CWMD capabilities. ***FY 2018 Plans:*** • Upgrade and enhance technologies, applications, and information systems, focusing on systems in use by U.S. Special Operations Command and other Combatant Commands • Enhance or upgrade components of the DoD CWMD User-Defined Operational Picture (UDOP) in support of USSOCOM and other Combatant Commands • Enhance warfighter capability to safely and effectively collect WMD samples while conducting sensitive site exploitation (SSE) operations • Enhance capabilities of Air Force Technical Applications Center systems to support nuclear treaty monitoring and nuclear event detection ***FY 2019 Plans:*** • Upgrade and enhance technologies, applications, and information systems, focusing on systems in use by U.S. Special Operations Command and other Combatant Commands • Enhance or upgrade components of the DoD CWMD User-Defined Operational Picture (UDOP) in support of USSOCOM and other Combatant Commands • Enhance or upgrade systems or components for specialized military units requiring unique CWMD capabilities ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The FY2018 - FY2019 reductions were made to account for the availability of prior year execution balances and other economic impacts.			
Accomplishments/Planned Programs Subtotals	4.035	7.222	5.915

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607310D8Z / *CWMD Systems: Operational Systems Development*	**Project (Number/Name)** 242 / *Operational System Development*

D. Acquisition Strategy

Make improvements to fielded systems and identify how capabilities can be further improved through interoperability between fielded systems.

E. Performance Metrics

Success in this area is measured by compliance with various statutes and DoD directives that govern the conduct of the affairs within the Office of the Assistant Secretary of Defense for Nuclear, Chemical, and Biological Defense Programs (OASD/NCB). Maintain cost, schedule, and performance reporting, review, and adjudication. Maintain requirements traceability matrix.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607310D8Z / *CWMD Systems: Operational Systems Development*	**Project (Number/Name)** 242 / *Operational System Development*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Upgrade & enhance SOF technologies, applications & information systems	MIPR	AFTAC : TBD	-	-		1.806	Jan 2018	1.479	Jan 2019	-		1.479	Continuing	Continuing	-
Upgrade & enhance DoD User-Defined Operational Picture (UDOP) in support of USSOCOM & other COmbatant Commands	MIPR	USSOCOM : TBD	-	-		1.806	Feb 2018	1.477	Feb 2019	-		1.477	Continuing	Continuing	-
Enhance warfighter capability to collect WMD samples	Various	TBD : TBD	-	-		1.806	Mar 2018	1.479	Feb 2019	-		1.479	Continuing	Continuing	-
Enhance AFTAC capabilities to support nuclear treaty monitoring and nuclear event detection	MIPR	AFTAC : TBD	-	-		1.804	Jan 2018	1.480	Jan 2019	-		1.480	Continuing	Continuing	-
Upgrade fielded CWMD Systems and componenets	Various	Various : Various	6.553	4.035	Dec 2017	-		-		-		-	Continuing	Continuing	-
		Subtotal	6.553	4.035		7.222		5.915		-		5.915	Continuing	Continuing	N/A

	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	6.553	4.035		7.222		5.915		-		5.915	Continuing	Continuing	N/A

Remarks

NA

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607310D8Z / *CWMD Systems: Operational Systems Development*	**Project (Number/Name)** 242 / *Operational System Development*

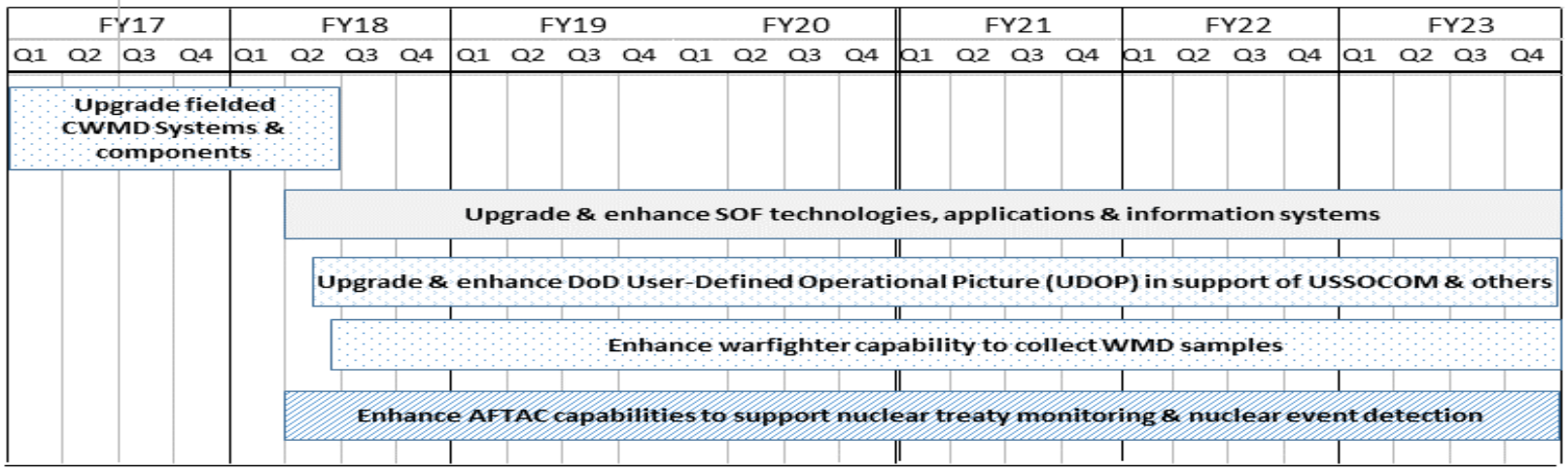

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0303140D8Z / *Information Systems Security Program*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	29.895	8.560	9.415	7.940	-	7.940	11.631	11.355	10.655	10.857	Continuing	Continuing
140: *Information Systems Security Program*	29.895	8.560	9.415	7.940	-	7.940	11.631	11.355	10.655	10.857	Continuing	Continuing

Note

The FY2019 funding request was reduced by 2.133 million to account for the availability of prior year execution balances.

A. Mission Description and Budget Item Justification

The DoD CIO Information Systems Security Program (ISSP) provides for focused research, development, testing and integration of technology and technical solutions critical to the Defense Cybersecurity and Information Assurance Program to meet the requirements of 10 USC 2224 (Defense Information Assurance Program), 44 USC 3544, (Federal Information Security Management Act of 2002), OMB Circular A-130, and DoD Directives/Instructions 8500, 8510, 8520, 8530, and 8540. This program is funded under Budget activity 7, Operational System Development because it integrates technology and technical solutions to the Defense Information Assurance Program.

ISSP RDT&E funds support the DoD CIO and its mission partners on architecting, engineering, and technical matters for developing governance processes and structures; on evolving and enabling a more integrated and synchronized Joint Information Environment that will leverage a single and converged joint enterprise IT platform; on the continued development of the U.S. Government's ability to prevent and defend against adversarial and/or commercial information and communications technology supply-chain attacks on its mission critical systems, networks, and devices; on improving oversight of the life-cycle management of cybersecurity risks; and on the integration of cybersecurity standards, methods, and procedures across the DoD for a more robust and resilient cybersecurity posture.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	8.876	9.415	9.966	-	9.966
Current President's Budget	8.560	9.415	7.940	-	7.940
Total Adjustments	-0.316	0.000	-2.026	-	-2.026
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.305	-			
• Program Adjustment	-0.011	-	0.107	-	0.107
• Other Program Adjustments	-	-	-2.133	-	-2.133

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0303140D8Z / *Information Systems Security Program*

Change Summary Explanation

FY 2017: SIBR/STTR Reduction -0.305, Program Adjustment -0.011 million.

FY 2018: No change.

FY 2019: Under Execution -2.133 million, Program Adjustment 0.107 million.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0303140D8Z / *Information Systems Security Program*	Project (Number/Name) 140 / *Information Systems Security Program*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
140: *Information Systems Security Program*	29.895	8.560	9.415	7.940	-	7.940	11.631	11.355	10.655	10.857	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The DoD CIO Information Systems Security Program (ISSP) provides for focused research, development, testing and integration of technology and technical solutions critical to the Defense Cybersecurity and Information (CS&IA) Assurance Program to meet the requirements of 10 USC 2224 (Defense Information Assurance Program), 44 USC 3544, (Federal Information Security Management Act of 2002), OMB Circular A-130, and DoD Directives/Instructions 8500, 8510, 8520, 8530, and 8540. This program is funded under Budget Activity 7, Operational System Development, because it integrates technology and technical solutions to the Defense CS&IA Program.

ISSP RDT&E funds support the DoD CIO and its mission partners: on architecting, engineering, and technical matters for developing governance processes and structures; on evolving and enabling a more integrated and synchronized Joint Information Environment (JIE) to provide the means for more integrated information sharing and collaboration that also endeavors to close identified gaps across all mission areas with a shared network of core enterprise services; on the continued development of the U.S. Government's ability to prevent and defend against adversarial and/or commercial information and communications technology supply-chain attacks on its mission critical systems, networks, and devices; on improving oversight of the life-cycle management of cybersecurity risks; and on the integration of cybersecurity standards, methods, and procedures across the DoD for a more robust and resilient cybersecurity posture.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Information Systems Security Program Plans and Accomplishments	8.560	9.415	7.940
FY 2018 Plans: • Continue to develop and provide required engineering support for critical architectures, to include the Joint Information Environment, C4I tactical networks, and for coalition and other mission partners. Continue to develop, refine, and implement a Joint Information Environment single security architecture strategy, and the related strategic metrics and enhanced analytical capabilities. • Continue to develop and implement strategies for successful defenses and operations in the event of sophisticated cyber adversaries and large-scale cyber incidents. • Continue to research to develop means of assessing and prioritizing supply-chain threats and responses, for training regarding threats and risks, and for program protection plans to address supply-chain risks, to help ensure implementation of consistent protection practices from supply chain exploitation and attack within/by individual procurements of materiel and services on which the DoD systems, networks, and missions depend..			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0303140D8Z / *Information Systems Security Program*	**Project (Number/Name)** 140 / *Information Systems Security Program*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
• Continue threat-based system-security-engineering efforts and development of critical design artifacts (threat analyses, risk analyses, system-of- system-security architectures), having demonstrated applications to space systems and mission partner environment (MPE). • Continue development and implementation of a more robust governance mechanism to minimize supply chain risks across the DoD components and activities, and to develop an overarching international standard, or an improved integrated family of existing standards, for improving supply-chain-risk-management. • Continue to develop the means for improved mission assurance, mitigation analyses, and vulnerability detection via hardware and software testing, and for acquisitions that are better integrated with informed threat prospects. • Continue to develop and publish supportive standards, guidance, and processes on the web-based Knowledge Service, for the continual reauthorization and cyber strengthening of information systems, and in satisfaction of requirements mandated by OMB Circular A-130. • Continue to support key acquisition programs-of-record (i.e., Major Automated Information Systems; Major Defense Acquisition Programs, and other special interest developmental and acquisition activities) to drive the development and implementation of more effective cybersecurity strategies, risk management plans, and processes. • Continue to develop, publish, and refine DoD mobility strategy, and processes for use of commercial Cloud providers; to develop Cloud computing security guidance that details cybersecurity guidance and procedures for use by potential commercial Cloud service providers, and continued oversight of policies and capabilities to support comprehensive cybersecurity capability for the Joint Information Environment (JIE), including the DoD Cloud and mobile device strategies and roadmaps. ***FY 2019 Plans:*** • Leverage new private sector innovations by initiating and increasing investments in the Defense Innovation Unit Experimental (DIUx), to investigate emerging capabilities in the areas of user identification, such as: system security and access based on multi-dimensional location characteristics, such as the potential for contextual location fingerprint (CLF) based on collected contextual information; multi-factor authentication methods to confirm a user's claimed identity by utilizing creative combinations multiple components that are incapable of being compromised; and to take advantage of other leading-edge capabilities to better manage the Department's user identity and access management in demanding operational environments.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0303140D8Z / *Information Systems Security Program*	**Project (Number/Name)** 140 / *Information Systems Security Program*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
• Continue the development of engineering support for critical architectures, to include the Joint Information Environment, C4I tactical networks, for coalition and other mission partners, and the single security architecture strategy (and related metrics) and enhanced analytical capabilities to develop, refine, and implement a Joint Information Environment (JIE). • Continue research to develop means of assessing and prioritizing supply-chain threats and responses; for program protection plans to address supply-chain risks, to help ensure implementation of consistent protection practices from supply chain exploitation and attack within/by individual procurements of materiel and services on which the DoD systems and networks (and missions) depend; of a more robust governance mechanism to minimize supply chain risks across the DoD components and activities; and development of an overarching international standard (or an improved integrated family of existing standards) for improving supply-chain-risk-management. • Continue threat-based system-security-engineering efforts and development of critical design artifacts (threat analyses, risk analyses, system-of- system-security architectures), having demonstrated applications to space systems and the mission partner environment (MPE). • Continue the development and implementation strategies for successful defenses and operations in the event of sophisticated cyber adversaries and large-scale cyber incidents; and development of the means for improved mission assurance, mitigation analyses, and vulnerability detection via hardware and software testing. • Continue to develop and publish supportive standards, guidance, and processes on the web-based Knowledge Service, for the continual reauthorization and cyber strengthening of information systems, and in satisfaction of requirements mandated by OMB Circular A-130. • Continue supporting key acquisition programs-of-record (i.e., Major Automated Information Systems; Major Defense Acquisition Programs, and other special interest developmental and acquisition activities) to drive the development and implementation of more effective cybersecurity strategies, risk management plans, and processes. • Continue to develop, publish, and refine DoD mobility strategy, and processes for use of commercial Cloud providers; to develop Cloud computing security guidance that details cybersecurity guidance and procedures for use by potential commercial Cloud service providers, and continued oversight of policies and capabilities to support comprehensive cybersecurity capability for the Joint Information Environment (JIE), including the DoD Cloud and mobile device strategies and roadmaps.			
FY 2018 to FY 2019 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0303140D8Z / *Information Systems Security Program*	**Project (Number/Name)** 140 / *Information Systems Security Program*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Reduced contractor support for: development of improved cybersecurity solutions; development and refinements of a Joint Information Environment Single Security Architecture; funding subject-matter-expertise on Cybersecurity Supply Chain Risk Management; support for developing program protection plans for key high-risk acquisition programs; reduced support for DoD CIO participation in the Key Management Infrastructure (KMI) Program and its applicable senior level Departmental and Services' working groups; reduced subject-matter-expertise and support for analysis of threats to the positioning, navigation, and timing enterprise; and reduced support for engagement with the intelligence community to assist development of cybersecurity intelligence collection requirements and intelligence reporting for specifically identified cyber threats.			
Accomplishments/Planned Programs Subtotals	8.560	9.415	7.940

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• 0303140D8Z O&M DW: *Information System Security Program*	16.084	10.262	9.673	-	9.673	9.789	9.996	10.159	10.352	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

- Annual FISMA metrics
- Evolving JIE cybersecurity metrics

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0303140D8Z / *Information Systems Security Program*	**Project (Number/Name)** 140 / *Information Systems Security Program*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Studies and Analysis	Option/ Various	Various : Various	0.895	0.861	Jul 2017	0.911	Jul 2018	0.968	Jul 2019	-		0.968	Continuing	Continuing	-
Technical Engineering Services	Option/ Various	Various : Various	12.000	3.970	Jul 2017	4.566	Jul 2018	2.786	Jul 2019	-		2.786	Continuing	Continuing	-
Services Support	Option/ Various	Various : Various	1.000	0.086	Jul 2017	0.090	Jul 2018	0.096	Jul 2019	-		0.096	Continuing	Continuing	-
		Subtotal	13.895	4.917		5.567		3.850		-		3.850	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	Option/ Various	Various : Various	1.000	0.173	Jul 2017	0.183	Jul 2018	0.194	Jul 2019	-		0.194	Continuing	Continuing	-
Engineering Support	Option/ Various	Various : Various	10.000	2.520	Jul 2017	2.664	Jul 2018	2.832	Jul 2019	-		2.832	Continuing	Continuing	-
Research & Development	Option/ Various	Various : Various	5.000	0.950	Jul 2017	1.001	Jul 2018	1.064	Jul 2019	-		1.064	Continuing	Continuing	-
		Subtotal	16.000	3.643		3.848		4.090		-		4.090	Continuing	Continuing	N/A

Remarks

NA

	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	29.895	8.560		9.415		7.940		-		7.940	Continuing	Continuing	N/A

Remarks

NA

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0303140D8Z / *Information Systems Security Program*	**Project (Number/Name)** 140 / *Information Systems Security Program*

R4

PE: 0303140D8Z/ Information Systems Security Program

Funding supports focused research, development, testing and integration of technology and technical solutions critical to the Defense Information Assurance Program (10 USC 2224) through pilot programs and technology demonstration; investment in high leverage, near-term programs that offer immediate Information Assurance (IA) benefit.

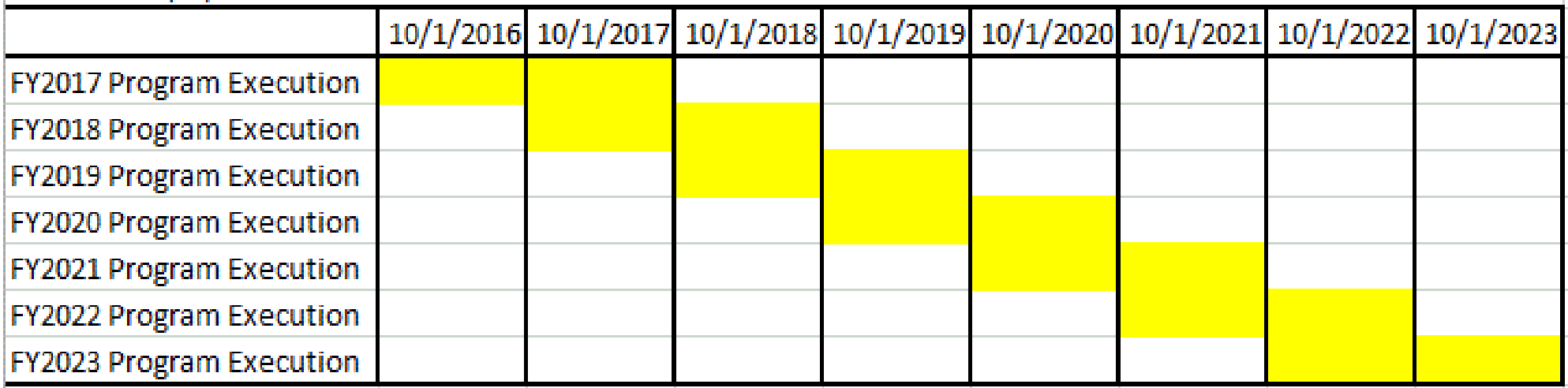

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0303140D8Z / *Information Systems Security Program*	**Project (Number/Name)** 140 / *Information Systems Security Program*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
****** SUBPROJECT TITLE ******				
FY 2018 Projected Execution	1	2018	2	2019
FY 2019 Projected Execution	1	2019	2	2020
FY 2020 Projected Execution	1	2020	2	2021
FY 2021 Projected Execution	1	2021	2	2022
FY 2022 Projected Execution	1	2022	2	2023

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0305186D8Z / *Policy R&D Programs*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	26.600	3.120	6.526	6.262	-	6.262	6.301	6.367	6.513	7.500	Continuing	Continuing
186: *Policy R&D Programs*	26.600	3.120	6.526	6.262	-	6.262	6.301	6.367	6.513	7.500	Continuing	Continuing

A. Mission Description and Budget Item Justification

Provide analysis to overcome military security challenges. Since the global environment is dynamic, research is necessary for continued understanding military structures, foreign cultures, and ethnic issues. Examines demographic data, investigates future global security challenges, provides insights to inform critical national security decisions, explores ways to build partnership capabilities to counter organizational warfare, develop foreign military infrastructure, and deny sanctuary to extremist groups. Program blends several disciplines including surveillance, operations, policy, information management, cyber policy, training and technology.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	6.204	6.526	6.262	-	6.262
Current President's Budget	3.120	6.526	6.262	-	6.262
Total Adjustments	-3.084	0.000	0.000	-	0.000
• Congressional General Reductions	-3.000	-			
• Congressional Directed Reductions	-0.004	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.080	-			
• SBIR/STTR Transfer	-	-			

Change Summary Explanation

FY 2019 reduction will be achieved through a reduction in management oversight.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0305186D8Z / *Policy R&D Programs*	Project (Number/Name) 186 / *Policy R&D Programs*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
186: *Policy R&D Programs*	26.600	3.120	6.526	6.262	-	6.262	6.301	6.367	6.513	7.500	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Provide analysis to overcome military security challenges. Since the global environment is dynamic, research is necessary for continued understanding military structures, foreign cultures, and ethnic issues. Examines demographic data, investigates future global security challenges, provides insights to inform critical national security decisions, explores ways to build partnership capabilities to counter organizational warfare, develop foreign military infrastructure, and deny sanctuary to extremist groups. Program blends several disciplines including surveillance, operations, policy, information management, cyber policy, training and technology.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Future Security Challenges	0.500	2.111	2.604

Description: Provides program management oversight and technical support to identify current and emerging future security challenges to the Department, and for international cooperation activities with Allies and international partners to confront these challenges. Anticipates exploitation of technology, including available and advanced capabilities, and work with the international commercial sector and academia concerning adversary's application of technology. Program explores processes and policy to integrate international capabilities across the spectrum of security challenges.

FY 2018 Plans:

. Perform ongoing trend analysis and develop mitigation options for addressing program risks.
• Develop opportunities to apply risk management methodologies to identified program areas.
• Working with out international partners, develop net-centric enterprise technologies to remove international sharing barriers identified with maritime information, intelligence, and data being collected by DoD and foreign governments
• Research military competition among nations in the Far and Middle East and highlight potential capabilities and policies each nation may utilize in future armed conflicts
• Continue to enhance strategies and relationships with European nations based on the exchange of information through education opportunities and existing policies
• Research and analyze particular Far and Middle East countries as it relates to their decision-making process, financial position, leadership, political dynamics, technical abilities and internal social tensions and stability.
• Continue research efforts within the Services and Combatant Commands to better analyze and demonstrate enduring counterinsurgency operational capabilities.

FY 2019 Plans:

Continue FY18 efforts with an emphasis on Defeating ISIS and Asian Maritime activities:
. Perform ongoing trend analysis and develop mitigation options for addressing program risks.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0305186D8Z / *Policy R&D Programs*	**Project (Number/Name)** 186 / *Policy R&D Programs*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
• Develop opportunities to apply risk management methodologies to identified program areas. • Working with out international partners, develop net-centric enterprise technologies to remove international sharing barriers identified with maritime information, intelligence, and data being collected by DoD and foreign governments • Research military competition among nations in the Far and Middle East and highlight potential capabilities and policies each nation may utilize in future armed conflicts • Continue to enhance strategies and relationships with European nations based on the exchange of information through education opportunities and existing policies • Research and analyze particular Far and Middle East countries as it relates to their decision-making process, financial position, leadership, political dynamics, technical abilities and internal social tensions and stability. • Continue research efforts within the Services and Combatant Commands to better analyze and demonstrate enduring counterinsurgency operational capabilities. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** The increase supports an added emphasis on developing methodologies and technologies to defeat our adversaries.			
Title: Long Term Competitions (LTC) Program	1.935	3.715	2.958
Description: Request supports the Long Term Competitions (LTC) program which is an analytical effort chartered to provide the DoD senior leadership with an understanding of key long-term developments and dynamics in specific areas of the global security environment, and to develop competitive strategies for their consideration as the Department seeks to address these long term challenges. The LTC Program will provide rigorously analyzed competitive strategy recommendations to these senior DoD leaders, and will require the support of organizations and experts outside of government to deliver the highest quality analysis, concepts and recommendations. Funding for the LTC program will be used to: bring outside experts into Task Force working groups and strategy review teams; contract studies; support wargaming and workshops; conduct analytical studies of key developments and dynamics, and their impact on the future security environment and U.S. military capabilities in that environment; and explore new approaches to addressing key analytical requirements. Assessments of the ability of future forces to achieve objectives at the campaign level. These assessments include wargaming, qualitative, and quantitative analytic methods. They will both inform and be informed by the Support for Strategic Analysis (SSA) defense planning scenarios (DPS). They will identify risk and potential trade-space among force structure, capabilities, and readiness to inform senior leader decision-making. ***FY 2018 Plans:*** Specific efforts are classified ***FY 2019 Plans:*** Specific efforts are classified ***FY 2018 to FY 2019 Increase/Decrease Statement:***			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
The decrease reflects a realignment of priorities for FY19.			
Title: Defense Planning Scenarios Activities	0.685	0.700	0.700
Description: This program is classified.			
FY 2018 Plans: Specific efforts are classified.			
FY 2019 Plans: Specific efforts are classified.			
Accomplishments/Planned Programs Subtotals	3.120	6.526	6.262

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Policy R&D Programs	Various	National Defense Univ, FFRDCs : Various	26.600	3.120		6.526		6.262		0.000		6.262	Continuing	Continuing	-
		Subtotal	26.600	3.120		6.526		6.262		0.000		6.262	Continuing	Continuing	N/A

Remarks

The Policy R&D Program provides analysis to overcome military challenges and for continued understanding of military structures, foreign cultures and ethnic issues.

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	26.600	3.120		6.526		6.262		0.000		6.262	Continuing	Continuing	N/A

Remarks

NA

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0305186D8Z / *Policy R&D Programs*	**Project (Number/Name)** 186 / *Policy R&D Programs*

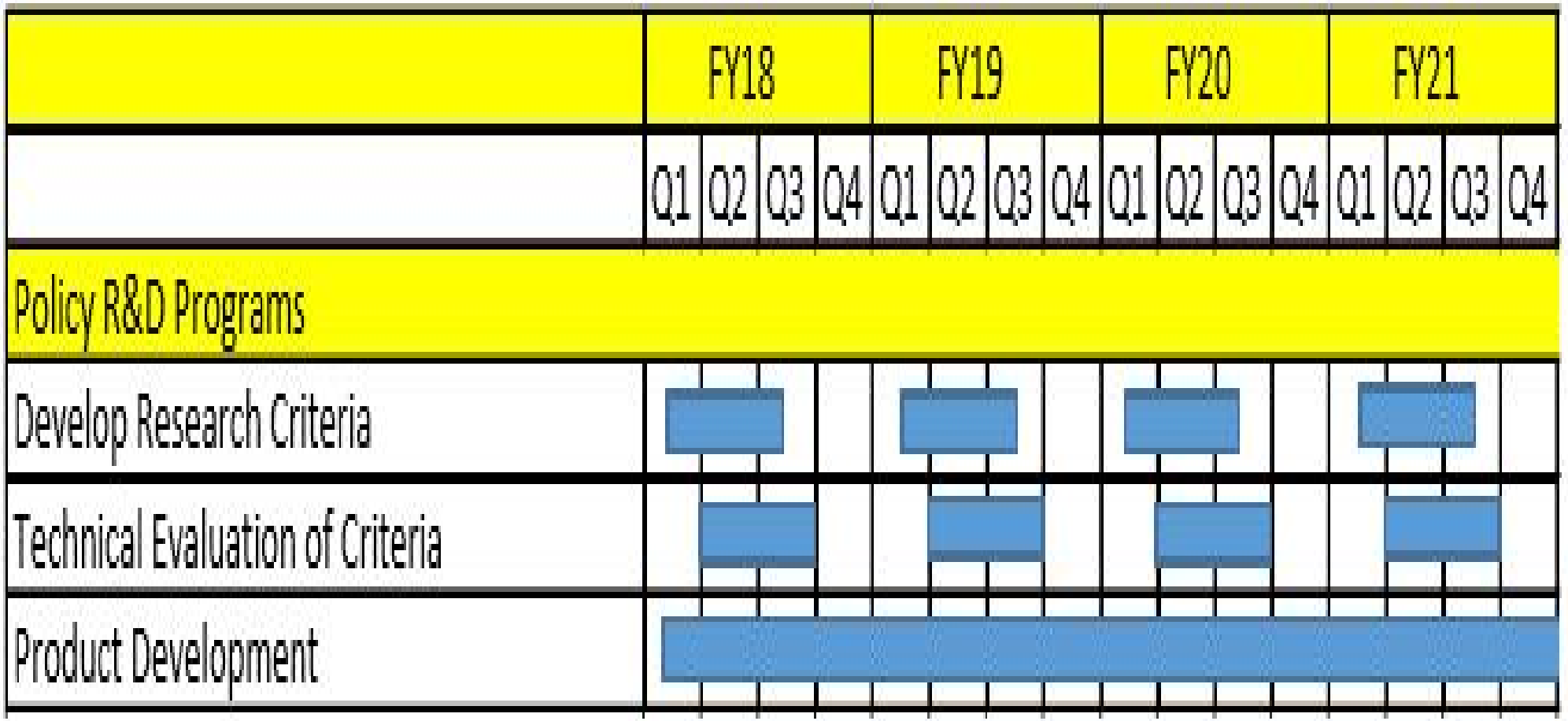

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0305186D8Z / *Policy R&D Programs*	**Project (Number/Name)** 186 / *Policy R&D Programs*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
The Policy R&D Program provides analysis to overcome military challenges and for continued understanding of military structures, foreign cultures and ethnic issues				
Policy R&D Program	1	2018	4	2023

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0305199D8Z / *Net Centricity*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	56.766	17.357	18.455	16.780	-	16.780	21.531	21.293	20.505	20.863	Continuing	Continuing
199: *GIG Evaluation Facilities (GIG-EF) and GIG Enterprise-Wide Systems Engineering Advisory Activities*	56.766	17.357	18.455	16.780	-	16.780	21.531	21.293	20.505	20.863	Continuing	Continuing

Note

The FY2019 funding request was reduced by 2.655 million to account for the availability of prior year execution balances.

A. Mission Description and Budget Item Justification

Funds will be used to provide technical analysis, systems engineering and capability management oversight of programs, projects, initiatives and activities to maximize the Department's return on investment in information technology resources and affect a comprehensive approach for assessing and procuring critical information systems from initial design, through development to capability delivery in support of improved systems performance and military operations. Emphasis is placed on the information transport, information assurance/cyber security, network and spectrum management, command and control (C2) applications, systems and services, information sharing capabilities, commercial mobile devices (CMD), applications and infrastructure, and enterprise services activities focused on the development, integration, testing and technical assessment of capabilities and applications in joint and coalition warfighter support environments. Resources support collaborative efforts to demonstrate the interoperability and performance requirements of command, control, communication, computing network, and Information Infrastructure (C4II) capabilities and programs. This program is funded under Budget Activity 7, Operational System Development.

This project provides the resources necessary to implement net centric processes and authoritative analytic methods that provide the capability to synchronize interdependent C4II capabilities across all layers (ground, air, space, maritime, cyberspace) of the joint information environment (JIE), to forecast and achieve a balance in supply and demand for network capacity, and field effective capabilities more rapidly and efficiently as an enabler for C4II capabilities applications and services. Resources are required to transform current networks and information infrastructure into an operationally unified and architecturally diverse and secure joint information environment that will provide end-to-end communications transport layer, computing networks, and mission application capabilities that are optimized and integrated with all other joint capability areas with a focus on the tactical edge faced with disconnected, intermittent, and latency (DIL) environments. There will be technical assessments, modeling and simulation, and analysis of the Joint space communications layer, Joint aerial network layer, contested communications on the move, Position Navigation and Timing (PNT), C2 mission applications, commercial mobile devices, and information sharing capabilities. These funds provide the capability for the warfighter to manage and deconflict radio frequencies through ground, air, and space communication networks. The funds will be used to develop and synchronize information assurance capabilities with other joint information environment capabilities to provide secure access to information and services (e.g. Cryptographic Modernization Management plan).
In addition, funding will continue to be used to support the Defense Information System's Agency's (DISA) and Services' interoperable improvement efforts and processes in the development of common standards and protocols. This effort includes initiating the Joint Interoperability Enhancement Process (IEP) that allows operators, engineers, and program managers to verify capabilities and identify issues in a design with Joint /Allied units prior to system fielding, or with fielded systems

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0305199D8Z / *Net Centricity*

to identify required systems changes for systems upgrade planning. DISA and the Joint Forces Combatant Command lead the effort to transform the current standards and interoperability management tools to a common set of Joint network-enabled standards to ensure adherence to the DoD Information Network (DODIN) enterprise-wide technical baseline and for implementation of future Tactical Data Link (TDL) capabilities. These joint standards, protocols, and processes will be used for implementation and testing to ensure the TDL capabilities are synchronized with the development and integration timelines of other planned network-enabled DODIN initiatives. The threats to the networking waveforms and the Joint NC migration will also be looked at in cooperation with the Intelligence agencies.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	17.971	18.455	19.549	-	19.549
Current President's Budget	17.357	18.455	16.780	-	16.780
Total Adjustments	-0.614	0.000	-2.769	-	-2.769
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.591	-			
• Program Adjustment	-0.023	-	0.195	-	0.195
• Other Adjustments	-	-	-2.655	-	-2.655
• Inflation for Non-Pay Non-Fuel Purchases	-	-	-0.309	-	-0.309

Change Summary Explanation

FY 2017: SBIR/STTR Reduction, Program Adjustment -0.023 million.

FY 2018: No change.

FY 2019: Under execution -2.655, Program Adjustment 0.195 million, Inflation for non-pay non-fuel Purchases -0.309 million.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0305199D8Z / *Net Centricity*	**Project (Number/Name)** 199 / *GIG Evaluation Facilities (GIG-EF) and GIG Enterprise-Wide Systems Engineering Advisory Activities*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
199: *GIG Evaluation Facilities (GIG-EF) and GIG Enterprise-Wide Systems Engineering Advisory Activities*	56.766	17.357	18.455	16.780	-	16.780	21.531	21.293	20.505	20.863	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Funds will be used to provide technical analysis, systems engineering and capability management oversight of programs, projects, initiatives and activities to maximize the Department's return on investment in information technology resources and affect a comprehensive approach for assessing and procuring critical information systems from initial design, through development to capability delivery in support of improved systems performance and military operations. Emphasis is placed on the information transport, information assurance/cyber security, network and spectrum management, command and control (C2) applications, systems and services, information sharing capabilities, commercial mobile devices (CMD), applications and infrastructure, and enterprise services activities focused on the development, integration, testing and technical assessment of capabilities and applications in joint and coalition warfighter support environments. Resources support collaborative efforts to demonstrate the interoperability and performance requirements of command, control, communication, computing network, and Information Infrastructure (C4II) capabilities and programs. This program is funded under Budget Activity 7, Operational System Development.

This project provides the resources necessary to implement net centric processes and authoritative analytic methods that provide the capability to synchronize interdependent C4II capabilities across all layers (ground, air, space, maritime, cyberspace) of the joint information environment (JIE), to forecast and achieve a balance in supply and demand for network capacity, and field effective capabilities more rapidly and efficiently as an enabler for C4II capabilities applications and services. Resources are required to transform current networks and information infrastructure into an operationally unified and architecturally diverse and secure joint information environment that will provide end-to-end communications transport layer, computing networks, and mission application capabilities that are optimized and integrated with all other joint capability areas with a focus on the tactical edge faced with disconnected, intermittent, and latency (DIL) environments. There will be technical assessments, modeling and simulation, and analysis of the Joint space communications layer, Joint aerial network layer, contested communications on the move, Position Navigation and Timing (PNT), C2 mission applications, commercial mobile devices, and information sharing capabilities. These funds provide the capability for the warfighter to manage and deconflict radio frequencies through ground, air, and space communication networks. The funds will be used to develop and synchronize information assurance and mission assurance capabilities with other joint information environment capabilities to provide secure access to information and services (e.g. Cryptographic Modernization Management plan).
In addition, funding will continue to be used to support the Defense Information System's Agency's (DISA) and Services' interoperable improvement efforts and processes in the development of common standards and protocols. This effort includes initiating the Joint Interoperability Enhancement Process (IEP) that allows operators, engineers, and program managers to verify capabilities and identify issues in a design with Joint /Allied units prior to system fielding, or with fielded systems to identify required systems changes for systems upgrade planning. DISA and the Joint Forces Combatant Command lead the effort to transform the current standards and interoperability management tools to a common set of Joint network-enabled standards to ensure adherence to the DoD Information Network (DODIN) enterprise-

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0305199D8Z / *Net Centricity*	**Project (Number/Name)** 199 / *GIG Evaluation Facilities (GIG-EF) and GIG Enterprise-Wide Systems Engineering Advisory Activities*

wide technical baseline and for implementation of future Tactical Data Link (TDL) capabilities. These joint standards, protocols, and processes will be used for implementation and testing to ensure the TDL capabilities are synchronized with the development and integration timelines of other planned network-enabled DODIN initiatives. The threats to the networking waveforms and the Joint NC migration will also be looked at in cooperation with the Intelligence agencies.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Net Centricity Plans and Accomplishments	17.357	18.455	16.780
FY 2018 Plans: – Continue technical assessment/refine commercial wireless policy guidance to support CMD strategy implementation; continue assessments of the effects of cybersecurity policies. – Continue to refine CMD certification processes, Mobile Application Management (MAM)/Mobile Device Management (MDM) guidelines, and guidelines for personal user based enforcement; update approved product matrix for CMD. – Continue implementation assessments to refine mobile application and device strategies. – Review/refine mobile application approval process guides, DoD Mobile PKI guides, and procedure for the Electronic Flight Bag (EFB). – Continue technical and business case analyses for Commercial mobile devices and voice encryption. – Update the Radio and Communication Security modernization plan for tactical radios. Assess Service implementation. – Continue analysis to update the CJTF Architecture to reflect Component C4II capability plans. – Continue development of interoperable Land Mobile Radio (LMR) standards to support public safety communications. – Continue analysis to of LMR policy implementation; refine procedures to support LMR implementation in the DoD. – Continue analysis of Waveform Development and Management in the DoD. – Continue analysis to maintain authoritative list of DoD-approved waveforms and supporting repository to maintain waveform baseline. – Continue technical analysis on methods for securing ISR data over wireless platforms and extended encryption of these devices, conduct implementation assessments through UAS encryption data calls. – Continue technical analysis and support for Protected, Wideband, Narrowband, and Commercial SATCOM. Assess strategy alignment. – Update SATCOM Synchronization Architectures for Protected, Wideband, Narrowband and Commercial SATCOM capabilities. – Continue compliance reviews of select programs; identify shortfalls in program bandwidth supportability planning and analysis and provide recommendations for corrective action. – Continue efforts to implement SATCOM Gateway Right-sizing approaches to optimize SATCOM gateways across the defense enterprise. – Continue technical/requirements analysis and feasibility assessments for implementing legacy narrowband solutions for MUOS payload. – Continue analysis to support implementation approaches for JIPM alternatives.			

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
– Conduct follow-on analysis in support of the Protected SATCOM AoA recommendations and preferred alternative. – Continue support for the WCS AOA. – Continue technical analysis to improve DoD utilization of Commercial SATCOM capabilities. – Conduct Airborne ISR (AISR) transport analysis of alternatives follow on analysis based on AoA recommendations and preferred alternatives. Update AISR transport reference and solution architecture artifacts to support implementation. – Continue technical analysis of Coalition C2 and MNIS, analyze Coalition C2 functional requirements, strategic policy development and capability strategies to guide Mission Partner Environment (MPE) development. – Continue technical analysis of selected joint and Service C2 programs/initiatives to promote enterprise approaches for data and services. – Continue technical analysis for the implementation of Common Mission Network Transport (CMNT) capability. – Continue technical analysis of MNIS programs and initiatives, related acquisition strategies, and functional requirements. – Continue analyses to address adoption and evolution of mission services as candidate enterprise services for the JIE. – Conduct follow-on analysis to inform implementation of the EoA recommendations for the GCCS Family of Systems. – Continue analysis of capability needs to enable command and control across the JIE. Evaluate Enterprise Operations Center architectures, and information requirements to support investment decisions in JIE C2 capabilities. – Continue analysis of requirements, capability gaps and integrated priority lists of all joint requirements for C4II capabilities to support DoD CIO engagement in the C4/Cyber Functional Capability Board. – Continue wireless architecture and advanced technologies analysis to inform Department-wide policies and implementation of mobility solutions. – Continue technical analysis to support compliance oversight of waveform policies and technical profile specifications. – Continue efforts to refine communications policies and analysis technologies applicable to commercial mobile devices. – Continue DoD Commercial Mobility implementation and systems engineering analysis Defense Mobile Unclassified and Classified Capabilities (DMUC/DMCC). – Continue analysis to support DMUC derived credentials implementation. – Continue analysis of LTE technology for DoD tactical use. – Continue technical analysis for Network Management (NM) interoperability, architecture and data artifacts. – Continue systems engineering and architecture analysis for JIE tactical processing nodes (TPNs). – Continue analysis to address implementation of TSVSIC for tactical radios. – Continue efforts to determine strengths, weaknesses, and uses of waveforms and network management capabilities; identified gaps; assesse new technologies in support of waveform and network management efforts. – Continue technical analysis to support implementation of the network management strategy and roadmap. – Continue development of data ontologies and NIEM compliant IEPDs for network management. – Continue technical analysis in support of C4II policies, plans, studies, roadmaps, and capability assessments.			

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
– Continue end-to-end analysis of the SATCOM environment; support technical evaluations of end-to-end capabilities. – Continue studies and analysis in support of the DoD CIO's Mobile Device Strategy and Mobile Device Security Efforts. – Continue Hub-Based HF Communications Concept to provide protected high rate communications needed for long range connectivity in satellite-denied environments – Continue Wideband SATCOM AoA user demand projections develop planning decks and scenario guidance with Joint Staff/J6 coordinated scenarios description paper and CAPE concurrence. – Continue oversight of Positioning, Navigation and Timing efforts and capability development through PNT Oversight Council and associated working groups. – Continue Space-Based Positioning, Navigation, and Timing (PNT) EXCOM collaboration on path forward to develop formal CPNT system requirements to support U.S. Critical Infrastructure. – Continue support for Interagency PNT efforts, including outreach, advocacy, and education. – Continue to lead development efforts of the annual Federal Radionavigation Plan (FRP). – Continue to provide secretariat support for the PNT Oversight Council, PNT Executive Management Board, and to lead associated PNT and navigation warfare working groups. – Continue to provide secretariat support to the C5 Leadership Board. – Continue PNT Trilateral MOA development (DoD, DOT, DHS) efforts. – Continue precise time dissemination Trilateral MOA (DoD, DoC, DHS) efforts. – Continue development of the roadmap for fielding Modernized GPS User equipment (MGUE). – Continue oversight and direction of efforts to develop and field resilient software assurance measures for MGUE. – Continue support for Multi-GNSS policy development. – Continue support and leadership role in NATO CaP2 efforts. – Continue to support secure voice interoperability and desires to drive planning for UHF anti-jam (SATURN) planning through NATO channels. – Continue technical analysis/studies related to the migration of current applications and services to DoD Core Data Centers and support rationalization of applications for the JIE. – Continue technical analysis to support implementation of JIE capability upgrades and technical planning. – Continue studies and analysis to progress of JIE technical implementation actions. – Continue technical analysis and studies related to SDN as an approach to network normalization and security. – Continue Joint IEP analysis for Link 16 and work on adding Variable Message Format (VMF), Link 11/22, Multifunction Advanced Data Link (MADL), and Common Data Link (CDL) through the FYDP. – Continue technical and policy assessments to enable TDL migration. – Continue efforts to finalize Joint MIL-SPEC for CDL and initiate documentation for MADL in coordination with JSF team.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
– Continue support for Allied and Coalition interoperability efforts including NATO migration plan, JSF partner interoperability, US/ Swedish MIEA, and integration of US and foreign communications and C2 systems. – Assess developing waveform technologies for improving the robustness and scalability of current TDL networks. – Continue efforts to refine and implement gateway right sizing options; evaluate RF terminal solutions and baseband equipment suites including the number and types of equipment needed to meet the future needs of the war fighter. Coordinate and facilitate Teleport Program Office oversight initiatives. – Continue analysis to evolve SATCOM networks toward EOIP modem architecture. Continue support of video dissemination and two-way GBS capabilities to inform follow on implementation across the Department. – Continue analysis for the SATCOM International Standards Committee (SISC). Participate in the development of US lead Standardized Agreements (STANAGS) and provide a technical review of other nation's STANAG's for accuracy, completeness, and feasibility. – Continue efforts to evaluate and implement acquisition strategies for U.S. support to NATO SATCOM post 2019. – Continue technical analysis and facilitate execution of the SATCOM Systems Engineering Group (SSEG). – Continue efforts to review, assess, and process DISN Tech Refresh plans for CIO approval. – Coordinate, facilitate, and record DISN Quarterly reviews to assessed progress and issues in transport and network infrastructure, unified capabilities and network management. – Continue efforts to maintain JIE Infrastructure Framework and synchronization roadmap to track infrastructure deployment or implementation. – Continue acquisition like review of JIE objectives, plans, technical approaches, schedules and cost factors to support technical reviews of JIE implementation. – Support the development of business case activities as required. – Develop guidance (e.g., information system security engineering guidance) and programming recommendations to ensure the integration of Trusted Systems Networks concepts and processes into the acquisition and maintenance of DoD information systems, enclaves, and services, including the purchase and integration of tactical communication commodities.			
FY 2019 Plans: – Continue technical assessment/refine commercial wireless policy guidance to support CMD strategy implementation; continue assessments of the effects of cybersecurity policies. – Continue to refine CMD certification processes, Mobile Application Management (MAM)/Mobile Device Management (MDM) guidelines, and guidelines for personal user based enforcement; update approved product matrix for CMD. – Continue implementation assessments to refine mobile application and device strategies. – Review/refine mobile application approval process guides, DoD Mobile PKI guides, and procedure for the Electronic Flight Bag (EFB).			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
– Continue technical and business case analyses for Commercial mobile devices and voice encryption. – Update the Radio and Communication Security modernization plan for tactical radios. Assess Service implementation. – Continue analysis to update the CJTF Architecture to reflect Component C4II capability plans. – Continue development of interoperable Land Mobile Radio (LMR) standards to support public safety communications. – Continue analysis to of LMR policy implementation; refine procedures to support LMR implementation in the DoD. – Continue analysis of Waveform Development and Management in the DoD. – Continue analysis to maintain authoritative list of DoD-approved waveforms and supporting repository to maintain waveform baseline. – Continue technical analysis on methods for securing ISR data over wireless platforms and extended encryption of these devices, conduct implementation assessments through UAS encryption data calls. – Continue technical analysis and support for Protected, Wideband, Narrowband, and Commercial SATCOM. Assess strategy alignment. – Update SATCOM Synchronization Architectures for Protected, Wideband, Narrowband and Commercial SATCOM capabilities. – Continue compliance reviews of select programs; identify shortfalls in program bandwidth supportability planning and analysis and provide recommendations for corrective action. – Continue efforts to implement SATCOM Gateway Right-sizing approaches to optimize SATCOM gateways across the defense enterprise. – Continue technical/requirements analysis and feasibility assessments for implementing legacy narrowband solutions for MUOS payload. – Continue analysis to support implementation approaches for JIPM alternatives. – Conduct follow-on analysis in support of the Protected SATCOM AoA recommendations and preferred alternative. – Continue support for the WCS AOA and follow-on analysis. – Continue technical analysis to improve DoD utilization of Commercial SATCOM capabilities. – Conduct Airborne ISR (AISR) transport analysis of alternatives follow on analysis based on AoA recommendations and preferred alternatives. Update AISR transport reference and solution architecture artifacts to support implementation. – Continue technical analysis of Coalition C2 and MNIS, analyze Coalition C2 functional requirements, strategic policy development and capability strategies to guide Mission Partner Environment (MPE) development. – Continue technical analysis of selected joint and Service C2 programs/initiatives to promote enterprise approaches for data and services. – Continue technical analysis for the implementation of Common Mission Network Transport (CMNT) capability. – Continue technical analysis of MNIS programs and initiatives, related acquisition strategies, and functional requirements. – Continue analyses to address adoption and evolution of mission services as candidate enterprise services for the JIE. – Conduct follow-on analysis to inform implementation of the EoA recommendations for the GCCS Family of Systems.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
– Continue analysis of capability needs to enable command and control across the JIE. Evaluate Enterprise Operations Center architectures, and information requirements to support investment decisions in JIE C2 capabilities. – Continue analysis of requirements, capability gaps and integrated priority lists of all joint requirements for C4II capabilities to support DoD CIO engagement in the C4/Cyber Functional Capability Board. – Continue wireless architecture and advanced technologies analysis to inform Department-wide policies and implementation of mobility solutions. – Continue technical analysis to support compliance oversight of waveform policies and technical profile specifications. – Continue efforts to refine communications policies and analysis technologies applicable to commercial mobile devices. – Continue DoD Commercial Mobility implementation and systems engineering analysis Defense Mobile Unclassified and Classified Capabilities (DMUC/DMCC). – Continue analysis to support DMUC derived credentials implementation. – Continue analysis of LTE technology for DoD tactical use. – Continue technical analysis for Network Management (NM) interoperability, architecture and data artifacts. – Continue systems engineering and architecture analysis for JIE tactical processing nodes (TPNs). – Continue analysis to address implementation of TSVSIC for tactical radios. – Continue efforts to determine strengths, weaknesses, and uses of waveforms and network management capabilities; identified gaps; assesse new technologies in support of waveform and network management efforts. – Continue technical analysis to support implementation of the network management strategy and roadmap. – Continue development of data ontologies and NIEM compliant IEPDs for network management. – Continue technical analysis in support of C4II policies, plans, studies, roadmaps, and capability assessments. – Continue end-to-end analysis of the SATCOM environment; support technical evaluations of end-to-end capabilities. – Continue studies and analysis in support of the DoD CIO's Mobile Device Strategy and Mobile Device Security Efforts. – Continue Hub-Based HF Communications Concept to provide protected high rate communications needed for long range connectivity in satellite-denied environments – Continue Wideband SATCOM AoA user demand projections develop planning decks and scenario guidance with Joint Staff/J6 coordinated scenarios description paper and CAPE concurrence. – Continue oversight of Positioning, Navigation and Timing efforts and capability development through PNT Oversight Council and associated working groups. – Continue Space-Based Positioning, Navigation, and Timing (PNT) EXCOM collaboration on path forward to develop formal CPNT system requirements to support U.S. Critical Infrastructure. – Continue support for Interagency PNT efforts, including outreach, advocacy, and education. – Continue to lead development efforts of the annual Federal Radionavigation Plan (FRP).			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0305199D8Z / *Net Centricity*	**Project (Number/Name)** 199 / *GIG Evaluation Facilities (GIG-EF) and GIG Enterprise-Wide Systems Engineering Advisory Activities*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
– Continue to provide secretariat support for the PNT Oversight Council, PNT Executive Management Board, and to lead associated PNT and navigation warfare working groups. – Continue to provide secretariat support to the C5 Leadership Board. – Continue PNT Trilateral MOA development (DoD, DOT, DHS) efforts. – Continue precise time dissemination Trilateral MOA (DoD, DoC, DHS) efforts. – Continue development of the roadmap for fielding Modernized GPS User equipment (MGUE). – Continue oversight and direction of efforts to develop and field resilient software assurance measures for MGUE. – Continue support for Multi-GNSS policy development. – Continue support and leadership role in NATO CaP2 efforts. – Continue to support secure voice interoperability and desires to drive planning for UHF anti-jam (SATURN) planning through NATO channels. – Continue technical analysis/studies related to the migration of current applications and services to DoD Core Data Centers and support rationalization of applications for the JIE. – Continue technical analysis to support implementation of JIE capability upgrades and technical planning. – Continue studies and analysis to progress of JIE technical implementation actions. – Continue technical analysis and studies related to SDN as an approach to network normalization and security. – Continue Joint IEP analysis for Link 16 and work on adding Variable Message Format (VMF), Link 11/22, Multifunction Advanced Data Link (MADL), and Common Data Link (CDL) through the FYDP. – Continue technical and policy assessments to enable TDL migration. – Continue efforts to finalize Joint MIL-SPEC for CDL and initiate documentation for MADL in coordination with JSF team. – Continue support for Allied and Coalition interoperability efforts including NATO migration plan, JSF partner interoperability, US/Swedish MIEA, and integration of US and foreign communications and C2 systems. – Assess developing waveform technologies for improving the robustness and scalability of current TDL networks. – Continue efforts to refine and implement gateway right sizing options; evaluate RF terminal solutions and baseband equipment suites including the number and types of equipment needed to meet the future needs of the war fighter. Coordinate and facilitate Teleport Program Office oversight initiatives. – Continue analysis to evolve SATCOM networks toward EOIP modem architecture. Continue support of video dissemination and two-way GBS capabilities to inform follow on implementation across the Department. – Continue analysis for the SATCOM International Standards Committee (SISC). Participate in the development of US lead Standardized Agreements (STANAGS) and provide a technical review of other nation's STANAG's for accuracy, completeness, and feasibility. – Continue efforts to evaluate and implement acquisition strategies for U.S. support to NATO SATCOM post 2019. – Continue technical analysis and facilitate execution of the SATCOM Systems Engineering Group (SSEG).			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0305199D8Z / *Net Centricity*	**Project (Number/Name)** 199 / *GIG Evaluation Facilities (GIG-EF) and GIG Enterprise-Wide Systems Engineering Advisory Activities*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
– Continue efforts to review, assess, and process DISN Tech Refresh plans for CIO approval. – Coordinate, facilitate, and record DISN Quarterly reviews to assessed progress and issues in transport and network infrastructure, unified capabilities and network management. – Continue efforts to maintain JIE Infrastructure Framework and synchronization roadmap to track infrastructure deployment or implementation. – Continue acquisition like review of JIE objectives, plans, technical approaches, schedules and cost factors to support technical reviews of JIE implementation. – Support the development of business case activities as required. Develop guidance (e.g., information system security engineering guidance) and programming recommendations to ensure the integration of Trusted Systems Networks concepts and processes into the acquisition and maintenance of DoD information systems, enclaves, and services, including the purchase and integration of tactical communication commodities. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Decrease contractor support to waveform development and management tasks directed at enhancing DOD re-use and portability of waveforms for Service and Coalition communications networks, to include classified mobility solutions for Command and Control in the tactical environment.			
Accomplishments/Planned Programs Subtotals	17.357	18.455	16.780

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

– PPBE related issue development and approval
– Successful technical development and analysis of the CIO and DCIO C4IIC portfolio of programs and activities
– Develop comprehensive risk assessment and mitigation approaches of the CIO and DCIO C4IIC portfolio of programs and activities

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0305199D8Z / *Net Centricity*	**Project (Number/Name)** 199 / *GIG Evaluation Facilities (GIG-EF) and GIG Enterprise-Wide Systems Engineering Advisory Activities*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Studies and Analysis	Various	Various : Various	3.126	0.992	Jul 2017	1.049	Jul 2018	1.115	Jul 2019	-		1.115	Continuing	Continuing	Continuing
Technical Engineering Services	Various	Various : Various	35.551	10.344	Jul 2017	11.041	Jul 2018	8.702	Jul 2019	-		8.702	Continuing	Continuing	Continuing
		Subtotal	38.677	11.336		12.090		9.817		-		9.817	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	Various	Various : Various	11.280	3.397	Jul 2017	3.629	Jul 2018	4.078	Jul 2019	-		4.078	Continuing	Continuing	Continuing
Program Support	FFRDC	Various : Various	0.272	0.386	Jul 2017	0.391	Jul 2018	0.397	Jul 2019	-		0.397	Continuing	Continuing	Continuing
Engineering Support	FFRDC	Various : Various	0.510	0.373	Jul 2017	0.373	Jul 2018	0.392	Jul 2019	-		0.392	Continuing	Continuing	Continuing
R&D Support	Various	Various : Various	6.027	1.865	Jul 2017	1.972	Jul 2018	2.096	Jul 2019	-		2.096	Continuing	Continuing	Continuing
		Subtotal	18.089	6.021		6.365		6.963		-		6.963	Continuing	Continuing	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	56.766	17.357		18.455		16.780		-		16.780	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0305199D8Z / *Net Centricity*	**Project (Number/Name)** 199 / *GIG Evaluation Facilities (GIG-EF) and GIG Enterprise-Wide Systems Engineering Advisory Activities*

R4

PE 0305199D8Z/ Net Centricity

SATCOM, JIE, NC3 and Related Engineering Analysis

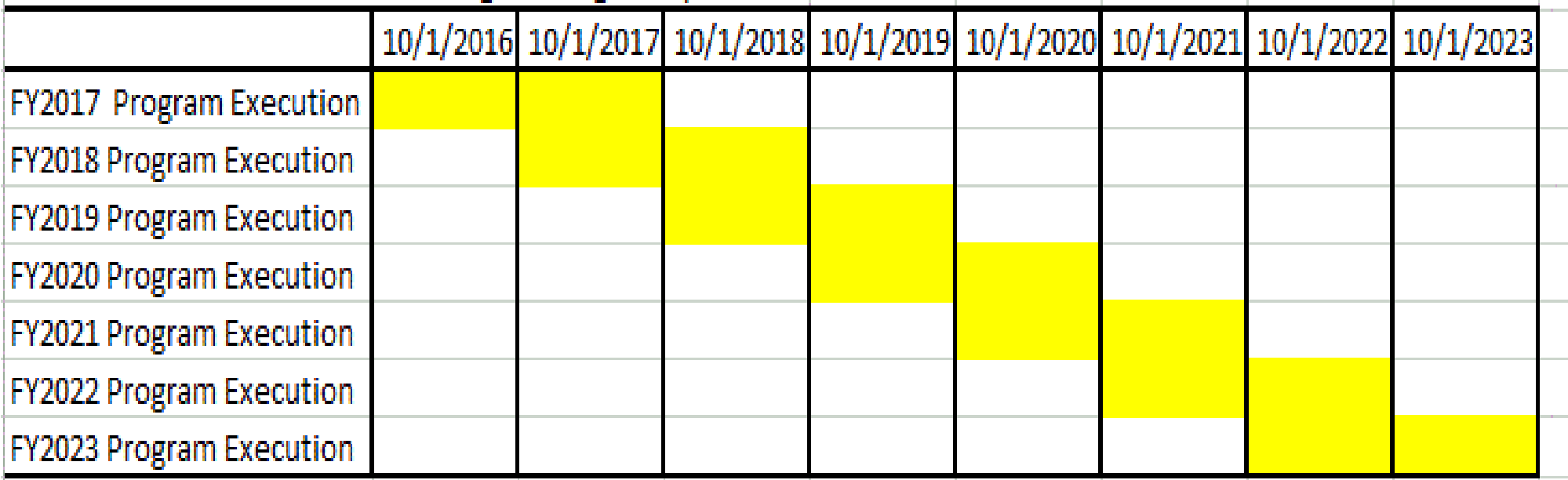

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0305199D8Z / *Net Centricity*	**Project (Number/Name)** 199 / *GIG Evaluation Facilities (GIG-EF) and GIG Enterprise-Wide Systems Engineering Advisory Activities*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
****** SUBPROJECT TITLE ******				
FY 2018 Projected Execution	1	2018	2	2019
FY 2019 Projected Execution	1	2019	2	2020
FY 2020 Projected Execution	1	2020	2	2021
FY 2021 Projected Execution	1	2021	2	2022
FY 2022 Projected Execution	1	2022	2	2023

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0305387D8Z / *Homeland Defense Technology Transfer Program*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	11.300	7.052	2.071	2.198	0.000	2.198	2.221	2.273	2.375	2.374	Continuing	Continuing
387: *Homeland Defense Technology Transfer Program*	11.300	7.052	2.071	2.198	0.000	2.198	2.221	2.273	2.375	2.374	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In conjunction with Congressionally directed (Sec. 1401, P.L. 107-314) Homeland Defense Technology Transfer program, ensures a successful and balanced transfer of dual-use technology equipment and information to first responders without impeding military readiness. Accelerates dual-use tech transfer to first responders, increases effectiveness of equipment transfers to first responders, and transfers technology through a transitional effort that has dual utility to improve homeland security and enhance public safety without degrading military readiness. Meets the Congressional intent of Sec 1401, FY 2003 National Defense Authorization Act (P.L. 107-314).

A. Mission Description and Budget Item Justification

Continues Congressionally directed (Sec. 1401, P.L. 107-314) Technology Transfer Program to consolidate and coordinate various military endeavors that pass technology and equipment to first responders. Works with a variety of DoD activities, interagency partners, and first responder organizations to ensure that dual-use military technology is expedited into the commercial sector for use by law enforcement, fire, and emergency medical service personnel. Works with the Military Departments and Defense Logistics Agency to ensure that appropriate excess military equipment is made available to the first responder community on an expedited basis. Fulfills Congressional intent to help improve public safety and enhance public security.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	2.052	2.071	2.198	-	2.198
Current President's Budget	7.052	2.071	2.198	-	2.198
Total Adjustments	5.000	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	5.000	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

Change Summary Explanation

FY 2018 change reflects increase in support costs.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0305387D8Z / *Homeland Defense Technology Transfer Program*

C. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Title: Homeland Defense Technology Transfer Program	7.052	2.071	2.198	0.000	2.198
Description: Provided outreach through coordination and cooperation with inter-agency partners to provide dual-use technology and equipment to first responders. Ensured DoD components conducted Technology Transfer programs that are appropriate for the respective component. Provided information to stakeholders on equipment and technology use and availability. ***FY 2018 Plans:*** - Continue to implement efficiencies. - Use a consortium of subject matter experts/governance councils to prioritize technology transfer requirements and expedite DoD dual-use technologies. - Continue program outreach activities and prioritize outreach to reflect efficiencies. - Enhance and expedite excess equipment transfer capabilities from service level divestiture efforts and overseas contingency operations. ***FY 2019 Base Plans:*** - Use a consortium of subject matter experts/governance councils to prioritize technology transfer requirements and expedite DoD dual-use technologies. - Continue program outreach activities and prioritize outreach to reflect efficiencies. - Enhance and expedite excess equipment transfer capabilities from service level divestiture efforts and overseas contingency operations. ***FY 2019 OCO Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** FY 2019 adjustment made to support slighter higher projected costs.					
Accomplishments/Planned Programs Subtotals	7.052	2.071	2.198	0.000	2.198

D. Other Program Funding Summary ($ in Millions)

N/A

Remarks

E. Acquisition Strategy

N/A

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0305387D8Z *I Homeland Defense Technology Transfer Program*

F. Performance Metrics

As stated.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0305387D8Z / *Homeland Defense Technology Transfer Program*	**Project (Number/Name)** 387 / *Homeland Defense Technology Transfer Program*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Homeland Defense Transfer of Dual-use Technology Equipment	MIPR	Navy Commands : SPAWAR, NSWC, ONR	11.300	7.052		2.071		2.198		0.000		2.198	Continuing	Continuing	-
		Subtotal	11.300	7.052		2.071		2.198		0.000		2.198	Continuing	Continuing	N/A

Remarks

N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	11.300	7.052		2.071		2.198		0.000		2.198	Continuing	Continuing	N/A

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0305387D8Z / *Homeland Defense Technology Transfer Program*	**Project (Number/Name)** 387 / *Homeland Defense Technology Transfer Program*

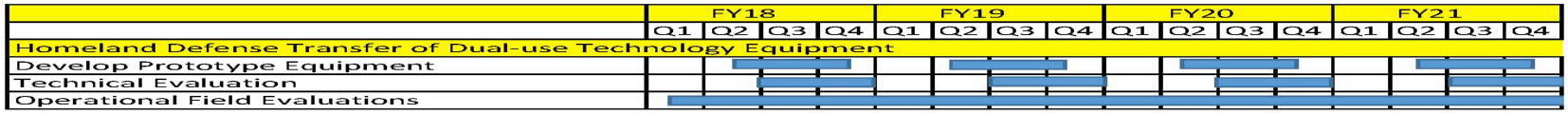

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0305387D8Z / *Homeland Defense Technology Transfer Program*	**Project (Number/Name)** 387 / *Homeland Defense Technology Transfer Program*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Technology Transfer				
Homeland Defense Transfer of Dual-use Technology Equipment	1	2018	4	2023

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Office of the Secretary Of Defense	Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0307577D8Z / *Intelligence Mission Data (IMD)*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	0.000	13.485	13.111	6.889	-	6.889	7.002	6.891	6.189	6.178	Continuing	Continuing
715: *Intelligence Mission Data*	0.000	13.485	13.111	6.889	-	6.889	7.002	6.891	6.189	6.178	Continuing	Continuing

A. Mission Description and Budget Item Justification

IMD project supports the Department's governance process for balancing IMD supply and demand and addressing how to modernize IMD generation. In order to support weapons systems with intelligence data, we need to improve the modeling, simulation and assessment process for weapon systems prior to material solutions to better understand investment needs for both platforms and intelligence data. IMD is all source intelligence derived data necessary to do the following for weapon systems: to identify and counter constantly improving threat weapons and radar systems; optimize sensor design and validate sensor functionality; and support system test, evaluation and deployment. Modern weapon systems are reliant upon increasingly voluminous and precise IMD to meet performance requirements. This demand signal for mission support data is increasing due to requirements for both analyst-evaluated, precise data and machine-processed data to be used by weapons and control systems with increasing autonomy. This increasing requirement is highlighting the need to have a big data/data autonomy environment to support advanced weapon systems. In order for the community to meet modern weapons system requirements, there needs to be a measured shift with balance and attention paid to legacy and new capability needs. There are unacceptable gaps, compounded by non-assessed program office needs and requirements that may not be obtainable; therefore, balancing supply and demand is urgently needed.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	13.800	13.111	12.944	-	12.944
Current President's Budget	13.485	13.111	6.889	-	6.889
Total Adjustments	-0.315	0.000	-6.055	-	-6.055
• Congressional General Reductions	-0.015	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.300	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-	-	-6.055	-	-6.055

Change Summary Explanation

Transfer $6M per year to O&M from RDT&E in order to continue implementation (people) and sustainment of tools for the Annual Priorities and Risk Management Framework process, provide funding to assist with Intelligence Mission Data (IMD) data flow (existing systems upgrades and maintenance), and support personnel in the Office of the Under Secretary of the Defense Intelligence (OUSD(I) to work Intelligence Support to Acquisition issues.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0307577D8Z / *Intelligence Mission Data (IMD)*	Project (Number/Name) 715 / *Intelligence Mission Data*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
715: *Intelligence Mission Data*	0.000	13.485	13.111	6.889	-	6.889	7.002	6.891	6.189	6.178	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

IMD project supports the Department's governance process for balancing IMD supply and demand and addressing how to modernize IMD generation. In order to support weapons systems with intelligence data we need to improve the modeling, simulation and assessment process for weapon systems prior to material solutions to better understand investment needs for both platforms and intelligence data. IMD is all source intelligence derived data necessary to do the following for weapon systems: to identify and counter constantly improving threat weapons and radar systems; optimize sensor design and validate sensor functionality; and support system test, evaluation and deployment. Modern weapon systems are reliant upon increasingly voluminous and precise IMD to meet performance requirements. This demand signal for mission support data is increasing due to requirements for both analyst-evaluated, precise data and machine-processed data to be used by weapons and control systems with increasing autonomy. This increasing requirement is highlighting the need to have a big data/data autonomy environment to support advanced weapon systems. In order for the community to meet modern weapons system requirements, there needs to be a measured shift with balance and attention paid to legacy and new capability needs. There are unacceptable gaps, compounded by non-assessed program office needs and requirements that may not be obtainable; therefore, balancing supply and demand is urgently needed.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Intelligence Mission Data	13.485	13.111	6.889
Description: The IMD project supports the Department's governance process for balancing IMD supply and demand and addressing how to modernize IMD generation. Modern weapon systems are reliant upon increasingly voluminous and precise IMD to meet performance requirements, causing IMD shortfalls. The Department resolved to correct IMD problems by chartering a temporary task force. The AIRTF has continued to enforce discipline, bridge long standing policy, cultural and financial divides among these three communities, and seeks innovative approaches to solutions.			
FY 2018 Plans: - Will evaluate, with Department's outreach element to industry, on state of the art automation tools, big data options, and data autonomy environments to directly connect nodal IMD users with data suppliers. - Will develop data algorithms and models for use by the Intelligence Community and operational forces on weapon systems and platform sensors to collect, generate, and utilize IMD autonomously. - Will continue the development and evaluation of a holistic IMD architecture supporting the Department's Third Offset effort and 5th Generation warfighting concepts. - Will modernize the current architecture to increase efficiency for IMD reprogrammers to access, analyze, and produce mission data files for operational forces to support legacy and future machine-centric production.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0307577D8Z / *Intelligence Mission Data (IMD)*	**Project (Number/Name)** 715 / *Intelligence Mission Data*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- Will build better program plans for IMD demands by integrating full scale Cost vs. Capability Analysis (CCA) with blue and red modeling and simulation modules to form a force-on-force campaign analysis capability to focus and prioritize IMD demands. - Will increase efficiency and production balance for IMD supply by continuing the enterprise-wide dashboard tool to monitor IMD supply, demand, and workflow management. - Will improve enterprise-wide access to IMD sources by continuing data and database standardization, increase data discoverability, and user access. ***FY 2019 Plans:*** The R&D funds will support continued efforts with the Joint Simulation Environment to determine IMD sufficiency, standardization, prototyping and development of new systems (automation) which will be utilized to better support 5th Gen Weapon systems. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Transfer $6M per year from RDT&E to O&M in order to continue implementation (people) and sustainment of tools for the Annual Priorities and Risk Management Framework process, provide funding to assist with IMD data flow (existing systems upgrades and maintenance), and support personnel in OUSD(I) to work Intelligence Support to Acquisition issues.			
Accomplishments/Planned Programs Subtotals	13.485	13.111	6.889

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• 0307577D8Z: *Intelligence Mission Data*	1.041	0.938	5.778	-	5.778	5.856	5.940	6.023	6.110	Continuing	Continuing

Remarks

D. Acquisition Strategy

The acquisition, management, and contracting strategy involves the following:
• Adhere to guidance outlined in the DoD 5000, Directive 7, Federal Acquisition Regulations (FAR), and FAR Supplement Policies and Procedures.
• Acquire and sustain IMD capabilities, systems, tools, products, and services through a disciplined, yet agile, process that ensures information related capabilities are available for DoD components.
• Sustain an acquisition process that is responsive and responsible to internal and external customers and stakeholders.
• Support advanced weapons programs need for intelligence at the earliest point in the acquisition of the program.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0307577D8Z / *Intelligence Mission Data (IMD)*	**Project (Number/Name)** 715 / *Intelligence Mission Data*

E. Performance Metrics

Performance metrics are used to assess the progress toward integrating intelligence mission data into the acquisition cycle. The following metrics focus on the return on investment of RDTE and O&M activities and assess the degree to meeting mission goals:

- Measure percent of funds that are used to improve advanced weapons platforms intelligence integration. Goal is 100%.
- Measure percent of identified advanced weapons systems platforms that have a minimum baseline for IMD requirements and production. Goal is 100%.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0307577D8Z / *Intelligence Mission Data (IMD)*	**Project (Number/Name)** 715 / *Intelligence Mission Data*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Cost Capability analysis (CCA) with Force-on-Force Campaign Analysis (FCA)	Option/ Various	Various : Various	-	1.518		0.630		0.892		-		0.892	Continuing	Continuing	Continuing
Subcategory: Joint Simulation Environment (JSE) IMD Quality Program	C/ FFPLOE	Navy (NAWCAD) and Air Force (SIMAF) : Pax River, MD and WPAFB, OH	-	1.410		0.900		-		-		-	0.000	2.310	2.310
Subcategory: IMD Tools for Signals Generation	C/ FFPLOE	Navy (NAWCAD) : PAX River, MD	-	2.000		-		-		-		-	0.000	2.000	2.000
Enterprise-wide Source Data Access	Various	Various : Various	-	1.335		-		2.350		-		2.350	0.000	3.685	3.685
Subcategory: IMD System Support for 5th Gen Weapon Autonomy	C/FFP	Army (ACC-New Jersey) : Picatinny Arsenal, NJ	-	1.110		-		-		-		-	0.000	1.110	1.110
Intelligence Mission Data (IMD) Automation	Various	Various : Various	-	0.257		1.007		-		-		-	0.000	1.264	1.264
Subcategory: Emitter Intercept Model (EIM) for Intelligence Mission Data (IMD) to the Cockpit	C/CPAF	NSAC/FCB : Denver, CO	-	1.815		0.800		-		-		-	0.000	2.615	2.615
Subcategory: IMD OEM Automated Workflow	C/TBD	TBD : TBD	-	-		3.000		1.200		-		1.200	Continuing	Continuing	Continuing
Subcategory: Algorithmic EW	C/TBD	TBD : TBD	-	-		2.026		1.647		-		1.647	0.000	3.673	Continuing
Subcategory: Intercept Transition Logic Map Algorithm Generation	C/TBD	NASIC/GXS : WPAFB, OH	-	2.035		-		-		-		-	0.000	2.035	2.035
		Subtotal	-	11.480		8.363		6.089		-		6.089	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0307577D8Z / *Intelligence Mission Data (IMD)*	Project (Number/Name) 715 / *Intelligence Mission Data*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Other	Various	Various : Various	-	-		0.900		-		-		-	0.000	0.900	0.900
Subcategory: AIRVIEW	SS/FFP	WHS/AD : Arlington, VA	-	-		1.615	Nov 2017	-		-		-	0.000	1.615	1.615
		Subtotal	-	-		2.515		-		-		-	0.000	2.515	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Cost Capability analysis (CCA) with Force-on-Force Campaign Analysis (FCA)	C/Various	Various : Various	-	-		0.451		0.800		-		0.800	0.000	1.251	1.251
Subcategory: Fusion Test Bed Red Model Support	Various	GSA : Great Lakes, MI and Fairborn, OH	-	1.307	Nov 2017	-		-		-		-	0.000	1.307	1.307
		Subtotal	-	1.307		0.451		0.800		-		0.800	0.000	2.558	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Cost Capability Analysis	FFRDC	AFLCMC/AZS : Hanscom AFB	-	0.306	Aug 2017	1.432		-		-		-	0.000	1.738	1.738
Other	Various	Various : Various	-	0.392		-		-		-		-	0.000	0.392	0.392
Intelligence Mission Data (IMD) Automation	TBD	TBD : TBD	-	-		0.350		-		-		-	0.000	0.350	0.350
		Subtotal	-	0.698		1.782		-		-		-	0.000	2.480	N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	13.485		13.111		6.889		-		6.889	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense			Date: February 2018
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0307577D8Z / *Intelligence Mission Data (IMD)*	Project (Number/Name) 715 / *Intelligence Mission Data*	

	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0307577D8Z / *Intelligence Mission Data (IMD)*	**Project (Number/Name)** 715 / *Intelligence Mission Data*

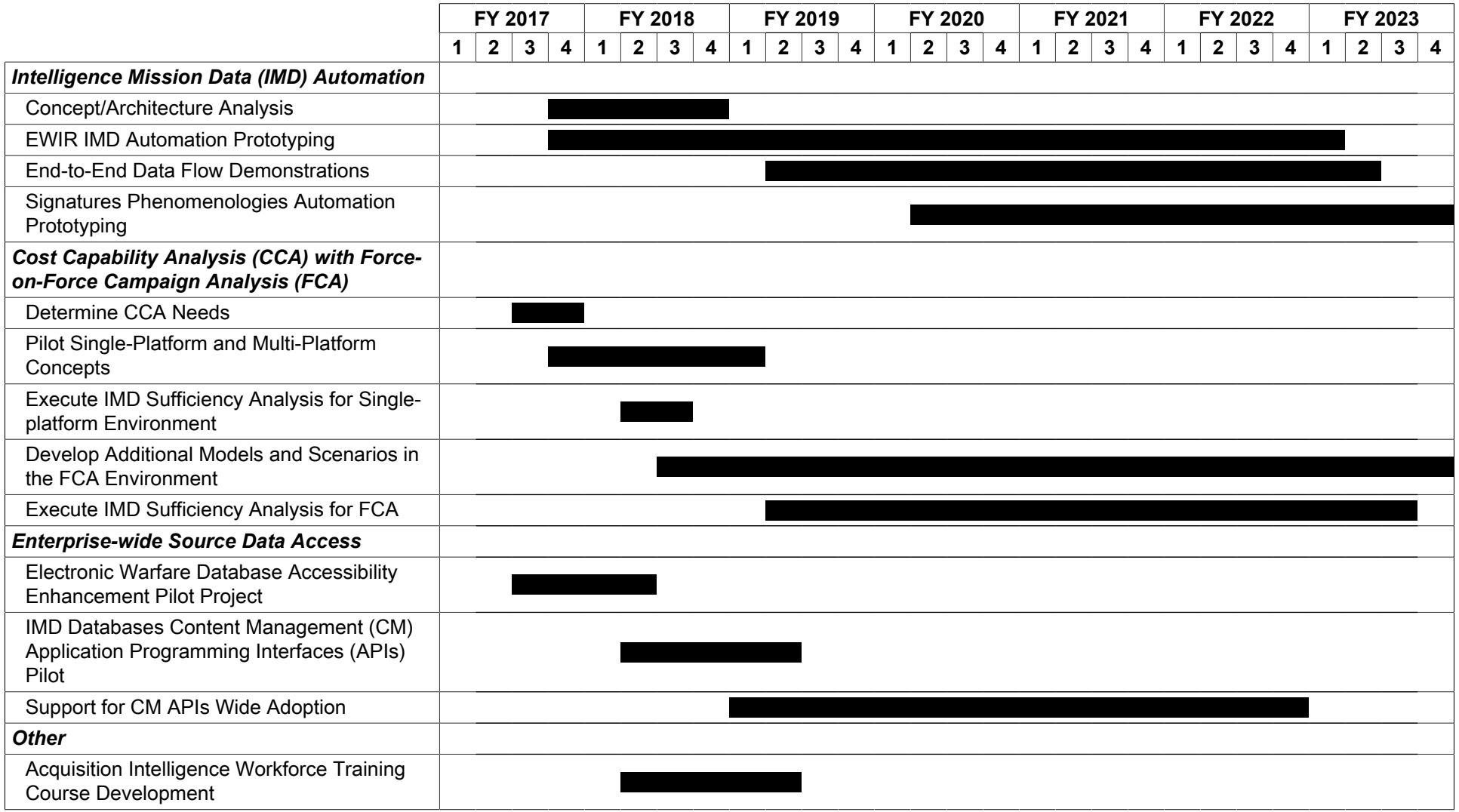

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0307577D8Z / *Intelligence Mission Data (IMD)*	**Project (Number/Name)** 715 / *Intelligence Mission Data*

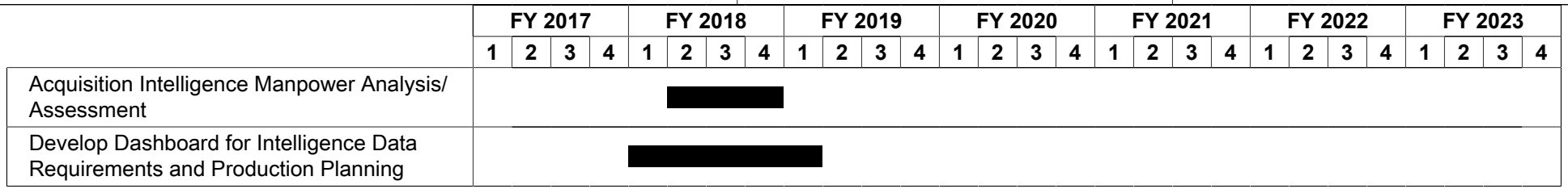

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Office of the Secretary Of Defense		Date: February 2018
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0307577D8Z / *Intelligence Mission Data (IMD)*	**Project (Number/Name)** 715 / *Intelligence Mission Data*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Intelligence Mission Data (IMD) Automation				
Concept/Architecture Analysis	4	2017	4	2018
EWIR IMD Automation Prototyping	4	2017	1	2023
End-to-End Data Flow Demonstrations	2	2019	2	2023
Signatures Phenomenologies Automation Prototyping	2	2020	4	2023
Cost Capability Analysis (CCA) with Force-on-Force Campaign Analysis (FCA)				
Determine CCA Needs	3	2017	4	2017
Pilot Single-Platform and Multi-Platform Concepts	4	2017	1	2019
Execute IMD Sufficiency Analysis for Single-platform Environment	2	2018	3	2018
Develop Additional Models and Scenarios in the FCA Environment	3	2018	4	2023
Execute IMD Sufficiency Analysis for FCA	2	2019	3	2023
Enterprise-wide Source Data Access				
Electronic Warfare Database Accessibility Enhancement Pilot Project	3	2017	2	2018
IMD Databases Content Management (CM) Application Programming Interfaces (APIs) Pilot	2	2018	2	2019
Support for CM APIs Wide Adoption	1	2019	4	2022
Other				
Acquisition Intelligence Workforce Training Course Development	2	2018	2	2019
Acquisition Intelligence Manpower Analysis/Assessment	2	2018	4	2018
Develop Dashboard for Intelligence Data Requirements and Production Planning	1	2018	1	2019